



EDUCATION OF TEACHERS IN THE FIELD OF ECOLOGICAL FOOD PRODUCTION AND MANAGEMENT

TEACHER TRAINING COURSES IN ORGANIC FARMING AND MANAGEMENT

**DEVELOPED AND OFFERED BY
WBC EDUECO PARTNER ORGANIZATIONS**

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EDUCATION OF TEACHERS IN THE FIELD OF ECOLOGICAL FOOD PRODUCTION AND MANAGEMENT

The project EDUECO (Education of Teachers in the Field of Ecological Food Production and Management, TEMPUS Project No 516964) aims at building up educational capacities in educational institutions in Serbia, Bosnia Herzegovina and Montenegro to support sustainable economic development of food production based on ecological principles. The idea of EDUECO project is developed to meet the expected increase of consumer demands on food produced on ecological principles through improved teaching and knowledge transfer, knowledge development and networking.

The project addresses the 'Europe 2020' program priorities, particularly the 'Smart growth' (develop educational systems), 'Sustainable growth' (ecological food production) and 'Inclusive growth' (develop strong connection between job market demands and education).

This document presents teacher training and vocational training courses developed and implemented in the framework of the project EDUECO by Western Balkan countries partners.

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<http://edueco.edu.rs>

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EDUCATION OF TEACHERS IN THE FIELD OF ECOLOGICAL FOOD PRODUCTION AND MANAGEMENT

I. EDUECO PROJECT PRESENTATION

Project Summary:

The project EDUECO 'Education of Teachers in the field of Ecological Food Production and Management' is to build up educational capacities in universities in Serbia, Bosnia Herzegovina and Montenegro to support sustainable economic development of food production based on ecological principles.

The project focuses on:

- Capacity building and professional network development among Western Balkan universities in the field of ecological food production and management
- Development and implementation of vocational training programs in ecological food production and management for teachers of secondary agricultural school
- Development of vocational training programs for end-users (i.e. producers and entrepreneurs of organic food) by university teachers, non-university teachers and teachers/trainers from related NGO's.

A university staff development program is implemented in which staff was trained on evaluation of relevant new scientific knowledge for professional application, developing non-university teacher training program in their field of expertise, and awareness on critical subject related competences of non-university teachers.

Non-university teachers were trained by WB university teachers as a co-operative effort. At different non university educational institutes the outcomes of the teacher training program is implemented in specific modules. Teaching plans and modules were developed in order to implement it in specific courses.

An active and sustainable teachers' network organization with strong involvement of professional stakeholders is activated. Feedback from this network organization regarding competences needed in the professional field is provided throughout the whole project.

Conferences, general and specific materials and two websites for dissemination of the project outcomes and network organization activities were developed.

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Project Content and Methodology:

The EDUECO project is offered in Serbia, Bosnia and Herzegovina and Montenegro to enhance teaching in vocational education and training in ecological food production and management.

Modernization of teaching methods applied in vocational teaching starts with focusing universities on their role of supporting the non-university education. In this project a system is developed of training non-university teachers by university teachers. Focus is on ecological food production because of its strong potential as economic driver in the rural area. New modules are developed and a feedback system regarding the needs of the professional field is implemented. Practical knowledge of production methods have to be combined with scientific technological knowledge and methods as well as with new approaches in managerial applications. Competences needed for professionals at supervising and managerial level were leading in the didactical approach in which the non-university teachers were trained.

EDUECO project has seven pillars in seven working packages:

WP1: University staff development

WP2: Teacher Training program

WP3: Vocational training modules development

WP4: Network organization

WP5: Dissemination of results

WP6: Quality Management

WP7: Project Management

In WP 1, 2 and 3 the main development activities are planned, but these activities have very strong contact and interaction with the other work packages, regarding exploitation of project outcomes (WP4), dissemination of results (WP5), quality management in the project (WP6) and the overall project management (WP7). For each work package a clear plan is made on how the results of each one contributes to the other work packages.

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In **WP1** the objective is to train the university staff from partner countries in ecological food production and management as part of the development of activities and human resources of the universities. The leading assignment for these university staff is to develop the outline of modules to be trained at non-university schools (see WP3) and to prepare themselves for the training to non-university teachers in WP2. The network organization (WP4) is developing a structure to connect both university and non-university teachers with professional field in an organized way, through which information flow, services provision and projects execution can be established. The plans and outcomes regarding the university staff training program are disseminated through the events from WP5. This way active feedback is organized through different parties within the project, ensuring maximal development possibilities. The university teachers involved in this staff training program have to focus on their specific field of specialization within the broad field of ecological food production and management, and have to provide a national knowledge development plan in their specialism, with focus on the role of the university in it.

