



# Lifelong Learning for sustainable agriculture in Alps – Danube – Adriatic Region

Agreement number–2013–4592/001–001  
Project reference number–544595–TEMPUS–1–2013–1–HR–TEMPUS–JPHEs

## Harmonization of LL in ADA Region





## **Lifelong Learning for sustainable agriculture in Alps – Danube – Adriatic Region**

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### **"Harmonization of LL in ADA Region"**

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Dear reader,



As we are living in rapidly changing world, lifelong learning (LL) needs to become a priority. It is the key to employment and economic success allowing people to participate fully in society. One of the goals for Europe 2020 is that an average of at least 15 % of adults (age group 25-64) participates in LL. It is considered as one of the most important activities in the development of education and research in all partner countries.

Due to the explained reasons, the consortium consisting of 11 universities from eight countries applied for the LifeADA TEAMPUS project entitled „Lifelong learning for sustainable agriculture in Alps-Danube-Adriatic Region“. Wider objectives of the project were to modernize and harmonize higher education by development of LL system for sustainable agriculture in non-EU Alps-Danube-Adriatic Region countries and to enhance networking between EU and Partner countries (non-EU) by promoting LL system as a tool for permanent modernization of higher education.

The project consortium has previous strong relationships during the years through previous TEMPUS, CEEPUS, Erasmus-Mundus projects as well as several bilateral and multilateral research projects and other form of interaction.

At the end of our journey, as project coordinator, I may say that the arrangement and coordination of this kind of project with so many partners, provided with many differences, has not been a simple duty. It wouldn't be possible without the help of administrative and financial coordinators of the project. It was a daily challenge which has been faced by adopting a collaborative approach that helped in overcoming procedural and language difficulties.

All objectives set up by project proposal have been achieved. On these pages we intend to present short overview of our activities with a special emphasis on the developed curriculums of summer schools. Considering expertise of all partners involved we strongly believe that LL activities, as designed, carried out during the project life time and presented in this book, will continue in the future. We also truly believe that collaboration among partners will continue within the frame of future projects.

Yours sincerely,

Prof. Renata Bažok, Ph.D.



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# 1. Introduction

## 1.1. LifeADA project summary

<b>Title</b>	„Lifelong learning for sustainable agriculture in Alps-Danube-Adriatic Region“
<b>Acronym</b>	LifeADA
<b>Grant holder</b>	University of Zagreb, Faculty of Agriculture
<b>Total grant</b>	1.039.598,58 EUR
<b>Project leader</b>	Prof. Renata Bažok, Ph.D.
<b>Duration</b>	3 years, December 1, 2013 – November 30, 2016
<b>Project partners</b>	Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Croatia University of Natural Resources and Life Sciences, Vienna, Austria University of Hohenheim, Stuttgart, Germany University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia University "Fan S. Noli", Faculty of Agriculture, Korça, Albania University of Tirana, Faculty of Agriculture and Environment, Albania University of Mostar, Faculty of Agriculture and Food Technology, Bosnia and Herzegovina University of Sarajevo, Faculty of Agriculture and Food Science, Bosnia and Herzegovina University of Prishtina, Faculty of Agriculture and Veterinary, Kosovo University of Montenegro, Biotechnical Faculty, Podgorica, Montenegro
<b>Project summary</b>	<p>The project activities were organized in order to achieve following wider objectives: to modernize and harmonize higher education by development of Lifelong learning (LL) system for sustainable agriculture in non-EU Alps-Danube-Adriatic region countries; and to enhance networking between EU and Partner countries (non-EU) in Alps-Danube-Adriatic region by promoting LL system as a tool for permanent modernization of higher education. Specific objectives of the project were: to develop the strategy for lifelong learning in sustainable agriculture among partner institutions in order to initiate and develop different models of lifelong learning; to establish pilot activities of lifelong learning in partner institutions; to set quality indicators for lifelong learning competencies in the field of sustainable agriculture; to develop an appropriate guidance and counseling services. During the project HEIs conducted survey and identified their own potential for LL for sustainable agriculture. The needs for LL activities were identified at national level of partner countries and Croatia. Case studies were prepared by EU partners and included not only positive practices with desirable effects, but also the risks and possible misconceptions that should be avoided in the future. Regional guidelines for LL in sustainable agriculture developed. These RG served as a common platform for national strategies on LL which were developed by partners. The skills of teacher for LL significantly improved during three teachers training organized. Altogether 74 teachers were trained in adopting new educational methods. Eight different pilot activities on LL were designed and implemented on each HEI. Altogether 84 students completed pilot activities and based on their impression, survey was conducted. In the whole process the national authorities as well as stakeholders were involved. The whole process was monitored by quality management board.</p>



### 1.2. Project background

To meet food demands and preserve environmental resources, agriculture needs to increase the quantity and quality of harvests while reducing its ecological footprint. The common codex for integrated farming was developed in January 2001 by the members of the European Initiative for Sustainable Development in Agriculture. Sustainable agriculture requires that today's production needs are met while improving the production resource base for future generations. This requires the most cost effective, environmentally sound and socially acceptable method of agricultural production. Sustainable development of agriculture in Europe relies on the design of innovative cropping systems able to achieve high productive performance (quantity and quality) with low use of pesticides and other agro-chemicals, while remaining compatible with socio-economic (e.g. labour use) and other environmental objectives (e.g. energy use). Over the last decade, this has led to the emergence of interdisciplinary research and new knowledge. The implementation of sustainable agriculture requires new and updated knowledge generated by science and accepted by agronomists and farmers.

