

Short Rotation Woody Crops (SRC) plantations for local supply chains and heat use

Project No: IEE/13/574



Report on training events for public land owners/managers

***“Public land for renewable energy production
from short rotation coppice”***

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WP 4 – Task 4.3

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SRCplus website: www.srcplus.eu

Contents

1	<i>Introduction</i>	4
2	<i>Reaching the stakeholders for training activities</i>	5
3	<i>Participants</i>	5
4	<i>Training concept</i>	5
5	<i>Discussion</i>	9
6	<i>Training evaluation</i>	10
	<i>Annex</i>	11

1 Introduction

The aim of the first SRCplus training seminar for public land owners/managers was to introduce to the potential stakeholders, the concept of short rotation coppice (SRC) and SRC local supply chains, and to encourage the stakeholders to consider their involvement in biomass production from SRC and engagement in local supply chains.

The seminar was organised at the premises of Osijek-Baranja County, in the County hall, and in collaboration with local partner the Regional Development Agency of Slavonia and Baranja. The presentations were prepared and presented by EIHP and external experts who contributed to the overall quality of the event.

Apart from public land managers managing forest land, agricultural land, and land around rivers and canals, other relevant potential stakeholders participated in the seminar such as Ministry of Agriculture, Ministry of Economy, research institutions, County's agency for nature values management etc.

The participants were introduced to the project and project materials available. Furthermore, they were informed about characteristics of SRC cultivation (species, agrotechnical measures), possibilities of sustainable SRC development within the county, potential for usage of woodchip from SRC and obstacles in SRC development. Sustainable agricultural practices for wood chips production from SRC were also promoted in order to highlight environmental benefits of SRC.

Certain part of the seminar was focused on the County, revealing the experience in growing SRC species for paper and pulp industry, quality and adequacy of soil for SRC production in the County and on the possibilities for SRC woodchips consumption for energy within the County. The last part of the seminar was organised in form of discussion between the participants, and the focus shifted from information provision to active involvement of participants in discussion. The situation in Croatia is different than in some other project partner countries since there are no commercial SRC. Therefore, prior to the establishment of first commercial SRC plantation, some major baseline conditions must be resolved, primarily legislative ones.

As in the case of seminars for farmers, a clear interest for SRC is evident, but many insecurities and limited experience inhibit active involvement of stakeholders in SRC biomass production. The seminar was welcomed by the participants as a good starting point for discussion on SRC in Croatian energy system in which so far SRC were not addressed.



Figure 1: Seminar participants and venue

2 Reaching the stakeholders for training activities

Prior to the training, potential beneficiaries of the seminar in target region were identified. The list of potential beneficiaries did not only include public land owners and managers, but as well other actors in the supply chains and actors relevant to the topic of the seminar. The associations of cities and municipalities and other organisations were invited to the trainings, as well as local development agencies, local authorities and local enterprises. The local partner also distributed the invitations for the training to their contact list. Several associations were asked to circulate the invitations among their regional contacts. After the first round of invitations, the second was sent several days before the training (see Annex for the invitation).

3 Participants

Registration for the training was enabled by Google forms, e-mail and telephone. In total, 7 applications were received via Google forms and 9 via e-mail. Finally 25 participants attended the seminar, and when EIHP staff is added we come to a total number of 28 participants, but 25 trainees (see annex).

The structure of the trainees (25) is shown below:

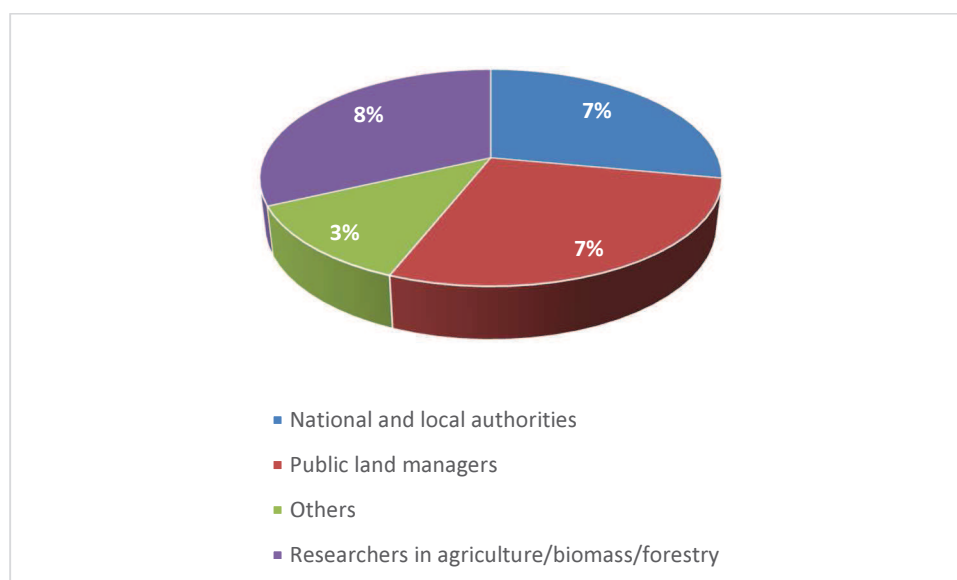


Figure 2: The structure of the trainees

4 Training concept

In total, the seminar was composed of 5 presentations presented by two EIHP project staff and 5 presentations from invited speakers.

Ms. Fištrek (EIHP) presented SRCplus project, the project objectives, activities and results so far, followed by the general presentation on SRC with focus on species, agricultural practices and sustainability issues. Further on, she presented experiences from countries with advanced SRC market, the role of public land owners and managers in SRC supply chains, and possibility of development of local supply chains from perspective of heat consumption within the country.



Figure 3: Ms. Fištrek (EIHP) on SRCplus project

Ms. Kulišić (EIHP) performed an economic analysis of SRC production on an example of Osijek-Baranja County. She demonstrated and compared the economy of various options for farmers regarding the land usage in comparison to SRC production. The certain expenses were discussed with participants.



Figure 4: Mrs. Biljana Kulišić (EIHP)

Invited speakers Mr. Ivanović and Mr. Glavaš presented energy potential from pruning residues and their possible use for energy production in the County. They also discussed about energy consumption and production in the County.



Figure 5: Prof. Glavaš (Faculty of Electric Engineering in Osijek)



Figure 6: Prof. Ivanović (PANON- Institute for Strategic Studies, Osijek)

Mrs. Vukadinović presented possibilities for development of SRC in the County from the aspect of soil science. She emphasised that the soil in the County is heavily damaged by various agricultural processes and chemicals, and stressed the importance of appropriate selection of soil for SRC plantations (texture, water availability, acidity) and land (degraded land, types of agricultural land). Furthermore, the ability of SRC to prevent soil erosion is especially interesting from the aspect of soil. Black locust as a species for prevention of erosion is especially interesting.



Figure 7 Prof. Vukadinović (Faculty of Agriculture, Osijek)

Mr. Dragomir Pfeifer presented experiences with willows and poplars plantations in Croatia, with a special emphasis on forest reproduction material for SRC. In Croatia there is a long tradition of poplar cultivation in forestry for paper and wood industry. In 1960's significant areas of public meadows and pastures were planted with poplars. Clones from Vojvodina were showing the best resilience characteristics, while the most important clones grown in Italy were not successful in Croatia. Willow shows the highest yields, and therefore is suitable for cultivation in SRC systems in the County. Furthermore, in the area of Forestry management unit Osijek, there is some 1800 ha of land suitable for SRC which is now not covered with forest vegetation or is covered with vegetation in form of scrubs. The establishment of SRC plantations could be possible on 85% of the mentioned surface. It is estimated that there is a significant potential for SRC on private land, but there are no concrete data on its availability. In the past there were also examples of agroforestry where beet root and corn were grown within poplar plantations. However these projects were stopped due to unprofitability (they were not eligible for subsidies). On the other hand, on the free market this would be more lucrative solution for smaller land slots typical for Croatia).



Figure 8. Mr. Dragomir Pfeifer (Croatian Forests Ltd.)

Mr. Davor Kralik presented a project being developed within business zone Osijek that would also include SRC that would be used for the heating needs of the zone. The land where SRC could be grown is public land given to the Osijek University, Faculty of Agronomy for the period of next 10 years. Within the City of Osijek zone, there are few significant consumers of heat energy, and therefore there is potential for SRC application for energy.