In **WP 2** the WBC university teachers developed and provided the teacher training program to non-university teachers. They were coached through the EU university teachers as part of the staff training from WP1. The teachers who had to develop modules applicable in the curricula of their home school, were the main target group of this teacher training program. The teachers from the schools who are partner had to discuss and give feedback to university teachers, stating the benefit for their courses. Through feedback from the network organization, direct feedback from professional field is provided. Dissemination of the plans and outcomes is foreseen through the dissemination activities.

Based on the results from WP 1 and 2, in **WP 3** pilot vocational modules for local agricultural middle schools and higher schools are developed. The target groups are young producers and entrepreneurs. Experiences in EU countries are used to reflect on the skills of the teachers and the methods applied. This WP practical educational knowledge from the non-university partners in the consortium is leading, reflecting the plans and products developed in WP 1 and 2.

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In **WP 4** a network organization is put into action supporting the development of outcomes of WP1, 2 and 3. But this network organization is going to have its own development during and after the project, in such a way that it will be economically viable organization at the end of the project period. This is realized through a combination of human network development, technical network development (databases and websites) and economic development through its contribution to local economy.

Active participation in development of vocational training is planned from the very beginning of the start of this project and has to grow in importance until the end of it. The benefits are shared within the sector, but the universities will in the end be the leading organization in the network organization. For that reason they will from the beginning be responsible for the website development. The leading partner for this WP is GNV, 'Green Network of Vojvodina', having experience in network building with the professional field. At the end the project the universities will have individual responsibility of exploiting their own network relation and will be offering in the future courses for non-university teachers, based on the experiences from the project. But a co-operation plan for all the partners will be developed through the project by which the network exploited during the project cycle will also be exploited after the three years project.

II. COURSES OVERVIEW

Questions for each course:

Each module / training day/ short course has to be discussed by sharing detailed information. The system is that for each makes a self-evaluation and a critical assessment shall be done by others in the consortium focusing on the quality of the improvement plans.

1. Organization and objectives

- 1.1 Who will be learners (target group)?
- 1.2 What are the main learning outcomes?
- 1.3 When to offer?
- 1.4 Who is responsible for what?
- 1.5 How will it be accredited by the official bodies?
- 1.6 How do you assure that the quality is good according to your participants needs?
- 1.7 What are your organizational development needs?
- 1.8 What is your improvement plan?

2. Content, facilities and staffing

- 2.1 Is the curriculum outline for the whole program clear and coherent?
- 2.2 Is the program clear?
- 2.3 Is the module outline (per module) clear and coherent?
- 2.4 Are the learning outcomes per module clear and in line with the training need?
- 2.5 Are the integrated assignments clearly specified?
- 2.6 Who are the lecturers/trainers involved and are roles and responsibilities clearly defined?
- 2.7 Do the lecturers/trainers have the appropriate knowledge and skills to offer the course?
- 2.8 Are the teaching materials adequate?
- 2.9 Is the assessment in line with the objectives and program?
- 2.10 How do you evaluate if the learners are able to apply the knowledge in their practice?
- 2.11 What is the training/development need of the lecturers/trainers involved?
- 2.12 What is the development need regarding the teaching materials and the teaching program?
- 2.13 What is the improvement plan?

Methods and approaches

General:

Working with the concept of learning objectives and formulated learning outcomes.

Student centered learning process: use of job profile and individual competence development.

Teaching methods:

- Lecturing: transfer of knowledge and understanding, interpretation of information in practical setting and understanding of importance
- Instructing classroom application: application of knowledge and concept in small assignment during the course
- training: bigger assignment executed under supervision of specialized 'trainer' for acquiring specific skills
- offering feedback meetings: bigger assignments executed without supervision, results of assignments are discussed during feedback sessions in a group (smaller or bigger groups, size depends on possibility to create safe learning environment)
- coaching: related to complex assignments in small groups or individuals, emphasis is on helping individual to develop a successful working and learning strategy.
- moderating excursions, guest lectures and work sessions: include external knowledge provider, sessions with open character, need to have clear objectives. Evaluation/reflection has to be included.

Learning methods:

- reading printed study materials: with clear study guide, preferably with study assignments
- listening lectures and instructions, participating in classroom application assignments
- executing integrated individual assignments
- executing integrated team assignments without moderator
- executing integrated team assignments with moderator
- attending excursions and guest lectures
- attending training
- attending feedback meeting
- attending coaching meeting

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Demand driven education plan

A: Sector study

Main Question: How is sales of organic products going to increase in the EDUECO partner countries (in the next 10 years) and what does that mean for the labour market? (RS, BiH, MNE, HU, BG, NL, UK)

Sub questions: What are recent developments and scenario's for the next 10 years regarding organic agriculture/produce:

- I. Consumer demand & export
- II. Trade and processing companies
- III. Farming supplies companies
- IV. Education & research organisations
- V. Government & NGO
- VI. Farms and farm production
 - a. Sales and contracts
 - b. Human Resources and qualifications
 - c. Natural resources and landownership
 - d. Investments & financing
 - e. Services and Other farming inputs availability

B: Network organisation plan

- Which teachers of secondary school will be involved in 2012/2013 and in 2013/14?
- What are their learning targets?
- How are they going to implement that knowledge?

