

**REPUBLIC OF CROATIA**  
**KRIŽEVCI UNIVERSITY OF APPLIED SCIENCES**

Danijel Topljak, student

**Raising awareness of climate change within the project**  
**"Smart Organic Food Initiative"**

Final paper

**Križevci, September 2024**

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**KRIŽEVCI UNIVERSITY OF APPLIED SCIENCES**

*Undergraduate professional study of Agriculture*

Danijel Topljak, student

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**"Smart Organic Food Initiative"**

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Committee for the defense and evaluation of the final thesis:

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**Križevci, September 2024**

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## **ABSTRACT**

Climate change represents one of the most important global problems today, manifesting itself through rising global temperatures, changes in weather patterns, melting glaciers and rising sea levels, so therefore has far-reaching consequences for the environment, economy and society. The aim of the final paper is to investigate the impact of the "Smart Organic Future Initiative" project on raising community awareness of the problem of climate change in the context of agriculture and sustainable development. Primary and secondary research methods were used in the work, which include data collection through a survey, processing, analysis and presentation of data in the time sequence of project activities.

Implemented project activities, which were designed to educate farmers and the population, encourage active participation in solving environmental problems and apply concrete measures to mitigate the impact of climate change through the application of ecological agriculture, speak in favor of successfully raising awareness about climate change in the context of smart ecological agriculture.

**Keywords: smart agriculture, ecological agriculture, development „Bottom-up“, raising awareness, climate change.**

## 1. INTRODUCTION

The subject of this final paper is the "Smart Organic Food Initiative" project, which promotes ecological and smart agriculture, and in general, "green" agricultural practices. The project aims to make a positive change in the area of the cities of Križevci and Travnik (Bosnia and Herzegovina). The aim of the final paper is to investigate the impact of the mentioned project on the awareness of climate change. Therefore, the purpose of the paper is to show what impact the project has on awareness of climate change in the context of the green transition. The project emphasizes the need to change food production methods. Conventional agriculture is unsustainable because it quickly depletes essential resources that have been „on reserve“ for a long time.

The topic of the paper closely follows the project activities in which the author of the paper participated during his professional practice. The greatest emphasis of the work is on raising awareness of climate change on the example of the local area of Križevci and its surroundings in the period from May 2023 to August 2024. Additionally, this paper analyzes the survey results, which are essential to the Climate Action Plan for Agriculture of the City of Križevci, a major outcome of the project. The survey was conducted on a small sample of agricultural producers from Križevci and the surrounding area on the topic of ecological agricultural practices. Therefore, the survey method was also used in the paper.

The project "Smart Organic Food Initiative" is important for the reason that it represents a pioneering undertaking, i.e. the effort of local actors to make a move towards a sustainable future. Ecological agriculture, digital solutions in agriculture and practices that lead to a green transition are important topics for today's society, whereas activities within the project include knowledge sharing, which is the basis of positive changes.

## **2. LITERATURE REVIEW**

This chapter will present the basic concepts used in the final paper. Primarily, the concept of climate change will be explained, followed by the green transition in the context of European policies aimed at mitigating climate change and, ultimately, the concept of development from below, which is visible in the example of the green transition of the city of Križevci.

### **2.1. Climate change**

Climate change is a pressing problem today and it is impossible to ignore numerous weather problems that are the main evidence of climate change.

In the last few decades, the global climate has changed significantly, which, in turn, has affected human society and nature. People are under the direct influence of climate change, which manifests itself primarily in changes in the weather, and changes in the quality of air, water and food. The impact of climate change and rising temperatures affects many human activities (Perić and Šverko Grdić, 2017).

The climate on Earth is a system that is constantly changing due to the influence of various natural factors such as solar and volcanic activity, as well as astronomical parameters. Over the last hundred years, the extensive increase in human activities has caused an additional, immediate effect on the climate. Climate changes caused by anthropogenic influence will be felt for a long time due to the great inertia of the climate system. The territory of Croatia is located in a wide transition zone of changes in the direction of trends in climatic variables. The continental part of Croatia has seasonal and annual changes similar to those in the eastern part of the Alps and the southern part of the Pannonian Plain. The northern part of the Croatian Adriatic coast shows changes similar to those in the lowland parts of the western part of the Alps and southern Europe. However, comparing the direction and intensity of temperature trends with those in Central Europe, there are no changes that could be attributed only to local anthropogenic influence (Zaninović and Gajić-Čapka, 2008).

### **2.2. Climate change awareness**

Consciousness is a state in which a person is aware of himself and his surroundings. Consciousness is a complex phenomenon that refers to the ability of perception, conscious thinking and subjective experiences. This ability allows the individual to be aware of himself, his surroundings, his thoughts and emotions. Consciousness is a key aspect of human cognition and personality.

Consciousness enables reflection and introspection, which means that a person can reflect on his thoughts, feelings and experiences. <sup>1</sup>

"The whole world is increasingly facing climate and environmental crises that threaten our survival. They affect all aspects of our lives, from physical and mental health to safe food and water supplies and economic security, affecting those who contributed least to the problem the most."<sup>2</sup>

### **2.3. Green transition**

Climate change and environmental pollution are a major threat to Europe and the rest of the world. The goal of the European Union is to implement a green transition and thereby "green" Europe and the rest of the world. The mission of the green transition is to strengthen concrete efforts for the transformation to a green economy, i.e. to transform it with more sustainable ways of production and consumption. The green transition draws attention to the need of the community and its individuals in terms of stimulating synergy to achieve a sustainable economy. This indicates the necessity of gradual changes in production methods to change the existing inefficient production which is not sustainable in the long term nor is it by the needs of the community and nature. The European Union, through its efforts, numerous projects and initiatives, shows an interest in the implementation of policies aimed at solving the problem of climate change. The newer program is known as the European Green Plan (Per Slanac, 2022).

The green transition is becoming an increasingly important topic in the world, and the European Union is among the leading actors in the fight against climate change and environmental protection. To ensure a sustainable future, the EU launched an initiative to finance the green transition through its funds, the aim of which is to encourage member countries to adapt to the new requirements of sustainable development and reduce greenhouse gas emissions. In this context, there is an increasing emphasis on investing in sustainable and clean technologies, smart cities, sustainable agriculture and fisheries, and biodiversity protection. Financing these initiatives through EU funds will not only help protect the environment and fight against climate change, but will also help create new jobs and increase the competitiveness of the European economy in the world (Jurlina, 2023).

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<sup>1</sup> <https://hitnapomoc.net/sto-je-svijest/>

<sup>2</sup> <https://www.hck.hr/novosti/moramo-utjecati-na-razvoj-svijesti-o-klimatskim-promjenama-i-njihovu-utjecaju-na-svakodnevni-zivot/11180>

## **2.4. Development from below**

In the local community of Križevci in the last few years, the phenomenon of development from below has been visible, citizens are organizing themselves and carrying out activities important for the development of the city. Development „Bottom-up“ is most visible through projects, and the most famous project is the "Križevci sunroofs" in which citizens became investors during the construction of solar power plants on two public buildings in Križevci. The current project in which citizens actively participate is the "Smart Organic Future Initiative".