Figure 9: Prof. Kralik (Centre for renewable energy sources, Osijek).

At the end Mr. Jukić from the Ministry of Economy presented the possibilities for financing projects aimed at biomass usage in public sector through Operative programs of EU. The participants were very interested in this topic. However, the EU funds are still not available. The call for projects for financing is expected in 2016 (probably at the end of the year).



Figure 10: Mr. Jukić (Ministry of Economy)

After the presentations, the final part of the seminar was reserved for discussion (described in details in chapter 5).

During the seminar one coffee break was organised. Seminar was concluded with lunch for the participants and with an opportunity for networking.

For the preparation of the seminars, mostly materials developed within SRCplus project were used, but as well materials from other projects. The interest for the presentations was significant, and they were given to some participants at the spot.

5 Discussion

The discussion raised some questions that were already addressed during the presentations but as well several new questions. Since the situation in Croatia is such that there is no commercial SRC production, the focus was on need for establishing condition for development of SRC commercial projects. Organisation of local energy markets is of great importance for development of local SRC market. This can also lead to creation of new jobs in the region. The representative from the Ministry of Agriculture who attended this seminar, shared the information that there is on-going preparation of Law on SRC in Croatia which is expected by the mid-2016. This law will greatly define the development of SRC projects in Croatia. In general, participant agree that SRC plantations should be grown on marginal and degraded soils.

There is a lot of interest among people for paulownia, which has already been planted at many surfaces in the county. Paulownia is not on the list of forest reproduction material, and therefore it is on the market against the law. Currently, there are different types of paulownia available for planting, from which some are sterile and therefore do not represent serious threat for environment and nature. On the other hand, fertile clones can reproduce and spread easily, and therefore can be a potential threat. Both clone types are currently available in Croatia and there is no control in their origin. Another interesting species indicated as one of the species that can be used for energy production is indigo bush (*Amorfa fruticosa*). Apart of its good energy property, there are basically no costs for plantation development, and it can be harvested by regular harvester. Amorfa shows also some other benefits such as a source of nectar for bees. However, Amorfa is considered as invasive species and one has to be careful if planting it.

Another question raised was the availability of biomass from maintenance of roads and waterways for energy. This biomass is not used and its removal in general represents a problem and a cost, not a value. Furthermore, a significant amounts of fire wood remain in forest due to no cost effectiveness. If biomass would be more valued as fuel, this wasted biomass could be better used. As a good example, a Hungarian city Pecs was indicated, not so far away from Osijek, where the biomass from surrounding forests and fields (woody biomass and straw) is used for energy production.

As one of the major problems indicated is that there is no operative system for stimulation of heat production and usage from RES. The pellets and pellet stoves, both produced in Croatia, are exported to other markets since the internal market is poorly developed. In order to boost the market, it is necessary to create measures that would stimulate the citizens and businesses to use energy from biomass. This could be done through, for example, exception of VAT payment for biomass stoves. Furthermore, a farmer should be thought that apart of food he can also produce energy. The formation of cooperatives could help in advancement in SRC development, but in the context of rural Croatia this is hard to achieve due to negative view on cooperatives as legacy from the past. The agricultural mechanisation cluster which is a type of cooperative could confirm based on personal experience, that it is hard to form cooperatives, primarily because of certain disbelief among members.

In general, the initial problem lies in inadequate state support and understanding. Therefore, it is crucial to involve decision makers, ministries, and representatives of local administrations in order to make things happen.

6 Training evaluation

A questionnaire was prepared in order to receive a feedback from trainees on the training activities and the training concept, but as well to understand their general attitude towards SRC. The feedback after the first training will serve as a basis for development of improved concept and materials for the 2nd training.