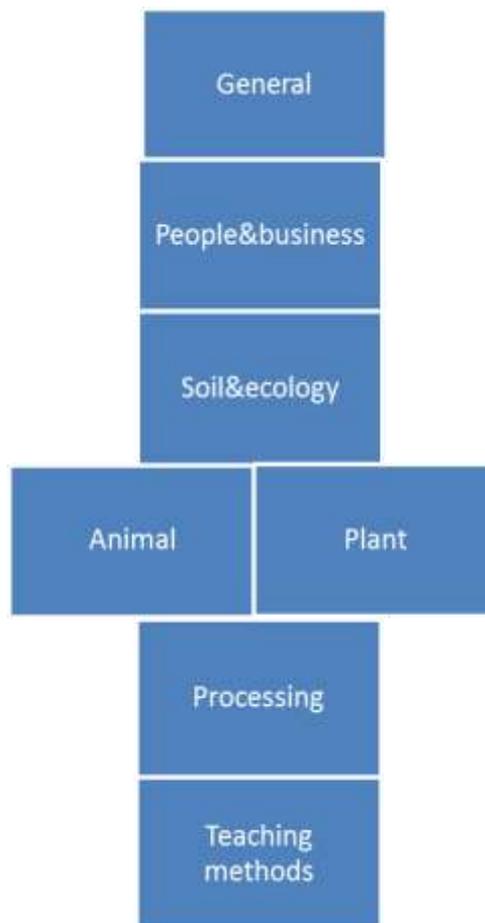
C: To have clear per person involved in TT course

1. What is your role in the TT course?
2. What are your strong and weak points?
3. What do you want to study and learn?
4. How do you want to learn?

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Development of modules

The modules of teacher training courses focusing on ecologic food production and management are presented below:



The following modules: General, People&Business, Soil&Ecology, Processing and Teaching methods are for all participants. Animal or Plant courses will only be followed by specialist teachers in those courses, but these teachers have also to follow the first courses. The structure is chosen in a way that these module titles will also be the module titles of the modules to be offered by school modules (at the secondary schools).

The approved structure presented above is the basic one. Each institution worked on its development according to own capabilities and specific target groups' needs.

PLAN FOR DELIVERY OF MODULES OFFERED IN EDUECO TRAINING PROGRAMS

Dejan Milunovic, Aleksandar Popovic ,Aleksandar Gencic

These modules will enable acquiring knowledge about organic farming.

1. General modules description:

- Acquiring general knowledge about organic farming and food production, with the special attention to biodiversity.

- Explain the advantages of organic production in comparison to convectional farming.
- Demonstrate examples of good agricultural practice in organic farming

2. Practical use of knowledge

- Learn about legislation in organic farming
- Conversion of land, and transition from conventional to organic farming
- The way of researching the market
- To start own managerial based business

3. Job requirements that modules offer

- Practical applicable knowledge in organic vegetable production, crop production, fruit growing and organic cattle breeding.

- Acquiring basic management competences

4. Promoting sustainability of ecologic farming

- Sustainability will be achieved by recognizing of market needs, and networking in branch associations.

5. Active learning

- The accommodating learning style will be applied in the course. Considering the target group of the course this approach is most convenient.

6. Learning outcomes

- After the course each attendant should
- Understand the difference between traditional, conventional and sustainable agriculture
- Define crop rotation and understand the significance of it
- Know how to choose sorts for organic production
- Apply preventive and protective measure in plants and animals protection
- Apply appropriate fertilizers
- Understand the importance of management in organic farming

III. PLANNING OF TEACHER TRAINING COURSES

A. Setup up TT courses (3 days each)

Organizational aspects

Serbia: coordinator Dejana Pankovic, EUSK

Bosnia: coordinator Meho Basic, UT

Montenegro: coordinator Natasa Mirecki, UM

Each university staff teacher makes a draft outline of his/her role in the TT course. In which country to be involved in offering what module? Make a first draft of the teaching plan. Include what is needed to prepare or to have before the course. *Each university staff teacher* has to collect teaching materials to be used in the course.

Each module-coordinator improves the module description.

Every institutional coordinator from WBC country: Prepare an evaluation of own courses and the ideas about the courses at the VT schools.