The terms "Bottom-up" and "Top-down" became widely used in the early 1990s. Development „Top-down“ is characterized by large state infrastructure projects, that implies state intervention in rural development. The top-down approach is criticized because it depends on external investment; external investors want a return on their investment, so the profit created through new jobs is exported from the locality instead of staying in the local economy. In addition, the top-down approach can cause a democratic deficit, citizen participation is limited, which may mean that the local population did not want the development that was invested in and the jobs that were created. The aforementioned criticisms of this approach create the risk of corruption and the financing of futile projects (Woods, 2020).

In recent times, the biggest change is certainly the change from a top-down approach to a bottom-up approach, the realization that the development of rural areas cannot be dictated from high institutional positions, but that it should be the result of local action (Ruganec and Bokan, 2021).

Awareness of climate change is very important and is developing in parallel with the green transition as a necessary prerequisite for a sustainable future. A key factor in raising awareness about climate change is development from below, as observed in the example of Križevci and its surroundings. The aforementioned phenomenon of development from below implies the action of citizens who, from their perspective, know best what problems need to be solved in the local community.

### 3. MATERIALS AND METHODS

Primary and secondary sources of data were used in the work. Primary sources of data come from the personal research archive of the author who collaborated on the project, such as own reports, seminars, experience working on the project, PowerPoint presentations on the project, report on professional practice, participation in the creation and implementation of the survey and the like.

Secondary sources of data come from project activities and available documents of the "Smart Organic Future Initiative" project (hereinafter: Project SOFI).<sup>3</sup> The results of project activities and their practical application are presented. Additionally, all transparent web sources, articles, photos, reports of organizers and project managers, media representatives, and working materials of the Climate Action Plan for Agriculture of the City of Križevci were used to write the paper.

Furthermore, the paper presents and analyzes the research results that form part of the Climate Action Plan for Agriculture of the City of Križevci. The research was conducted on a smaller sample of agricultural producers from Križevci and the surrounding area on the topic of ecological agricultural practices. The research was based on a Google form survey or a structured interview, depending on the availability of respondents.

The research was conducted during July 2024 on a convenient sample of agricultural producers from Križevci and its surroundings on aspects of agricultural production and affinity towards ecological agricultural production. The research was based on the following sets of questions:

- Basic data on the agricultural economy
- Basic data on agricultural production
- Implementation of climatic and environmental measures on the agricultural holding
- Positions on current climate changes and climate change implementation measures.

A total of 16 farms from the town of Križevci and its surroundings were investigated.

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<sup>3</sup> <https://www.vguk.hr/hr/2061/Smart+Organic+Food+Initiative%3A+SOFI+%2801.12.2022.-31.03.2025.%29>

## 4. RESEARCH RESULTS

This chapter will present basic information about the Project SOFI and partners, as well as the main project activities: Green Education Program, Eco Festival and Climate Action Plan for Agriculture of the City of Križevci with an emphasis on carbon sequestration and the results of research conducted on a sample of agricultural producers.

### 4.1. General information about the Project SOFI

The Project SOFI will start its implementation in December 2022. The project holder is the Križevci University of Applied Sciences and the project partners are the Association for Economy of Communion (AEC), the Center for Lifelong Learning (CLL) and the Starkmacher Association. The project is implemented within the framework of the European Climate Initiative (EUKI), which finances climate protection projects throughout the European Union on behalf of the Federal Ministry for Economic Affairs and Climate Action (BMWK) from Germany. The project is supported by the towns of Križevci and Travnik and the Hochschule within the Rhein-Waal University of Applied Sciences (Kleve, Germany).<sup>4</sup>

Picture 1. shows the trademark of the "Smart Organic Future Initiative"



Picture 1. Trademark of the "Smart Organic Future Initiative"

Source: <https://www.uez.hr/2023/01/sofi-inicijativa-za-ekolosku-pametnu-poljoprivredu/>

The Project SOFI in the local community of the town of Križevci wants to further encourage the effort to achieve the highest level of climate neutrality by 2030.

Given that the town of Križevci has been an excellent example of energy transition in recent years, this project is a great follow-up by initiating green transitions, i.e. the transition of agriculture. The transition of agriculture is important because the people of Križevci are surrounded by a rural area where numerous agricultural families live on family farms.

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<sup>4</sup> <https://www.vguk.hr/hr/2061/Smart+Organic+Food+Initiative%3A+SOFI+%2801.12.2022.-31.03.2025.%29>

The target groups that the Project SOFI aims to reach are:

1. agricultural producers (small farmers, owners of agricultural land and students of agriculture),
2. consumers,
3. municipalities and stakeholders

The main activities of the project are the creation of the Green Educational Program, Climate Action Plan for Agriculture of the City of Križevci and Travnik, and the holding of 2 eco-festivals in Križevci and Travnik.

Picture 2. contains key information about the Project SOFI: target groups, key activities, the main goal of the project, areas of activity and main area of interest.

**SOFI – Smart Organic Food Initiative**  
SOFI - Inicijativa za ekološku pametnu poljoprivredu

**Područja djelovanja:**

- Hrvatska
- Bosna i Hercegovina
- Njemačka

**Glavni cilj:**

- podizanje svijesti o potencijalu ekološke pametne poljoprivrede za ublažavanje negativnog utjecaja na klimatske promjene

**Glavne aktivnosti su kreiranje:**

- zelenog obrazovnog programa
- klimatskih akcijskih planova
- platforme za umrežavanje
- EcoFeria festivala

**Glavno područje interesa:**

- edukacija svih dionika u poljoprivredi: proizvođača, potrošača i općina

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LinkedIn: [peter-fabjan](https://www.linkedin.com/company/peter-fabjan)

Picture 2. Key informations about the Project SOFI

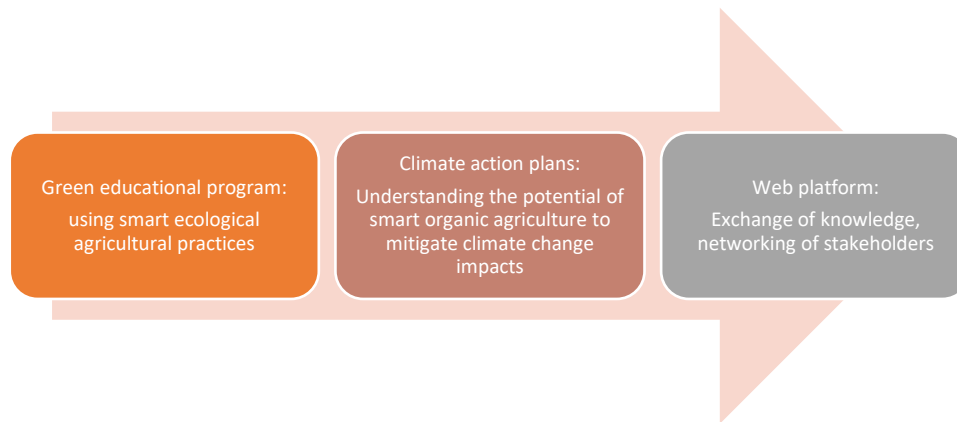
Source: <https://www.uez.hr/2023/01/sofi-inicijativa-za-ekolosku-pametnu-poljoprivredu/>

#### 4.2. „Smart Organic Food Initiative“ project activities

The following chapter will present the main activities of the Project SOFI, which include a significant number of farmers, consumers, representatives of the academic community, representatives of local self-government and other important stakeholders. The role of project activities is to achieve the main goal of the project - raising awareness of the potential of smart ecological agriculture to mitigate the negative impact on climate change.