Figure 11. Distribution of questionnaires

The questionnaire was filled in by 15 responders (60% of participants). Most of the responders attended the seminar due to general interest in renewable energy sources, while only 3 attended due to particular interest in SRC. When asked to rate their knowledge on SRC prior the seminar, the responses were very diverse, but in general most of the responders rated their knowledge on SRC as basic, while only 2 participants had excellent knowledge on the topic. When asked to rate the improvement of their knowledge on the topic, most of the responders indicated significantly improved knowledge on the topic. 60% of responders were absolutely satisfied with the seminar, while 40% were satisfied with some segments of seminar. The average rating of all lectures was between 4.5 and 4.7 (on the scale from 1-5), with an average rate of 4.6. From these results, it can be interpreted that in general the lectures were excellent.

80% of responders would like to be included in SRC chain either as SRC producers, woodchip users or in some other role. The biggest barriers to SRC development according to the responders:

- Legislative framework on SRC is non-existent or not clear
- The market is not developed
- Insufficient information, especially in since of appropriate species
- Absence of centre for woodchip placement on the market
- High investments
- Absence of subsidies or some other stimulants for heat from renewable energy
- There is no regional or local energy strategy that would support such projects
- Difficulty of cooperation between small producers

Respondents emphasised that it is crucial to involve decision makers, ministries, and representatives of local administrations in order to make things happen. The information must be transmitted through various channels, and regional and local energy strategies should be developed.

The responders were asked to rate the significance of different benefits from KKO for environment and society. Neutral balance of CO₂ emissions is rated as the most significant benefit, followed by new opportunities for local community and energy security. SRC as additional structural element in landscaped is rated as least significant benefit, but still with a high score of 3.7 from maximum 5 points.

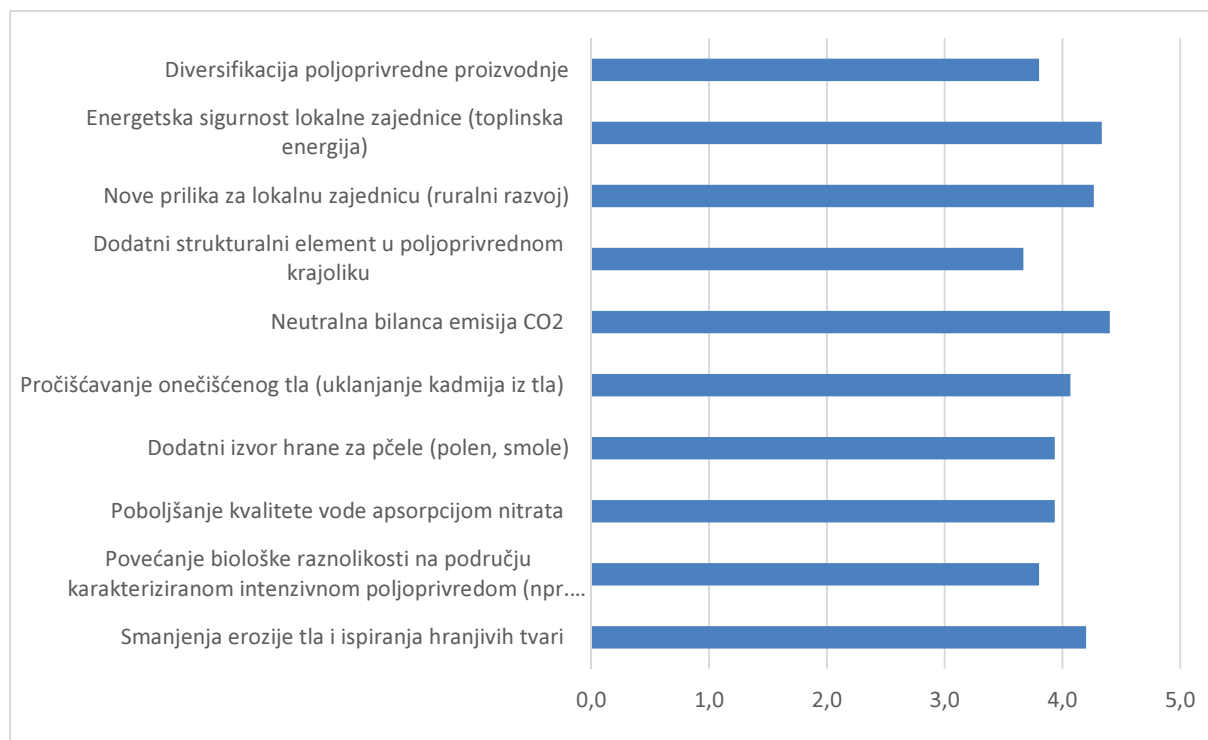


Figure 12: Significance of benefits from SRC for questionnaire responders

Annex

- Invitation to the workshop
- Participant list
- Questionnaire
- Material used in training activities