B. Modules coordinators

Module	Co-ordinator
1. General	Natasa Mirecki Dejana Pankovic Mirha Dikic
2: People & business	Nenad Penezic
3: Soil & ecology	Ljubinko Jovanovic
4: Plant production (vegetables, fruits, field crops)	Mirha Dikic
5: Animal	Meho Basic

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C. Available university staff for teacher training courses modules development and trainings

Institution	Professional fields	Staff names to be involved in EDUECO
Educons University in Sremska Kamenica Sremska Kamenica (RS)	Soil Business management Quality management Plant production Risk management Plant production	Ljubinko Jovanovic Nenad Penezic Dejana Panković Mira Puracevic Vesela Radovic Milanko Pavlovic
Univerzitet u Kragujevcu, Agronomski fakultet Čačak Čačak (RS)	Animal Soil	Milun Petrovic Goran Dugalic
Visoka Poljoprivredna Škola Strukovnih Studija Šabac Šabac (RS)	Vegetable production Crop production Orchardry and viticulture Veterinary medicine	Vera Rašković Lana Djukanović Milisav Mitrović Jovica Nikolovski
University of Sarajevo Sarajevo (BA)	Field crops Field crops Fruit Animal production	Mirha Dzikic Drena Gadzo Pakeza Drkenda Senada Cengic-Dzomba
University of Tuzla Tuzla (BA)	Food processing Food processing	Meho Basic Ramzija Topagic
University of Montenegro Podgorica (XM)	Plant production Food processing and dairy Crop protection	Natasa Mirecki Slavko Mirecki Nedelko Latinovic

IV. DELIVERED TEACHER TRAINING COURSES

A. BOSNIA AND HERZEGOVINA

A.1. TEACHER TRAINING Module Teams

No	Module	Leader	EDUECO-partner university teachers	Guest teachers / farmers / specialists
1	General	Drena Gadžo	Mirha Đikić	-
			Pakeza Drkenda	
			Senada Čengić-Džomba	
2	People & Business	Aleksanda Nikolić	-	Nenad Penezić
3	Soil & Ecology	Pakeza Drkenda	Mirha Đikić	Ljubinko Jovanović
			Drena Gadžo	
4	Plant production	Mirha Đikić	Drena Gadžo	Vesna Latifović
			Pakeza Drkenda	
			Nedžad Karić	
5	Animal production	Senada Čengić-Džomba	Meho Bašić Meho Majdančić	-
6	Processing	Meho Bašić	Ramzija Cvrk	-

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A.2. TEACHER TRAINING COURSES PROGRAMS

A.2.2.1. FIRST TEACHER TRAINING COURSE

Country: Bosnia and Herzegovina, Tuzla

Dates: 6th, 13th and 20th April, 2013 **first** second third

N	Module	Lecturer/s	Date/s	Place/s
1.	General	Drena Gadžo	6 th April, 2013	Tuzla
2.	Soil & Ecology	Ljubinko Jovanović	6 th April, 2013	Tuzla
3.	People & Business	Nenad Penazić	20 th April, 2013	Tuzla
4.	Plan production	Mirha Đikić Pakeza Drkenda	13 th April, 2013	Tuzla
5.	Animal production	Senada Čengić-Džomba	13 th April, 2013	Tuzla
6.	Processing	Meho Bašić, Remzija Cvrk	20 th April, 2013	Tuzla

Module 1. General

N	Topics	Lecturer/s	Date
1.	Introduction, history, organic area in the world and BH, IFOAM	Drena Gadžo	6 th April
2.	Country report, inspection and certification	Mirha Đikić	6 th April
3.	GAP I HACCP in plant aspects	Pakeza Drkenda	6 th April
4.	GAP I HACCP in animal aspects	Senada Čengić-Džomba	6 th April

Module 2. Soil & Ecology

N	Topics	Lecturer/s	Date
1.	The role of soil in organic agriculture	Ljubinko Jovanović	6 th April

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Module 3. People & Business

N	Topics	Lecturer/s	Date
1.	Management in organic agriculture	Nenad Penezić	20 th April

Module 4. Plant production

N	Topics	Lecturer/s	Date
1.	The role of crop rotation in organic production. Fertilization in OP	Mirha Đikić	13 th April
2.	Fruit production	Pakeza Drkenda	13 th April

Module 5. Animal production

N	Topics	Lecturer/s	Date
1.	Organic animal production	Senada Čengić-Džomba	13 th April

Module 6. Processing

N	Topics	Lecturer/s	Date
1.	Processing of organic animal products	Meho Bašić	20 th April
2.	Processing of organic vegetable products	Ramzija Cvrk	20 th April

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A.2.2.2. SECOND TEACHER TRAINING COURSE

Country: Bosnia and Herzegovina, Sarajevo

Dates: 20th – 22nd September, 2013 first **second** third

N	Module	Lecturer/s	Date/s	Place/s
1.	General	Pakeza Drkenda	21 st September	Sarajevo
2.	Soil & Ecology	Drena Gadžo	22 nd September	sarajevo
3.	People & Business	Vesna Latifović	21 st September	Raštelića, near Sarajevo
4.	Plan production	Nedžad Karić Drena Gadžo Mirha Đikić	20 th -22 nd September	Sarajevo
5.	Animal production	Senada Čengić-Džomba Meho Majdančić	20 th September	Sarajevo