Chart 1. below shows the 3 main activities of the project and explains their planned outcomes, i.e. results.

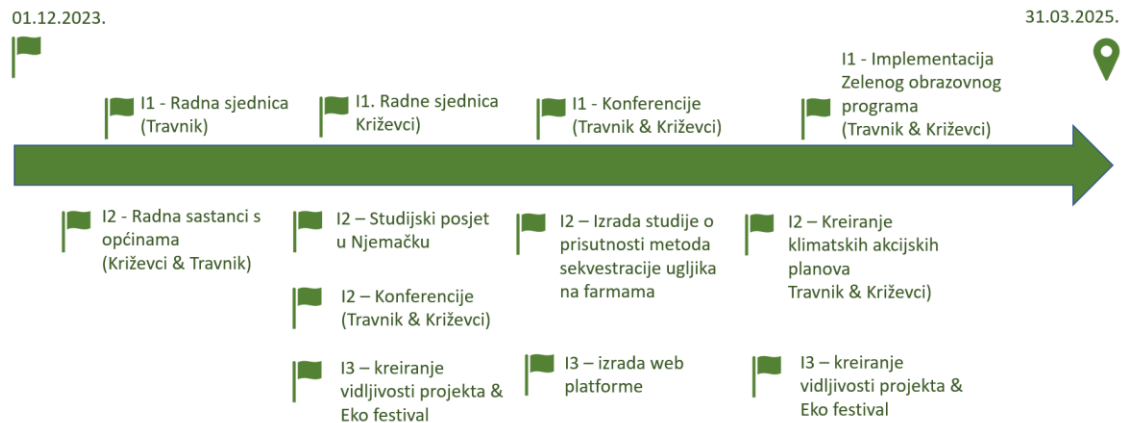
Chart 1. Main activities of the project



#### 4.3. Timeline of project activities

In the continuation of the work, timeline 1 shows the course of the project from December 1, 2022, to March 31, 2025. This timeline shows how the working sessions of the project partners will be held in Križevci and Travnik, including the conferences. Working meetings will be held with representatives of the local self-government in Križevci and Travnik, in addition, in a relatively early phase, efforts are being made to create visibility for the project and to hold the first eco festival, which was successfully implemented. From the timeline, it is also visible that at the very end of the project, they strive to complete the project activities - the creation of Climate Action Plan for Agriculture of the City of Križevci and for the City of Travnik as well as the implementation of the Green Education Program. In addition, earlier in the project, research will be conducted on the presence of carbon sequestration methods on farms, while the web platform [sofi4agri.com](https://sofi4agri.com) will be created and established.

Chart 2. The course of the Project SOFI



Source: <https://www.uez.hr/2023/01/sofi-inicijativa-za-ekolosku-pametnu-poljoprivredu/>

The project's activities aim to reach the ultimate goal, which is to raise the awareness of agricultural stakeholders (Križevci and Travnik) about the impact of agricultural practices on climate change, that is, the potential of smart organic agricultural practices to mitigate their negative impact. (Association for the Community Economy, 2023)

Picture 11. below shows the project team in conversation with representatives of the local government of Travnik and farmers from Guča Gora and Han Bila. A working session and conference "Smart ecological agriculture" was held in Travnik in March 2023.



Picture 11. Project team in Travnik (BiH)

Source:

<https://www.vguk.hr/hr/2142/Aktivnosti+na+projektu+SOFI+%28Smart+Organic+Food+Innitiative%29>

#### 4.4. Creation of the Green Educational Program

The Green Education Program (GEP) is a lifelong learning program implemented by the Križevci University of Applied Sciences (KUAS). Through the educational program, they

strive to support all those who want to establish their ecological properties in an environmentally and economically sustainable way, especially farmers, landowners and students. Teaching contents were conducted in the form of theoretical, practical, field and hybrid teaching in the period from March to June 2024.

The green educational program consists of 40 teaching hours, with 30% devoted to theory and 70% to practice. GEP is implemented through modules containing the following contents:

- soft skills 5%<sup>5</sup>
- basics of ecological production 45%
- business/economy 50%

This concept of the program was presented at the conference "Be a part of the Green Education Program", held on March 19, 2024.

Picture 8. below shows the people gathered at the conference "Be a part of the Green Education Program" held in the large lecture hall of the University in Ratarna.



Picture 8. Participants of the "Be part of the Green Education Program" conference

Source:

<https://www.vguk.hr/hr/2514/Konferencija%3A+Budi+dio+Zelenog+obrazovnog+programa%21>

Practical and theoretical classes in which agricultural and economic knowledge were combined with an emphasis on the context of climate change were attended by 13 participants. On the last day of the Green Education Program, June 20, 2024, participants presented their entrepreneurial

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<sup>5</sup> <https://www.libertas.hr/en/news/sto-su-meke-i-tvrde-vjestine-i-kako-ti-mogu-pomoci-u-buducjoj-karijeri/>

ideas through the CANVAS<sup>6</sup> business model, which they worked on in groups, after which they were presented with certificates of completion of the lifelong education program. The project managers are delighted with the innovative approach of the young participants and hope to see the realization of at least some business ideas.

The curriculum of the Green Education Program is presented chronologically below:

### **April 2, 2024**

The role of ecological agriculture in mitigating climate change and soil degradation, *lecturer: Ph.D. Ivka Kvaternjak*

A measure to combat climate change - conservation agriculture, *lecturers: Ph.D. Ivka Kvaternjak, Iva Rojnica, mag. ing. agr.*

Practical classes on the grounds of the University of Applied Sciences in Križevci, *lecturer: Ph.D. Ivka Kvaternjak, Iva Rojnica, mag. ing. agr.*

### **April 15, 2024**

European Agricultural Fund for Rural Development (online lecture), *lecturer: Ph.D. Kristina Svržnjak*

Ecological seeds and resistance of old varieties, *lecturers: Sunčana Pešak, B.Sc., Jasminka Iličić (Family farm Biomara)*

Practical classes at Family farm BIOMARA, *lecturer: Jasminka Iličić*

### **May 7, 2024.**

Soft skills (SOFT skills), *lecturers: Dijana Fabjan, Peter Fabjan (Association for Community Economy)*

Business planning - CANVAS business model, *lecturers: Amra Kraksner, Ph.D. Silviije Jerčinović*

### **June 3, 2024**

Creating a business plan (online lecture), *lecturer: Ph.D. Silviije Jerčinović, Amra Kraksner*

### **June 8, 2024**

Business planning - CANVAS business model - presentation of participants' ideas, *committee for evaluating business plans: Ph.D. Silviije Jerčinović, Ph.D. Kristina Svržnjak, Ph.D. Sandra Kantar.*

Picture 8. below shows participants presenting their business plans.