Poštovani,

Energetski institut Hrvoje Požar i Regionalna razvojna agencija Slavonije i Baranje s zadovoljstvom Vas pozivaju na seminar pod nazivom:

Javno zemljište u proizvodnji obnovljive energije iz kultura kratkih ophodnji,

Mala vijećnica Osječko-baranjske županije

Osijek, 18. lipnja 2015. godine (četvrtak)

Seminar omogućuje **projekt SRCplus (Kulture kratkih ophodnji za lokalne lance opskrbe i korištenje topline)** kojeg sufinancira Europska komisija kroz program Inteligentna energija za Europu. Za više informacija o SRCplus projektu posjetite internetsku stranicu projekta www.srcplus.eu

KKO su brzorastuće drvenaste vrste poput vrbe, topole, bagrema i dr., čija je namjena proizvodnja sirovine (drvene sječke) za dobivanje obnovljive energije. Uzgoj KKO u Hrvatskoj, ali i u većini zemalja EU, još je na razini pokusnih nasada, ali se očekuje da će se njihov uzgoj intenzivirati i komercijalizirati u nadolazećim godinama. Kroz sve veće udjele energije iz obnovljivih izvora, EU stvara sve veću potražnju za drvnom biomasom kao izvorom energije. Upravo drvena biomasa iz kultura kratkih ophodnji prepoznata je kao potencijalna sirovina za namirivanje dijela rastućih potreba. Upravo zato SRCplus projekt nastoji podijeliti postojeća iskustva s upraviteljima javnim zemljištem kako bi se upoznali s ovim kulturama na vrijeme i procijenili mogućnosti stavljanja javnog zemljišta u funkciju uzgoja istih, a predstavnicima lokalne zajednice kako bi procijenili mogućnosti iskorištenja KKO u energetske svrhe na razini lokalne zajednice.

Seminar je namijenjen prvenstveno upraviteljima javnim zemljištem, ali i različitim državnim, regionalnim i lokalnim dionicima kako bi se ostvarili povoljniji uvjeti za razvoj koncepata KKO u regiji.

Ciljevi seminara su razmjena iskustava i informacija o:

- Osnovnim karakteristikama uzgoja kultura kratkih ophodnji
- Mogućnostima održivog uzgoja plantaža KKO na području Županije
- Mogućnostima plasmana drvene sječke iz KKO na području Županije
- Preprekama razvoju KKO i mogućim rješenjima

Radna verzija programa seminara je priložena uz Poziv, a sudjelovanje na seminaru je besplatno.

Molimo Vas da se za sudjelovanje na seminaru prijavite putem interneta na poveznici <http://goo.gl/forms/Tuvb1mrfFe> ili na email adresu zfistrek@eihp.hr. Rok za prijavu je 15. lipnja 2015. Za dodatne informacije o seminaru obratite se Željki Fištrek iz Energetskog instituta Hrvoje Požar na zfistrek@eihp.hr ili na telefon 01 6326 139.

Radujemo se Vašem dolasku!