Module 1. General

N	Topics	Lecturer/s	Date
1.	Checklist for would be organic fruit growers.	Pakeza Drkenda	21 st September

Module 2. Soil & Ecology

N	Topics	Lecturer/s	Date
1.	The role of manure in organic agriculture	Drena Gadžo	22 st September

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Module 3. People & Business

N	Topics	Lecturer/s	Date
1.	Visiting organic farm Ekoheljda, Raštelica	Vesna Latifović, owner of the farm	21 st September

Module 4. Plant production

N	Topics	Lecturer/s	Date
1.	Plant protection	Nedžad Karić	20 th September
2.	Seed and sowing in organic production	Drena Gadžo	21 st September
3.	Practical work on setting the experiment with different alternative wheat varieties- suitable in organic production	Mirha Đikić	22 nd September

Module 5. Animal production

N	Topics	Lecturer/s	Date
1.	Beekeeping	Meho Majdančić	21 st September
2.	Silage making in organic production Practical exercise: Evaluation of silage quality – sensory evaluation	Senada Čengić-Džomba	20 th September

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A.2.2.3. THIRD TEACHER TRAINING COURSE PROGRAM

Country: Bosnia and Herzegovina, Sarajevo

Dates: 9th – 11nd May, 2014 first second **third**

N	Module	Lecturer/s	Date/s	Place/s
1.	General	Pakeza Drkenda, Drena Gadžo, Mirha Đikić	9 th - 10 th May	Sarajevo
2.	People & Business	Aleksandra Nikolić	10 th May	Sarajevo
3.	Plan production	Mirha Đikić, Drena Gadžo	10 th 11 th May	Sarajevo
4.	Animal production	Senada Čengić-Džomba	9 th May	Sarajevo

Module 1. General

N	Topics	Lecturer/s	Date
1.	The role of organic agriculture in the preservation of biodiversity	Drena Gadžo Mirha Đikić	10 th May
2.	Testing the quality of plant organic product using the refractometer, penetrometer and colorimeter	Pakeza Drkenda	9 th May

Module 3. People & Business

N	Topics	Lecturer/s	Date
1.	People and business in organic agriculture	Aleksandra Nikolić	10 th May
2.	Common working on SWOT analysis for organic production in B&H	Aleksandra Nikolić	10 th May

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Module 4. Plant production

N	Topics	Lecturer/s	Date
1.	The role of plant genetic resources in organic production and storage methods for organic products	Drena Gadžo Mirha Đikić	10 th May
2.	Field visit and discussion about experiment based on the principles of organic production (alternative cereals as spelt, emmer, einkorn, quinoa, amaranth) and energy crops	Mirha Đikić Drena Gadžo	11 th May

Module 5. Animal production

N	Topics	Lecturer/s	Date
1.	Analysis of organic feed for livestock in the laboratory for animal nutrition	Senada Čengiċ-Džomba	9 th May

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A.3. TEACHER TRAINING COURSES REPORTS

A.3.1. FIRST TEACHER TRAINING COURSE REPORT

Country: Bosnia and Herzegovina

first

second

third

Basic information				
Date	Place	Module	Lecturer	Number of participants
6 th , 13 th and 20 th , April, 2013	Tuzla	General Soil and ecology People and business Plant production Animal production Processing	Mirha Đikić Drena Gadžo Pakeza Drkenda Senada Čengić- Džomba Meho Bašić Ramzija Cvrk Ljubinko Jovanović Nenad Penazić	29 - 35
Expertise shared	All modules were included in the first TT course. It is very useful because of the number of participant. The importance and future of the organic production were in the focus.			
Materials – developed, used, handed out	PP presentations			
Experience and Evaluation				
Participants evaluation <i>Method and outcomes</i>	Own Questionnaire. The results are visible in the previous part.			
Teacher evaluation <i>Method and outcomes</i>	-			
Conclusions and recommendations				
Conclusions What went well, what could	- Realize the submodule Plant protection for second TT course - More information about Organic production of cereals, vegetables, forage			

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have been better	crops, etc. <ul style="list-style-type: none"> - Participation of organic farmer in TT course - Visiting organic farm in the next TT course - More interactive activities
Plans for improvement and further development	<ul style="list-style-type: none"> - organize visiting to the organic farm - more practical work in the next TT course
Further planning	Next course will be held in Sarajevo. Focus will be on more practical work, some exercises, visiting the organic farm, include organic farmers in TT course.