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<sup>6</sup> <https://crownproject.biz/business-model-canvas-alat-koji-vasu-ideju-dovodi-do-realizacije/>



Picture 8. Participants of the program presenting their business plans  
Source: <https://www.vguk.hr/hr/2590/ZELENI+OBRAZOVNI+PROGRAM>

#### **4.5 Climate Action Plan for Agriculture of the City of Križevci and Travnik**

As part of the Project SOFI, the first local Climate Action Plan for Agriculture in Croatia will be created, in which the main focus will be on agriculture. The implementation of the climate plan requires the involvement of all stakeholders: citizens, farmers, private and public sector, decision-makers at the local, regional and national level. The measures should be adapted to the estimated needs, implementation possibilities and available capacities. Adapting to climate change incurs significant costs, but it is expected to yield positive financial outcomes or greatly diminish negative impacts, particularly if adaptation measures are implemented promptly. In addition to the City of Križevci, a Climate Action Plan for Agriculture of the City of Križevci will also be developed for the City of Travnik (Bosnia and Herzegovina). The first part of the plan for Križevci follows an overview of the agricultural sector in the Republic of Croatia, with an emphasis on the town of Križevci and its surroundings. This provides a clearer view of agriculture's state, the most commonly cultivated crops, the areas of arable land, the number of farms, and the condition of ecological farming in the city. The first part of the plan includes an overview of carbon sequestration as a method of storing carbon in various soil layers. The second part refers to risks and vulnerabilities to climate change in the City of Križevci through an overview of the state of the climate in the Republic of Croatia and the City of Križevci, climate problems and effects. Measures included in the plan are:

- a holistic approach to soil protection and improvement
- optimization of land use
- solving livestock diseases
- use of the best technology
- increasing productivity
- turning waste into a resource
- protection and restoration of biodiversity

The goal of these measures should be to ensure that by 2030 most farmers know the nutritional value of their soil and apply the best practices in the management and application of nutrients, that is, that by 2050 Križevci family farms fully use precision agriculture technology to produce sustainable, healthy, nutritious and high-quality food, while providing a significant contribution to the reduction of greenhouse gas emissions and climate protection. (Climate Action Plan for Agriculture of the City of Križevci, 2024)

#### **4.6. Eco Festival**

In addition to the Climate Action Plan for Agriculture of the City of Križevci and Travnik and the implementation of the ZOP, one of the main activities of the project is the organization of an eco festival. The first Eco Festival was held in September 2023 and brought together numerous experts from the fields of agriculture, energy, rural development, sustainable development, etc.

During the duration of the Eco-Festival (September 15-17, 2023), numerous lectures, panels and workshops were held. Most of the activities were held in the center of Mariapoli Faro with a visit to OPG Biomara, which deals with biodynamic agriculture. In addition to the festival, there was also an eco fair and a concert by the duo Objem, consisting of Darko Rundek and Ana Kovačević.

Picture 10. below shows the program of the eco festival.



CENTAR MARIAPOLI FARO, F. RAČKOVOG 32, KRIŽEVCI



KONFERENCIJE

PREDAVANJA

RADIONICE

FILMSKA PROJEKCIJA

KONCERT



**PET 15.9.**

10.00 - 10.15 PREDSTAVLJANJE PROJEKTA SOFI: Peter Fabjan - Udruga za ekonomiju zajedništva

10.15 - 11.00 PREDAVANJE 1

**KAKVA GOSPODARSTVA OSTAVLJAMO SLJEDEĆIM GENERACIJAMA POLJOPRIVREDNIKA?**

Alma Zečević - Udruga za ekonomiju zajedništva

**SADAŠNOST I BUDUĆNOST POLJOPRIVREDE: MOŽEMO LI ŠTO NAUČITI IZ BIBLIJE?**

Đurica Pardon - Hrvatsko katoličko sveučilište, Zagreb

11.00 - 12.00 PANEL 1

**BOGATSTVO SAMODOSTATNOSTI**

panelisti: Lucie Evers - Obrt za edukaciju i savjetovanje LUDI  
Robert Pašičko - United Nations Development Programme  
Zeljka Iličić - OPG Biomara  
voditelj panela: Petar Fabjan - Udruga za ekonomiju zajedništva

12.00 - 12.45 PANEL 2

**AGROTURIZAM - BUDUĆNOST TURISTIČKE PONUDE HRVATSKE I REGIJE**

panelisti: Aleksandra Kuratko-Pani - Udruga ruralnog turizma Hrvatske  
Jasmina Rakić Horvat - OPG Rakić  
Kristina Sočev - Turistička zajednica Koprivničko-križevačke županije  
Amra Livnjak - Središte za cjeloživotno učenje, Travnik  
voditeljica panela: Kristina Svrznjak - Veleučilište u Križevcima

12.45 - 13.45 PANEL 3

**ZAŠTO JE PROMOCIJA U POLJOPRIVREDI SPOREDNA AKTIVNOST?**

panelisti: Ivica Babojelić - OPG Babojelić  
Anamarija Koprčić - Inicijativa Zdravo Križevci  
Siniša Fabijanec - Udruga Ekoplod  
voditelj panela: Silvije Jerčinović - Veleučilište u Križevcima



**EKO festival**  
KRIŽEVCI 15.-17.9.2023.

14.00 RADIONICA 1

**POSJET OPG BIOMARA**

voditeljica radionice: Jasminka Iličić - OPG Biomara

RADIONICA 2

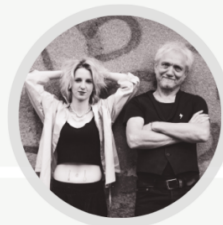
**LOKALNI GASTRO DOŽIVLJAJI NA OPG BIOMARA**