Lifelong learning has been on the European agenda since the European Year of Lifelong Learning (LL) in 1996, and its importance has been highlighted in the Bologna Process, the Lisbon Strategy and EU 2020. In a rapidly changing world, LL needs to be a priority – it is the key to employment, economic success and allowing people to participate fully in society. One of the goals for Europe 2020 is that an average of at least 15 % of adults (age group 25-64) should participate in LL.

The LL activities have formed an important part of universities' contribution to societal development. In order to ensure that LL contributes to the EU agenda on social inclusion and learning societies, universities are developing educational offers that are attractive for different groups of EU citizens to access and participate in throughout their lives. The concept of LL from a HE perspective means that institutions have to provide services to target groups without losing sight of the importance of providing quality-assured, research-based education. From its origin, LL had two main pillars: widening participation and learning throughout life.

LL is set up as priority in all partner countries. One of the milestones in HE strategies in partner countries is to establish or to widen capacities for LL. Until now, all completed and ongoing curricula reform projects were focused on modern teaching contents at the agricultural faculties in the region, of the quality and modularization of their curricula and the improvement of the teaching skills of their existing staff or at strategic planning management. No effort was done in the field of LL in agriculture.

Therefore the wider objectives of the project are to modernize and harmonize higher education by developing of LL system for sustainable agriculture in non-EU Alps-Danube-Adria (ADA) region countries and to enhance networking between EU and Partner countries (non-EU) in ADA region by promoting LL system as a tool for permanent modernization of higher education. The main innovation is setting up a common regional platform for LL for sustainable agriculture. This will enable target groups (scientists, university teachers, students...) to participate in LL activities at larger scale and will ensure access to different forms of LL for sustainable agriculture to the final beneficiaries.

### 1.3. Quality of partnership

The current project consortium have previous strong relationships among the partners which have been strengthened during the years through previous Tempus, Ceepus, Erasmus-Mundus projects as well as several bilateral and multilateral research projects and other form of interaction which can be easily collected from the EU databases.

The University of Zagreb (1669) is the oldest and biggest university in South-Eastern Europe. The University of Zagreb Faculty of Agriculture (UNIZG) is the leading institution in the field of agriculture and related sciences in Croatia. UNIZG organizes studies at undergraduate, graduate and postgraduate specialist and doctoral level. UNIZG has experience in development of curriculum and implementation of some LL models.

J.J. Strossmayer University of Osijek (UNIOS) acts as a regional centre of knowledge, research and excellence. UNIOS organizes studies at undergraduate, graduate and postgraduate level. There is a strong connection between Faculties of Agriculture in Zagreb and in Osijek regarding mutual cooperation in domestic and international projects.

University Hohenheim has a long scientific and practical experience in knowledge transfer, adult education and sustainable development. Including one of the few departments dealing with agricultural knowledge systems, it brings in competences for LL analyses and teachers trainings.

BOKU, the only Austrian University in the area of Natural Resources Management and Life Sciences has vast experience in co-ordinating and being a partner in different EU Programs, has managed student and staff exchanges in various scholarship programs and is actively engaged in different university networks. BOKU and UHOH are both members and have strong relationship in the EUROLEAGUE, a network of 7 EU-universities. In cooperation with UHOH and BOKU, UNIZG has developed study programs according to Bologna declaration through the Tempus project CD-JEP 17108-2002 Reform of Agricultural Studies in Croatia. There is a strong relationship and cooperation within the ICA university network.

University of Ljubljana Biotechnical Faculty is the leading national higher education and research institution in the domain of applied life sciences. Department of Animal Science has an important role in the development of the Slovenian agriculture and food policies.

The University of Korça was created in 1992. In 1994 it was given the name “Fan S. Noli”. The studies in this University are organized full-time and part-time in two levels: first level and second level, based on the Bologna Declaration. During the academic year 2009-2012 the University of Korça is preparing specialists in 26 programs of study.

Agricultural University of Tirana (AUT), founded in 1951 as the Higher Agricultural Institute, is the unique centre for undergraduate and graduate studies, scientific research, training and extension in the area of agriculture, food and environment. AUT has established cooperation with different universities in Europe and USA, through this cooperation, AUT aims diploma recognition and equalization and also joint scientific research projects in the field of environment and agriculture.

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University of Mostar is a higher education institution which organizes and performs university studies, scientific and professional work and develops highly skilled artistic and technological creation. SVEMO is internationally oriented and its intention is to become fully integrated into the EHEA.