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A.3.2. SECOND TEACHER TRAINING COURSE REPORT

Country: Bosnia and Herzegovina. first second third

Basic information				
Date	Place	Module	Lecturer	Number of participants
20 th -22 nd September, 2013	Sarajevo	General Soil and ecology Plant production Animal production	Drena Gadžo Mirha Đikić Nedžad Karić Pakeza Drkenda Senada Čengić- Džomba Meho Majdančić	12
21 st September, 2013	Raštelica, organic farm	Field visit (general, soil, people, plant, processing)	Vesna Latifović (owner)	15
Expertise shared				
Expertise shared	Successfully exchanged experience between farmers, secondary school teachers and university teachers			
Materials – developed, used, handed out				
Materials – developed, used, handed out	Developed: practical exercises (for choice of location for organic farm, sowing rate, sensory evaluation of corn silage) Every lectures were covered with printing material			
Experience and Evaluation				
Participants evaluation				
<i>Method and outcomes</i>	Used developed EDUECO Evaluation form developed by European partners Average outcome is 4.88			
Teacher evaluation				
<i>Method and outcomes</i>	Questionnaire developed by European partners is used			

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<i>Conclusions and recommendations</i>	
<p>Conclusions</p> <p>What went well, what could have been better</p>	<p>Good connection between theory and practice</p> <p>Setting the field experiment is a new field experience</p> <p>Introduction the new crops through organic farming</p> <p>Shearing the experience</p>
<p>Plans for improvement and further development</p>	<p>Visiting the organic farm again</p> <p>Prepare and provide the Literature</p> <p>Participation of organic farmers in TT course</p> <p>Next course organize again in the experimental field of Agricultural Faculty Sarajevo</p>
<p>Further planning</p>	<p>Next course will be in April 2013. Quality control of organic products will be the main focus.</p>

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A.3.3. THIRD TEACHER TRAINING COURSE REPORT

Country: Bosnia and Herzegovina first second **third**

Basic information				
The course was held in Experimental field of Faculty of agriculture and Food Science Sarajevo				
Date	Place	Module	Lecturer	Number of participants
9 th – 11 th May, 2014	Sarajevo	General People and business Plant production Animal production	Drena Gadžo Aleksandra Nikolić Pakeza Drkenda Senada Čengi- Džomba Mirha Đikić	14
Expertise shared	<ul style="list-style-type: none"> - connection between organic production and quality - Business in organic production, SWOT analysis - Biodiversity - New crops in organic production 			
Materials – developed, used, handed out	Developed: SWOT analysis for the first time, printed handouts, practical exercises in the laboratory			
Experience and Evaluation				
Participants evaluation <i>Method and outcomes</i>	Questionnaire developed by European partners. The results can be shown in previous documents			
Teacher evaluation <i>Method and outcomes</i>	Questionnaire developed by European partners			
Conclusions and recommendations				
Conclusions What went well, what could have been better	Training was held in a very friendly and constructive atmosphere. Certificate of attendance were shared at the end of the third day.			
Plans for improvement and further development	All participants said that training completely fulfilled their expectation.			
Further planning	Try to offer the same courses to another schools and stakeholders.			

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B. SERBIA

Teacher training program outline

Module	Submodules and descriptions
1. General	Introduction in organic agriculture EU and National Standards GAP, GMP, HACCP 45 min
	Country Report in OA (10 min)
	EU and National Standards (15 min) GAP, GMP, HACCP (15 min)
	GMO's and ionic radiation in OA (definition, detection and reasons for prohibition in OA) – 10 min Biodiversity in OA– 10 min 1. No GMO's in OA (What is GMO? GMO plant production in the world is high. Risks of contamination. 30 min 2. How to check if the plant seed or feed is genetically modified? Lab demonstration 30 min Biodiversity in OA 15 min
	inspection, certification and labeling in OA (15 min) Conversion (15 min) IFOAM principles (5 min) Conversion (15 min)
	Controversy about qualities and safety aspects of organic foods; Organic livestock foods; Organic food crops; Manure, enteric pathogens and fruits and vegetables. Lecture content: – The clarification of the real difference between the quality of organic and conventionally produced food. Comparison o quality parameters between organic