voditelj radionice: Mišel Doskočil, chef

GLAZBU SELEKTIRA

**SAFEHOUSE CREW - GOOD VIBES ONLY**

SUB 16.9.		15.00 - 16.30	
PROGRAM	10.00 - 11.30	<b>PREDAVANJE 1</b> <b>PROBLEMI I PERSPEKTIVE ODRŽIVOG GOSPODARENJA</b> <i>Predstavljanje metoda održivih poljoprivrednih praksi sa izazovima i rješenjima</i> BILJNA PROIZVODNJA: Jasminka Ilić - OPG Biomara Fabijan Tomić - Poljoprivredni proizvođač - Udruga Naša Zemlja, Travnik STOČARSKA PROIZVODNJA: Bruno Tariba - Agronomski fakultet, Zagreb Hrvatski centar regenerativne poljoprivrede Marko Janković - Služba za razvoj, privredu i vanprivredu Općine Travnik PČELARSTVO: Dino Haračić - Središte za cjeloživotno učenje, Travnik	RADIONICA 1 <b>GOSPODARENJE OTPADOM U KRIŽEVcima</b> <i>Komunalno poduzeće Križevci</i> <b>SUSTAV GOSPODARENJA OTPADOM U KRIŽEVcima</b> <b>EKO ŠTAFETA</b> <b>MEMORY I RAZNE IGRE ZA DJECU</b> voditeljica radionice: Dijana Mijač-Dretar <b>EKO KOŠARKA</b> voditeljica radionice: Nikolina Stipić
	11.30 - 12.15	<b>PANEL 1</b> <b>POLJOPRIVREDNA MEHANIZACIJA KONZERVACIJSKE OBRABE</b> panelist: Danijel Jug - Fakultet agrobiotehničkih znanosti, Osijek Vlado Kušec - Veleučilište u Križevcima voditeljica panela: Iva Rojnica - Veleučilište u Križevcima	16.30 - 18.00 RADIONICA 2 <b>SADNJA I SIJANJE CVJETNICA</b> voditeljica radionice: Dijana Fabjan - UEZ
	12.30 - 13.15	<b>PANEL 2</b> <b>ZADRUGARSTVO KAO SIGURAN POSLOVNI MODEL</b> panelist: Tomislav Haršanjić - zadruga Naš lješnjak Ana Teskera - BEOG zadruga pivovara Sanela Mikulčić Šantić - Energetska zadruga KLIK voditeljica panela: Alma Zečević - Udruga za ekonomiju zajedništva	15.00 - 18.00 <b>EKO SAJAM</b>
	14.15 - 15.00	<b>PANEL 3</b> <b>AGROSOLARSTVO I DIGITALIZACIJA</b> panelist: Goran Jurišić - Grid One d.o.o Igor Frijužec - DigitalAgro - Agrigentum d.o.o Sanela Mikulčić Šantić - Energetska zadruga KLIK Sergej Lugović - Vesela motika d.o.o voditelj panela: Martin Topljak - Udruga za ekonomiju zajedništva	19.00 <b>KONCERT</b> <b>DUO "OBJEM"</b> Ana Kovačević Darko Rundek
<b>NED 17.9.</b>		<b>14.00 - 15.15</b>	
PROGRAM	10.00 - 10.45	<b>PANEL 1</b> <b>ZNAČAJ BIORAZNOLIKOSTI U AGROEKOSUSTAVU</b> <i>Video "Bioraznolikost i stabilnost agroeko sustava" - OPG Bogdan Šujica</i> panelist: Sunčana Pešak - Hrvatski savez ekoloških proizvođača Silvija Kolar-Fodor - Udruga Biovrt Renata Erhatic - Veleučilište u Križevcima voditelj panela: Siniša Srećec - Veleučilište u Križevcima	RADIONICA 1 <b>IZRADA KUĆICA ZA INSEKTE</b> voditeljica radionice: Dijana Fabjan - UEZ
	11.00 - 11.30	<b>PREDAVANJE 1</b> <b>ULOGA ORGANSKE TVARI U TLU</b> Iva Kvaternjak - Veleučilište u Križevcima	<b>11.30 - 13.00</b> FILMSKA PROJEKCIJA <b>"THE LETTER"</b> dijalog o enciklici <i>Laudato si</i>



Picture 10. Program of the Eco Festival

Source: <https://www.uez.hr/2023/08/eko-festival-u-križevcima/>

The next edition of the eco festival will be held from October 4 to 6, 2024. Like last year, the organizers will try to bring numerous experts from different fields, and they will certainly present the results of the activities carried out so far.

## 4.7. PROJECT PARTNERS

### 4.7.1. Križevci University of Applied Sciences

Križevci University of Applied Sciences was founded on November 19, 1860, as the Royal College of Economics and Forestry and the University is considered the oldest agricultural and forestry college in Southeastern Europe. The first expert stations and scientific institutes in the field of agriculture were established in the University at that time, the first textbooks in the Croatian language were written and published and the first magazine in the field of agriculture in our area was launched. The establishment of the school economy, which consisted of arable fields, gardens, meadows, orchards, vineyards, hop fields, forests and organized livestock production, was a basic prerequisite for conducting quality practical classes, but also for conducting professional and scientific experiments. The University

changed several names over the years, and in 1998 it was officially founded in its current form as an independent public higher education institution or college.<sup>7</sup>

The rich history and the numerous experts and scientists who have come from this organization are the greatest pride of the institution, a tradition like this of the Križevci University of Applied Sciences is truly a rare feature.

Picture 3. shows the logo of the Križevci University of Applied Sciences.



Picture 3. University logo  
Source: <https://www.vguk.hr/>

The Križevci University of Applied Sciences is today a public and independent higher education institution that educates experts in the biotechnical (field of agriculture) and social (field of economics) scientific fields. The mission of the KUAS is to prepare students for the future challenges of sustainable development of agricultural and food systems and rural areas and a competitive labor market. With lifelong learning programs, applied research and service activities, it wants to contribute to the sustainable development of Croatian agriculture, rural areas and society as a whole. The vision of the University in Križevci is to be a center of professional higher education, lifelong learning and applied research in the agricultural-food and related fields, and to be internationally recognized for high-quality standards in education and applied research.<sup>8</sup> Table 1. shows the basic values of the University in Križevci.

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<sup>7</sup> <https://www.vguk.hr/hr/group/6/O+nama>

<sup>8</sup> The following experts from the Križevci University of Applied Sciences participate in the project: Ph.D. Sandra Kantar, Ph.D. Kristina Svržnjak, Ph.D. Silvije Jerčinović and Iva Rojnica, mag. ing. agr. (instead of Dr. Dijana Horvat)

Table 1. Basic values of the Križevci University of Applied Sciences

<b>VALUE</b>	<b>DESCRIPTION</b>
<b>Responsibility</b>	KUAS assumes full responsibility for the quality of all its activities.
<b>Visibility</b>	Activity of KUAS needs to be transparent, public and subject to external assessment and judgment.
<b>Protection of public interests</b>	Quality and standards of KUAS activities need to be in function of preservation and advancement of public interest.
<b>Justification of public expectations and invested funds</b>	KUAS needs to develop procedures through which it will prove its responsibility, including its responsibility for invested public funds
<b>Culture of quality</b>	KUAS needs to nurture the culture of quality and encourage vivid discussion about its own activity and development
<b>Efficient organisation of work</b>	KUAS needs to advance organisational approaches and human capacities that guarantee high level of quality
<b>Satisfying the users' needs</b>	quality of academic programmes needs to be developed and continuously improved for the benefit of the users of higher education, primarily students
<b>Objectivity</b>	KUAS needs to objectively prove its quality at home and abroad
<b>Encouraging creativity and innovativeness</b>	processes, procedures and formal requests used may not suppress innovativeness and differences
<b>Inclusiveness</b>	KUAS must provide equal opportunities for advancement to all members of vulnerable and underrepresented groups
<b>Contribution to the development of the social community</b>	KUAS must contribute to the development of the Croatian economy and society as a whole through its activities

Source: <https://www.vguk.hr/hr/11/1.+Misija+i+vizija>

The University's involvement in the Project SOFI greatly enhances its value. The enthusiastic experts from the KUAS bring their expertise to the project, believing that initiatives like this can lead to positive changes and have a significant impact on society as a whole. By analyzing the basic values of the KUAS, it can be concluded that the Project SOFI corresponds to certain values, especially the value of "Contribution to the development of the social community". In this way, the KUAS acts in the local community "outside the classroom" through concrete activities.