9:00 – 9:30	Prijava sudionika
9:30 – 9:45	Dobrodošlica i uvod u SRCplus projekt MSc Željka Fištrek, Energetski institut Hrvoje Požar, Zagreb
9:45 – 10:10	Općenito o kulturama kratkih ophodnji (KKO) i specifičnostima njihova uzgoja MSc Željka Fištrek, Energetski institut Hrvoje Požar, Zagreb
10:10 – 10:30	Osnivanje šumskih kultura na području UŠP Osijek s posebnim osvrtom na šumski reprodukcijski materijal za kulture kratkih ophodnji Mr.sc. Dragomir Pfeifer, UŠP Osijek
10:30 – 10:45	Mogućnosti uzgoja KKO u Osječko-baranjskoj županiji s pedološkog aspekta Izv.prof.dr.sc. Vesna Vukadinović, Poljoprivredni fakultet u Osijeku
10:45 – 11:00	Pokretanje proizvodnje KKO – poslovni modeli i dionici MSc Željka Fištrek, Energetski institut Hrvoje Požar, Zagreb
11:00– 11:30	Predah uz kavu, čaj i peciva
11:30 – 11:40	Dobri primjeri lokalne proizvodnje i korištenja biomase iz KKO MSc Željka Fištrek, Energetski institut Hrvoje Požar, Zagreb
11:40 -11:55	Mogućnosti lokalnog zatvaranja lanca KKO u Osijeku Dr.sc. Davor Kralik, Centar za obnovljive energije d.o.o., Osijek
11:55 – 12:10	Mogućnosti lokalnog zatvaranja lanca KKO u Osječko-baranjskoj Županiji MSc Željka Fištrek , Energetski institut Hrvoje Požar, Zagreb
12:00 – 12:20	Biomasa iz ostataka voćarske i vinogradske proizvodnje na području Osječko-baranjske županije i mogućnosti korištenja Dr.sc. Hrvoje Glavaš, Elektrotehnički fakultet Osijek Dr.sc. Milan Ivanović, Panon - institut za strateške studije, Osijek
12:20 – 12:40	Ekonomska analiza proizvodnje KKO na primjeru iz Osječko-baranjske županije Dr.sc. Biljana Kulišić, Energetski institut Hrvoje Požar
12:40 – 13:00	Mogućnosti financiranja projekta – Kohezijski i strukturni fondovi Mr.sc. Vjekoslav Jukić, Ministarstvo gospodarstva
13:00-13:40	Mogućnosti razvoja regije kroz KKO i identifikacija javnog zemljišta za uzgoj KKO – Panel rasprava PANEL RASPRAVA; dr.sc. Biljana Kulišić, Energetski Institut Hrvoje Požar, Zagreb (moderator)
13:40 – 14:00	Pitanja, zaključci i završna riječ
14:00 – 15:00	Domjenak

Evaluacijski listić

Poštovani/a,

Zahvaljujemo na sudjelovanju u seminaru SRCplus projekta. Kako bismo poboljšali naše seminare u budućnosti i kako bismo Vam pružili prikladne informacije, molimo Vas da odvojite koju minutu Vašeg vremena i ispunite upitnik.

1. Na koji način ste saznali da seminar SRCplus projekta?
 - a) Internet
 - b) Pozivnica od strane organizatora (EIHP)
 - c) Pozivnica od strane suorganizatora
 - d) Ostalo _____

2. Koji su razlozi vašeg sudjelovanja na seminaru?
 - e) Općenito zanimanje za obnovljive izvore energije
 - f) Zanimanje isključivo za KKO
 - g) Zanimanje za dodatne mogućnosti ulaganja
 - h) Zanimanje za modele grijanja na temelju KKO
 - i) Zanimanje za diversifikaciju poljoprivredne proizvodnje
 - j) Ostalo _____

3. Molimo procijenite Vaše poznavanje teme (KKO) prije seminara (1 označava potpuno nepoznavanje teme, 5 označava odlično poznavanje teme)

1 2 3 4 5

4. Molimo procijenite napredak u poznavanje teme (KKO) nakon seminara (1 označava neznatno bolje poznavanje teme, 5 označava značajno bolje poznavanje teme)

1 2 3 4 5

5. Da li je seminar ispunio Vaša očekivanja:
 - a) Seminar je u potpunosti ispunio moja očekivanja
 - b) Seminar je ispunio moja očekivanja u određenim segmentima
 - c) Seminar nije ispunio moja očekivanja
 - d) Nisam imao/la očekivanja od seminara

6. Molimo ocijenite kvalitetu prezentacija ocijenim od 1- 5 (1 označava prezentaciju kod koje su potrebna značajna poboljšanja, 5 označava odličnu prezentaciju)