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	<p>and con. fruit.</p> <ul style="list-style-type: none"> – Organic food and pesticide residues, phytochemicals(polyphenolics, flavonoids, alkalodes, glucosinolates, micotoxins. – Quality parameters of diary products (fatty acid composition: polyunsaturated fatty acids, conjugated, linoleic acid, protein content of milk, vitamins and minerals in milk, somatic cell count, sensory quality); Sensory and nutritional quality of poultry (omega-3-fatty acids, tocopherols, vitamin B12 in eggs) – Pig quality, technological quality, eating quality, factors affecting pork quality. – Sources of pathogenic microorganisms on fresh produces, microbial and chemical composition of manure. Risk of transfer the pathogens from manure to vegetables, strategies to minimize pathogen risk transfer. – 45 min – Determination of micotoxins in food- Lab demonstration -60 min
	Who can be organic farmer? (20 min)
2: People & business	2a. the phenomenon of the entrepreneurial economy
	2b. the nature of organic entrepreneurship
	2c. personal development in org farming (skills & attitudes)
	2d. marketing for small org farm
	2e. legal aspects and certification in org farming (+tax, insurance, etc.)
	2f. administration and financing of small org farm
	2g. how to manage risks in small org farm
	2x45 min
3: Soil & ecology	<p>Roles and function of soil in plant production</p> <p>Plant and soil interaction</p> <p>Rizosphere</p> <p>Improvement of soil fertility</p> <p>Role of soil microorganisms in OA</p> <p>30 min</p>
	Global change: soil, water, energy balance and renewable energy

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	30 min
	Choice of soils for OA physical and chemical characterization, pH, soil structure in general, structure of soils in Serbia, classical remedy strategy 60 min
	Determination of soil quality – Field demonstration 60 min
4: Plant production	Plant varieties in OA 30 min
vegetables	Crop rotation, nutrition management, soil tillage, weed management 60 min
fruits	4b. conversion
field crops	4c. strategy of crop production
	4d. nutrition mgmt
	4e. soil tillage
	production of feed in OA 30 min
	4g. plant protection 45 min
	Vegetable production in OA 30 min
5: Animal	5a. animal nutrition
	5b. practical farm mgmt (=animal mgmt, operational mgmt)
	Legislative and specificity of animal organic production Species and varieties in animal organic production 5c. animal breeding (=reproduction and selection of breed) + animal food quality 90 min
	5d. meat processing & integrated quality and chain mgmt)

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C. MONTENEGRO

C.1. REPORT FIRST NON UNIVERSITY TEACHERS TRAINING COURSE IN ORGANIC AGRICULTURE

5-6 April 2013

BAR, Montenegro

National Coordinator: Prof. Natasa Mirecki, Biotechnical Faculty, Podgorica, Montenegro

TRAINING DEVELOPMENT

Basic information:

Training was organized at the Agricultural School in Bar. Total number of participants was 14, all from partner's school.

Four University Professors (Mira Pucarevic from Educons University, Serbia and Nataša Mirecki, Nedeljko Latinovic, Slavko Mirecki from the University of Montenegro) were Lecturers at the training for non university teachers.

Subject matters of training were: Introduction in organic production, Organic food quality, Conversion to organic agriculture, Crop rotation, Control and certification of organic agriculture, Crop protection, Soil fertility and fertilization, Introduction in livestock breeding, Animal nutrition, Prevention of animal diseases, Animal reproduction.

All participants were provided with 4 sets of training materials (Manuals), which were developed for trainings intended for the extension staff (1) and organic producers (3) during previous Projects on organic agriculture.

Previous experience, evaluation

After final discussions all participants evaluated the training. The rating of the entire training shows that participants were satisfied with selected subject matters (4,92), with contribution of new information (4,46), understandability (5,00) and applicability of new knowledge (100%).

Some of participants also gave written comments in the Evaluation form:

- I have new information about plant protection,
- Concise lectures, of good energy and socializing,
- I have learned something new about organic farming,
- I understand definition of organic food more clearly, good energy and socializing,
- I have just heard high quality lecturers

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There are two more comments in Evaluation form which indicate that participants need more training and practical examples.

Lecturers note that all participants were of different specializations in agriculture, moreover some of them were biologist, chemists and vets. For such reasons, it was not easy to organize a lecture that would be relevant for and applicable to all trainees.

Conclusion and discussion

Participants of the first training request more information on organic fruit and vegetable production, processing of organic food, methods of obtaining toxicologically safe food, which parameters are tested in hygienic and production practices, which are the standards, HACCP planning.

Some of the requested topics are related to food safety and are not specific only for organic agriculture. Therefore, this will be taken into account during organization of the next training. Other requested topics will be covered during the third training.

Considering that trainees were of different specializations, it is necessary for further lectures to be organized in small groups of participants.

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C.2. REPORT SECOND NON-UNIVERSITY TEACHERS TRAINING COURSE IN ORGANIC AGRICULTURE

18-19 October 2013

BAR, Montenegro

National Coordinator: Prof. Natasa Mirecki, Biotechnical Faculty, Podgorica, Montenegro

TRAINING DEVELOPMENT

Basic information:

Training was organized at the Agricultural School in Bar. Total number of participants was 11, all from partners school.

The lecturer was the University Professor Nataša Mirecki from the University of Montenegro. The original idea was to have more lecturers at the courses, but at the very last moment two professors from UM (organic fruit production and milk processing) canceled participation in TT (unplanned obligations at the Faculty).