The following experts from the University of Applied Sciences in Križevci participate in the project: Ph.D. Sandra Kantar, Ph.D. Kristina Svržnjak, Ph.D. Silvije Jerčinović and Iva Rojnica, Bacc. (instead of Ph.D. Dijana Horvat)

#### **4.7.2. Association for Economy of Communion**

The Association for Economy of Communion (AEC) represents a movement of entrepreneurs, professors, workers, students, researchers and activists oriented towards the common good and integral development of the person and society and gathers members from all over Croatia who share a common vision of creating a fairer society.<sup>9</sup>

The sharing economy is a global movement that offers a lifestyle that values gratuity and the culture of giving as a counterweight to today's consumer culture. The largest network of the sharing economy is made up of companies, more than 700 of them. Interestingly, the companies of the sharing economy have aroused interest on a scientific level and in general in the concept of the sharing economy.

The Association for Economy of Communion from Križevci started its work in 1991. It works especially with young people because it wants to convey to them the value of community and the culture of giving, which is a phenomenon in today's consumer world. The president of AEC is Peter Fabjan, and the association's headquarters are located at Franje Račkog Street 26, Križevci, near the Greek Catholic Cathedral of the Holy Trinity and the Mariapoli Faro center. Picture 4. shows the trademark of the Association for Economy of Communion.

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<sup>9</sup> <https://www.uez.hr/o-nama/>



Picture 4. Trademark of the association

Source: <https://www.uez.hr/>

The Economy of Communion was started by Chiara Lubich in May 1991 in Sao Paulo (Brazil) with the aim of building and demonstrating a human society in which no one will be in need, following the example of the first Christian community in Jerusalem. The bearers of community economy activities are companies that freely undertake: 1. to give profit to the community by earmarking it for helping people with basic needs, by creating new jobs and starting development projects, starting with those who share the spirit of the project, 2. spreading the culture of giving and reciprocity, without which it is not possible to realize the economy of community, 3. the development of the company, because while opening up to gratuity, it must remain efficient and competitive.<sup>10</sup>

Taking into account the fundamental value of AEC- the creation of a fairer society - it is important to mention that the Project SOFI fully corresponds to this noble goal. Educating the most important stakeholders about the need to introduce smart and ecological agriculture, including consumers, is a valuable concept and the first step towards achieving the goal of agricultural sustainability.<sup>11</sup>

#### **4.7.3. Center for Lifelong Learning from Travnik (Bosnia and Herzegovina)**

CLL is a non-governmental organization founded in 2015 in Travnik, and the president has been Anto Bilić from the very beginning. The mission of CLL is the quality education of the participants, the ultimate goal of which is employment or self-employment, the development of small and medium-sized enterprises. So far, CLL has implemented numerous activities and initiatives related to lifelong learning. The education they organize follows the Development Strategy of the Municipality of Travnik and the Canton of Central Bosnia and covers the latest professional and technological trends. Over the past years, CLL has intensively implemented educational programs in the fields of information technology (IT), foreign languages, informatics and computing, digital marketing and entrepreneurship.<sup>12</sup>

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<sup>10</sup> <https://www.uez.hr/povijest/>

<sup>11</sup> Peter and Dijana Fabjan and Alma Zečević, mag.ing.agr., participated in the project. (CLL)

<sup>12</sup> <https://scu-bih.ba/o-nama/>

CLL has its own space of 440 m<sup>2</sup>, and its geographical location in the heart of Bosnia and Herzegovina makes it an excellent subject for organizing various events such as workshops, seminars, conferences and so forth. In March 2023, a working session was held in the CLL premises as part of the Project SOFI. CLL's external associate is Amra Kraksner - head of the Vitez University Institute from Bosnia and Herzegovina.

Picture 5. below shows the Lifelong Learning Center trademark.



Picture 5. Trademark of the center

Source: <https://scu-bih.ba/>

#### 4.7.4. Starkmacher Association

The Starkmacher Association is headquartered in the German City of Mannheim, but through its Starkmacher Impact activity, it cooperates with partners from different countries around the world. The mission of the Starkmacher Association is to strengthen the global south and promote social-ecological transformation, which is also the goal of the Project SOFI. With its projects in Argentina, Egypt, Brazil, Jordan, Kenya and the Philippines, Starkmacher relies on the Impact3 principle<sup>13</sup>: ecological change for social progress and successful investments as a bridge between investors and local communities.

In recent years, the association Starkmacher has successfully implemented educational and development projects, and in 2019, the association founded the independent company Starkmacher Impact GmbH in order to be able to implement ecologically and socially oriented projects and strengthen local entrepreneurship in a sustainable way.

The projects of the Starkmacher Association are inspired by the UN Sustainable Development Goals, and the association is therefore focused on green energy, solutions that have a positive effect on the environment and society.<sup>14</sup> The representative of the Starkmacher Association is Christian Rosser.

Picture 6. below shows the concept of the work of the Starkmacher Association.

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<sup>13</sup> Impact 3 is a concept that, in addition to the economy, aims to have a positive effect on people and the environment.

<sup>14</sup> <https://www.starkmacherimpact.co/>



Picture 6. Concept of the work of the Starkmacher Association

As the Starkmacher Association emphasizes in its very mission that it is not focused exclusively on profit, but also on the environment and society, it should be concluded that the Project SOFI is fully in line with their goals. The numerous experts brought together by Starkmacher certainly share a passion for the values advocated by the "Smart organic food initiative".<sup>15</sup>

#### 4.7.5. Associated partner Family farm Biomara as an example of good practice

In addition to the mentioned project partners, an exceptional partner to the project in the practical and scientific sense is Family farm Biomara (pictures 12 and 13) from the vicinity of Križevci, which practices biodynamic agriculture. Biodynamics is a form of agriculture that goes beyond the cultivation of crops without pesticides, is connected with the inner development of man and is at the service of the earth and humanity. Biodynamics is a holistic, ecological and ethical approach to agriculture, gardening, food and nutrition in which vitality has the highest priority. Biodynamic principles and practices are based on the spiritual insights and practical suggestions of Dr. Rudolf Steiner and were developed through the collaboration of many farmers, researchers and scientists in the early 1920s. (Dr. Rudolf Steiner Center, 2023). Family farm Biomara was founded in 2007 by the spouses Jasminka and Željko Iličić, and from the very beginning, the business has been completely ecological because Family farm's primary goal is the production of healthy food in a sustainable manner. Since 2010, the farm has become biodynamic, thanks to their mentor, Australian Alex Podolinski, a world-renowned pioneer of biodynamics and an expert who taught them biodynamic agricultural practices. Mrs. Iličić describes biodynamics very well: *"Biodynamics itself is actually 70% of good agricultural practice that we need in any form of agriculture, conventional, ecological or otherwise. In addition, biodynamics makes up 20% of practices related exclusively to ecological agriculture, while only 10% of our practice is the application of the biodynamic method, which*

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<sup>15</sup> The representative of the Starkmacher association is Christian Rosser.