Tema i predavač	Evaluacija				
	1	2	3	4	5
Uvod u SRCplus projekt i općenite informacije o kulturama kratkih ophodnji (KKO) i specifičnosti njihova uzgoja, Željka Fištrek	1	2	3	4	5
Osnivanje šumskih kultura na području UŠP Osijek s posebnim osvrtom na šumski reprodukcijски materijal za kulture kratkih ophodnji, Dragomir Pfeifer	1	2	3	4	5
Mogućnosti uzgoja KKO u Osječko-baranjskoj županiji s pedološkog aspekta, Vesna Vukadinović	1	2	3	4	5
Pokretanje proizvodnje KKO – poslovni modeli i dionici, Željka Fištrek	1	2	3	4	5
Dobri primjeri lokalne proizvodnje i korištenja biomase iz KKO, Željka Fištrek	1	2	3	4	5
Mogućnosti lokalnog zatvaranja lanca KKO u Osijeku, Davor Kralik	1	2	3	4	5
Mogućnosti lokalnog zatvaranja lanca KKO u Osječko-baranjskoj županiji, Željka Fištrek	1	2	3	4	5
Biomasa iz ostataka voćarske i vinogradske proizvodnje na području Osječko-baranjske županije i mogućnosti korištenja, Hrvoje Glavaš i Milan Ivanović	1	2	3	4	5
Ekonomska analiza proizvodnje KKO na primjeru iz Osječko-baranjske županije, Biljana Kulišić	1	2	3	4	5
Mogućnosti financiranja projekta – Kohezijski i strukturni fondovi, Vjekoslav Jukić	1	2	3	4	5
Mogućnosti razvoja regije kroz KKO i identifikacija javnog zemljišta za uzgoj KKO? - PANEL RASPRAVA	1	2	3	4	5

7. Ukoliko seminar nije ispunio Vaša očekivanja, molimo navedite koji su mogući razlozi, koje teme nedostaju te kako možemo poboljšati seminar?

8. Na temelju ponuđenih informacija u okviru seminara, da li vidite sebe/svoju tvrtku/instituciju kao potencijalnog dionika u lancu KKO?

- Da, kao proizvođač KKO
- Da, kao potencijalni korisnik KKO
- Da, ostalo _____
- Ne
- Treba mi više informacija kako bih odlučio/la

9. Ukoliko biste se sada odlučili za uključenje u uzgoj KKO i/ili korištenje biomase KKO, koje su prema Vašem mišljenju trenutno najveće prepreke s kojima biste mogli biti suočeni?

10. U nastavku su navedeni potencijalni pozitivni utjecaji KKO na okoliš i dobrobiti za društvo. Molimo vrednujte važnost utjecaja tako da zaokružite kod svakog navedenog utjecaja vrijednost za koju mislite da mu pripada, pri čemu 1 označava nevažnost utjecaja, a 5 iznimnu važnost utjecaja.

Smanjenja erozije tla i ispiranja hranjivih tvari	1	2	3	4	5
Povećanje biološke raznolikosti na području karakteriziranom intenzivnom poljoprivredom (npr. sklonište za ptice i divljač)	1	2	3	4	5
Poboljšanje kvalitete vode apsorbacijom nitrata	1	2	3	4	5
Dodatni izvor hrane za pčele (polen, smole)	1	2	3	4	5
Pročišćavanje onečišćenog tla (uklanjanje kadmija iz tla)	1	2	3	4	5
Neutralna bilanca emisija CO ₂	1	2	3	4	5
Dodatni strukturalni element u poljoprivrednom krajoliku	1	2	3	4	5
Nove prilika za lokalnu zajednicu (ruralni razvoj)	1	2	3	4	5
Energetska sigurnost lokalne zajednice (toplinska energija)	1	2	3	4	5
Diversifikacija poljoprivredne proizvodnje	1	2	3	4	5

11. Dodatni komentari:

Hvala na suradnji i izdvojenom vremenu!
SRCplus projektni tim



Co-funded by the Intelligent Energy Europe
Programme of the European Union

Projekt SRCplus (Kulture kratkih ophodnji (KKO) za lokalne lance opskrbe i korištenje topline) podržan je od strane Europske komisije kroz program Inteligentna energija za Europu. Za sadržaj ovog dokumenta odgovorni su jedino autori. Sadržaj nužno ne odražava mišljenje Europske unije. EASME i Europska komisija nisu odgovorni za eventualnu upotrebu informacija sadržanih u materijalu.