The biggest difference between organic and conventional agriculture is the way of treating soil fertility and plant protection. In organic production, holistic approach is the key to success, which means that soil and pests must be treated on the basis of prevention and with integrated cultivation measures. Main intention of the lecturer was to present specific cultivation measures which help "organic" vs. "conventional" approach.

Therefore, subject matters of training were: Indicators of quality of arable land, Cover crops and Green manure, Composting of farm's waste and application of compost, Weed control in organic agriculture, Production and preparation of organic feed.

The training started with discussions on Project activities, especially regarding the new literature, which is to be provided by the Project for the school's library. National coordinator presented to the participants the organic books on local language from her private library. All participants examined the books and decided which of them can be the most appropriate. NC asked which additional titles and teaching materials they need. The final list will be completed before the third TT.

As a result of dissemination of EduEco activities, NC informed State's Center for Vocational Education and Training about the training for non university teachers that we have developed. VET Center organizes similar trainings for teachers from 5 schools from Northern part of Montenegro and financed publishing of the Manual, which is a teaching material for trainings. The Manual will be available to Agricultural School in Bar.

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Due to the above mentioned reasons, NC and teachers had discussion regarding the direction in drafting certain books for the new Curriculum (Agroecological Technician) which the Agricultural School in Bar has just initiated. One of conclusions is that NC needs to assist the process of developing the new Curriculum. Further steps depend on the dynamics in developing the new Curriculum and the budget of EduEco project.

Previous experience, evaluation

Holistic (integrated) approach in organic production is the most important for success. Changing „conventional mind“ is the most sensitive step in conversion to organic farming. For such reasons, the agenda of the second TT is actually made with intention to initiate „organic holistic mind“.

General impression of lecturer was that training was held in a very friendly and constructive atmosphere, which was confirmed by the trainees in the Evaluation. The rating of the entire training shows that participants were satisfied with the entire day of courses (5,00) and with the Lecturer (5,0). Additionally, 11 participants said that the training completely fulfilled their expectations, and 1 participant requested more lectures on food processing. 10 participants said that the next training does not require any changes, and 1 suggested more attractions and 1 asked for more scientific results in presentation.

Lecturer notes that all participants were of different specialization in agriculture; moreover some of them were biologists, chemists and vets. For such reasons, it was not easy to organize a lecture that would be relevant for and applicable to all trainees.

Conclusion and discussion

Considering that trainees were of different specializations, it is necessary for further lectures to be organized in small groups of participants.

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C.3. REPORT THIRD NON-UNIVERSITY TEACHERS TRAINING COURSE IN ORGANIC AGRICULTURE

14th March 2014 BAR, Montenegro

National Coordinator: Prof. dr Natasa Mirecki, Biotechnical Faculty, Podgorica, Montenegro

TRAINING DEVELOPMENT

Basic information:

Training was organized at the Agricultural School in Bar. Total number of participants was 14, all from partner's school.

Four University Professors (Mira Pucarevic from Educons University, Serbia and Nataša Mirecki, Nedeljko Latinovic, Slavko Mirecki from the University of Montenegro) were Lecturers at the training for non university teachers.

Subject matters of training were: Introduction in organic production, Organic food quality, Conversion to organic agriculture, Crop rotation, Control and certification of organic agriculture, Crop protection, Soil fertility and fertilization, Introduction in livestock breeding, Animal nutrition, Prevention of animal diseases, Animal reproduction.

All participants were provided with 4 sets of training materials (Manuals), which were developed for trainings intended for the extension staff (1) and organic producers (3) during previous Projects on organic agriculture.

Previous experience, evaluation

After final discussions all participants evaluated the training. The rating of the entire training shows that participants were satisfied with selected subject matters (4,92), with contribution of new information (4,46), understandability (5,00) and applicability of new knowledge (100%).

Some of participants also gave written comments in the Evaluation form:

- o I have new information about plant protection,
- o Concise lectures, of good energy and socializing,
- o I have learned something new about organic farming,
- o I understand definition of organic food more clearly, good energy and socializing,
- o I have just heard high quality lecturers

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There are two more comments in Evaluation form which indicate that participants need more training and practical examples.

Lecturers note that all participants were of different specializations in agriculture, moreover some of them were biologist, chemists and vets. For such reasons, it was not easy to organize a lecture that would be relevant for and applicable to all trainees.

Conclusion and discussion

Participants of the first training request more information on organic fruit and vegetable production, processing of organic food, methods of obtaining toxicologically safe food, which parameters are tested in hygienic and production practices, which are the standards, HACCP planning.

Some of the requested topics are related to food safety and are not specific only for organic agriculture. Therefore, this will be taken into account during organization of the next training. Other requested topics will be covered during the third training.

Considering that trainees were of different specializations, it is necessary for further lectures to be organized in small groups of participants.

**TEACHER TRAINING COURSES
IN ORGANIC FARMING AND MANAGEMENT
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