*is applied in the form of using biodynamic preparations and following the sowing calendar." The farm is located near the village of St. Petar Čvrstec, 6 ha in size, of which 2 ha are cultivated with blackberries, while the rest of the area is used for the production of vegetables, and to a lesser extent fruit.*<sup>16</sup>



Picture 12. Jasminka and Željko Iličić (left)



Picture 13. Trademark of OPG Biomara (right)

Source: <https://growtovchani.com/o-nama>

#### **4.8. The main goal of the "Smart Organic Future Initiative" project**

The main goal of the Project SOFI is to raise awareness of the potential of smart ecological agriculture to mitigate the negative impact of climate change.

The transition to smart and ecological agriculture is exactly what the local community of the City of Križevci lacks, along with the already present goal of achieving energy independence by 2030. It is known that it is not possible to achieve climate neutrality if food production is not organized in such a way as to produce ecological and healthy products with the introduction of short food supply chains.

Raising awareness of the potential of smart, i.e. ecological agriculture, includes the creation of social capital consisting of knowledge, skills and motivation for engaging in ecological agriculture and the implementation of smart solutions in agricultural processes. The created social capital will be reflected in an increase in the number of individuals ready to accept and introduce changes in the direction of agricultural transition. Education, knowledge and expertise are the basics of using modern technologies that are an integral part of modern business, i.e. smart agriculture.

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<sup>16</sup> <https://growtovchani.com/proizvodac/opg-biomara>

The concept of smart agriculture is becoming more and more important nowadays and implies the application of advanced technologies and innovations in agricultural production. One of the key elements of smart agriculture is the use of technology to collect, analyze and interpret data to make decisions about operations on the farm. Using sensors to monitor soil moisture, temperature and nutrients allows farmers to precisely manage resources such as water and fertilizer. This technology enables optimal use of resources, which reduces waste and negative impact on the environment. Pesticides have long been an integral part of conventional agricultural practice, but increasing emphasis on environmental protection and human health is encouraging the development of alternative farming methods. Accordingly, smart agriculture brings innovations such as vertical farming, hydroponic and aquaponic systems, which enable the cultivation of plants without the need for traditional pesticides. (Makabi Agritech, 2023)<sup>17</sup> Smart agriculture enables precise monitoring of crop maturity and quality. This helps farmers to better plan the harvest time and make optimal use of the fruits. Through this approach, the amount of food waste caused by premature harvesting or poor storage is reduced. Smart agriculture is becoming a key driver of sustainable agricultural production in Croatia and around the world. The integration of technology, innovation and digital platforms enables farmers to achieve higher productivity with minimal impact on the environment.

Through smart agriculture, Croatia can create a better future for its farmers, consumers and the environment. (Makabi Agritech, 2023)

Organic production is a comprehensive management system of agricultural holdings and food production that unites the best practices regarding the environment and climate, a high level of biological diversity, the conservation of natural resources, the application of high standards of animal welfare and production standards that are in line with the demand of an increasing number of consumers for products produced using natural substances and processes. Adherence to high standards in the field of health, environment and animal welfare in the production of organic products is inherent in the high quality of these products. (Ministry of Agriculture, Forestry and Fisheries, 2023)<sup>18</sup>

It should be pointed out that the Project SOFI has a noble goal - to make producers, municipalities and consumers aware, i.e. all stakeholders of the food production chain, that the future lies in the practice of ecological agriculture and the use of innovative and modern solutions.

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<sup>17</sup> <https://www.makabi-agritech.hr/pametna-poljoprivreda-inovacije-koje-poticu-odrzivost/>

<sup>18</sup> <https://poljoprivreda.gov.hr/ekoloska/199>

#### **4.9. Survey of farmers' attitudes about ecological practices in agricultural production**

As part of the Project SOFI, it was investigated whether the sequestration method is used in agriculture. Given that practical research into the application of this method requires time that exceeds the project's time frame, a field survey of farmers' attitudes on environmental-ecological topics was undertaken, and the method of carbon sequestration in agriculture is covered from a theoretical aspect in the next sub-chapter.

A total of 16 farms from the town of Križevci and its surroundings were surveyed. Of the 16 surveyed farmers, as many as 10 are young. Most of the respondents were registered as Family farms (68.8%). In addition to Family farms, farms that are registered but not in the VAT system were also surveyed. Also, the survey was completed by two Self – sufficient Family farms. Half of the respondents have a high school diploma and four respondents have graduated from higher education or college.

One respondent only completed elementary school, while one completed a master's degree. Most (half) of the surveyed farms have 100% privately owned land. Three of the respondents use  $\frac{1}{4}$  of the land on lease from a private owner, and none of the respondents has state-owned land at their disposal.

Regarding the topic of organic production, three respondents are engaged in organic production (18.8%), and two are registered in the Register of Organic Producers. Out of a total of 16 respondents, agriculture is the only source of income for two, dominant (prevailing) for three, and a supplementary source of income for the others.

As for the standpoint on current climate changes and climate change adaptation measures, almost all respondents agree with the notable features of climate change in the last 30 years or so. Some of the most significant features are increasingly hot summers, uneven distribution of precipitation and increasingly frequent storms and hail. Furthermore, the respondents claim that the biggest problems in their business are the lack of precipitation and drought. Concerning the mentioned problem, some of the most important measures of adaptation of technology to climate change are the application of irrigation and a wider crop rotation (rotation of several crops). Likewise, it is extremely important to adapt the terms of agrotechnical measures to the new climatic conditions.

Regarding the topic of climate change, it is necessary to thoroughly justify the measures of adaptation to climate change. The fact is that climate change in the future will require some kind of adaptation of farmers and farms in terms of the implementation of certain measures and

activities to make their farms more resilient. The most common measure that farmers would implement on their farms is to direct cultivation to more durable varieties, then to direct to more durable plant species and grow intercrops. Increasing agricultural areas for their agricultural production and focusing on ecological production as a response to climate change are not considered too important or effective by the respondents, for now. Changing the cultivation area is not an acceptable option for them.

Regarding risk management measures on the agricultural farm to adapt to climate change, it can be noted that farmers believe that the risk should first be managed "from outside", and only then the risk should be managed within the framework of their farm. This is supported by, for example, timely information on climate change, the organization of a public system for the prevention of hail damage, public co-financing of insurance premiums, and the availability of favorable insurance policies for farmers. "Internal" risk management on the farm includes more frequent and better insurance of crops and property by the owner of the agricultural farm. Other aspects of risk management, such as the construction of public irrigation and drainage systems, and the prevention of damage from low temperatures are not considered key elements of risk management, although they may contribute to reducing the risk of disasters in agriculture and overall increasing the resilience of agriculture.

The research findings indicate that, while the sample of respondents may not be fully representative of the entire farming population, it is evident that farmers prioritize the profitability of agricultural production over environmental concerns. In this context, the sustainability of agricultural holdings lies more on the economic than on the ecological dimension of agriculture. However, taking into account the micro environment of the surroundings of Križevci, it can be concluded that the existing challenges in agricultural production can be solved within the framework of the current sustainable city development strategy.<sup>19</sup>

#### **4.10. Carbon sequestration in agriculture**

As the method of carbon sequestration in agriculture is closely related to the environmental-ecological approach to agriculture and is marked as a smart solution in agriculture, the importance of the mentioned method is explained in the continuation of the paper. For many years, scientists have been warning about the warming of the planet Earth, we all know the harmful effects of the greenhouse effect, which causes higher temperatures and

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<sup>19</sup> Climate Action Plan for the City of Križevci (working version)

stronger insolation. The greenhouse effect is a natural process that allows the Earth to retain part of the Sun's energy and thereby maintain a temperature suitable for life, without the greenhouse effect the Earth would be colder. However, the problem arises when human activities (burning of fossil fuels, deforestation, farming) cause a drastic increase in the concentration of greenhouse gases. This is exactly what leads to excessive warming, or the negative phenomenon we call global warming.<sup>20</sup>

Harmful consequences are not only reflected through the temperature rise, but also through the occurrence of extreme weather conditions such as storms, droughts, floods and heat waves, The effects of warming on human health are significant and changes are evident throughout the entire ecosystem. One of the solutions is recognized in the possibility of carbon sequestration in the soil and vegetation, which can be positively influenced through certain agrotechnical measures. Carbon sequestration is part of a natural process - the carbon cycle, by which plants absorb carbon dioxide from the atmosphere through photosynthesis and store it in the soil in the form of organic matter with the help of living soil organisms. Organic matter consists mostly of humus (85%), underground plant remains (10%) and living soil organisms (5%) (Znaor, 1996).

Carbon sequestration in agriculture (through photosynthesis) is one of the natural ways of sequestration. Therefore, it is necessary to understand the importance of this intervention and to give a chance to natural ways of reducing the negative effects of greenhouse gases. The main reasons for the importance of carbon sequestration in agriculture, in addition to reducing greenhouse gas emissions, are certainly: improving soil quality, increasing resistance to climate change, and reducing soil degradation and erosion. The fact that conservation tillage, agroforestry, cultivation of cover crops and practices such as composting are present in the process of carbon sequestration shows us that sequestration has a positive impact on the long-term sustainability of agricultural systems.<sup>21</sup>

In general, the types of carbon sequestration are divided into natural and artificial sequestration. Natural sequestration includes natural processes in ecosystems that bind carbon dioxide (CO<sub>2</sub>) for a long period of time, apart from photosynthesis, organic matter in the soil and

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<sup>20</sup> [https://climate.ec.europa.eu/climate-change/causes-climate-change\\_hr](https://climate.ec.europa.eu/climate-change/causes-climate-change_hr)

<sup>21</sup> <https://www.europarl.europa.eu/topics/hr/article/20231109STO09918/uklanjanje-ugljika-dodatna-mjera-za-postizanje-klimatske-neutralnosti>

microorganisms play a role in natural sequestration, besides which we also include the oceans, which absorb a large part of atmospheric CO<sub>2</sub>.

Artificial or technical sequestration includes; carbon capture and storage (Carbon Capture and Storage - CCS) and carbon capture from the air (Direct Air Capture - DAC). A carbon capture and storage system (CCS) is used in industrial plants such as thermal power plants, where carbon dioxide is captured at the source (before it leaves the stack), then transported through pipelines or ships and stored underground. Atmospheric carbon capture (DAC) is a technology that uses chemical processes to directly capture carbon dioxide from the atmosphere, the downside is that this method is extremely expensive.

Carbon sequestration plays a key role in reducing the total concentration of carbon dioxide in the atmosphere and can help stabilize climate conditions. The main goals are: mitigating climate change (reducing the amount of greenhouse gases helps reduce the greenhouse effect, thus stabilizing global temperatures), achieving climate goals (States and industries use sequestration to achieve emission reduction goals set by international agreements such as the Paris Agreement), negative emissions (carbon sequestration can help achieve "negative emissions", meaning more carbon dioxide is removed from the atmosphere than is emitted).<sup>22</sup>

The project SOFI updated carbon sequestration as a topic in the theoretical aspect - as part of the chapter of the Climate Action Plan for Agriculture of the City of Križevci and in the practical part through a survey - in order to determine whether our farmers are thinking about the topics of environmental-ecological agriculture. Carbon sequestration is a smart solution that deserves attention, and together with other green solutions that this project deals with, it forms the backbone of sustainability, that is, the future.

## **5. CONCLUSION**

The project SOFI successfully fulfills its main goal - raising awareness about climate change. Through key activities: the creation of Climate Action Plan for Agriculture of the City of Križevci and Travnik, the establishment of the Green Education Program and the organization of the Eco Festival, the project team raises the awareness of citizens, farmers and other interested stakeholders about climate change.

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<sup>22</sup> <https://www.nationalgrid.com/stories/energy-explained/what-is-ccs-how-does-it-work>

The Green Education Program, aimed at young farmers, was successfully implemented to raise awareness of climate change and encourage the application of smart ecological agricultural practices. Through lectures and workshops, participants gained knowledge about the impact of climate change on agriculture and learned how to adapt to it using sustainable technologies and methods. A large part of the participants of the program were young, so a network of young farmers was indirectly established, which has the potential to function as a support, enabling a mutual exchange of knowledge, experiences and innovations. This created the foundation for the long-term sustainability of agriculture through innovative practices and technological application. Young farmers are now agents of change, which strengthens social capital in rural communities and ensures the resilience of the agricultural sector to climate challenges.

The Climate Action Plan for Agriculture of the City of Križevci, as the first strategic document of this type, systematizes information from various sources and makes it available in the form of concrete data. Through the Climate Action Plan for Agriculture of the City of Križevci, the necessary steps to achieve the goal of implementing ecological agriculture and so far lesser-known topics such as carbon sequestration in agriculture are explained. That is why the Climate Action Plan for Agriculture of the City of Križevci is a very important strategic document, not only for raising awareness about climate change, but also for practical application through agriculture.

The Eco Festival, as one of the key activities of the project, has an exceptional impact on raising awareness of climate change. The festival brings together experts from the fields of energy, ecological agriculture, environmental protection, plant breeding, economic development and others, to enable interaction with citizens - individuals who are interested in how they can make a change and a step towards sustainability.

The main message of the project is visible to the wider community through publications on the websites of the project holder, Križevci University of Applied Sciences, and project partners: Association for Community Economy, Center for Lifelong Learning Travnik and Association Starkmacher. In addition, promotional activities, videos and social media posts have certainly raised awareness about climate change.

It is especially commendable that all key actors were involved in the activities of the project - from young people educated in ecological practices to farmers who recognized the importance of adapting their agricultural practices in accordance with climate challenges. The development of smart agriculture, which combines an ecological approach and technological innovation, is

crucial for the long-term preservation of natural resources and the stability of food production. Association of farmers, joint planning and exchange of knowledge additionally contribute to the resilience of local agriculture to climate change. The participation of local authorities can not only provide the necessary infrastructure and support, but also provide financial and logistical assistance, and shape policies that will encourage sustainable agriculture practices. Through incentives, regulations and strategic planning, the city government can help further strengthen ecological agriculture, which would make the community more resilient to climate change and ensure better living conditions for all its residents.

In conclusion, the project SOFI represents a significant step towards a more responsible attitude towards the environment and sustainable and smart solutions in agriculture.

## 6. LITERATURE

Books, scientific and professional works:

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