The University of Sarajevo cultivates centuries long tradition of high education in B&H. Institutional beginnings of our high education are quite similar to the Western Europe's university tradition. University of Sarajevo has established partnerships with more than 40 Universities from Europe, USA, Canada and Arab countries.

University of Prishtina is an autonomous public institution of higher education, which develops academic education, scientific research, artistic, professional counselling and other areas of academic activities. Colleagues have objectives, among other, to cooperate and participate in all the activities of higher education at the national, regional and international levels, adapt to European standards and fully integrated in the European higher education area and the European research area.

Biotechnical Faculty (BTF) is one of the units of University of Montenegro. Its heritage dates back to 1937 and since 2007 it was constituted as Biotechnical Faculty. The recent openness of the Montenegrin society and economy has had a positive impact on BTF's activities regarding the connections with partner institutions in the Balkan region and with EU Member States. The involvement of the BTF in the ERA has thus increased.

The Faculties from Osijek and Zagreb along with all other partner countries have successfully participated in Tempus project JEP 41143-2006 Support Network for Improvement of the Strategic Planning coordinated by UHOH and in Tempus International joint Master degree in Plant Medicine coordinated by University of Bari.

### 1.4. Funding and support

LifeADA Project was funded by European Union and its budget correlated with proposed activities. The main categories of project costs were devoted to mobility (40.2 % of the total budget). The proposed staff cost corresponded with the activities; it comprised 35.6 % of the budget and supposed to be partially covered by co-financing. Printing and publishing (3.03 % of the budget) was aimed to increase project visibility and to ensure dissemination. Other costs (6.2 % of the budget) were devoted to translation of the documents, conference materials, creation of web page and the biggest amount is devoted to financial audit. Proposed project was carried out by using existing equipment of EU partners. However, additional equipment was procured with the aim to successfully complete the action within partner countries. ICT technologies, equipment for teaching purposes has been procured. Budget for procurement (8.4 % of the budget) was equally split at non EU partner country HEIs. Indirect (institutional) costs were 7% of the budget.

## 2. Development of Lifelong learning at HEI

## 2. Development of Lifelong learning at HEI

### 2.1. Analysis on LL needs and potentials in sustainable agriculture

The implementation of the project activities started with the design of two questionnaires created by project coordinator which were distributed among partner countries institutions. The questionnaire on **LL potentials** gave the insight into capacity (present state) and potential (future state) of each HEI in the development of LL in specific topics related to sustainable agriculture. Specific issues on the experience of LL at HEI and particular field of expertise were covered in this questionnaire.

The questionnaire on **LL needs** in partner countries was divided into two logical fields: 1) the present state of the labour market with the focus on agriculture, environment and food sector, and 2) the needs of the community and business sector in terms of LL. Questionnaire was distributed among business and community sector and Alumni.

According to the analysis of the potentials and needs of each sector reports were produced. The reports were the basic line for further project activities and the development of strategies and policies to be implemented in the building of capacities and programmes for LL. Partner institutions, respectively, designed one pilot activity, carried out the design of each course, select the materials and learning activities, the sequence and ways of using them. All necessary steps for curriculum recognition at respected University were performed.

### 2.2. Identifying the needs for teachers training

Identifying the training needs of education providers was facilitated by taking into account drivers of innovation (innovating companies, design centres, cultural sector), thus encouraging all sides to streamline their capacities.

Although many aspects of effective teaching applies to all age groups, adults have had more life experiences and in many ways are differently motivated than children. Adults are more self-directed in their learning and have a greater need to know why they should learn something. The learner should be actively involved in learning, with the instructor acting as a facilitator. The instructor should recognize that adults have different learning styles and should tailor instruction to the characteristic ways adults prefer to learn. Understanding the principles of adult learning can help teachers become better facilitators of learning.

The project coordinator proposed 5-6 topics which were discussed at each HEI at a panel discussion with teaching staff. After discussion each HEI created the list of priorities for training needs for teachers.

## 2.3. Training on adult educational methods for LL at EU institutions

The main objectives of teacher trainings were to improve training skills of teachers involved in LL activities and to define, develop and prepare pilot activities. Broadening the knowledge that teachers acquire during their education, and providing them with new skills and professional understanding is of great importance. After identifying priorities for training, three trainings were organised, in Vienna (BOKU), Stuttgart (UHOH) and Ljubljana (UL). During the trainings, teachers adopted novel methods for teaching in vocational education, concerning phasing a lesson, using group and partner work in class, motivating different groups of learners, steering class activity, offering patterns of learning, and debating.

### 2.3.1. Teacher Training at the University of Natural Resources and Life Sciences, Vienna, Austria

Host institution	BOKU – University of Natural Resources and Life Sciences
Training	Didactic course and e-learning for teachers
Duration of mobility	5 days (including travel)
Contact person at BOKU	Ms. Marija Zunabovic marija.zunabovic@boku.ac.at + 43 47654 6635 + 43 47654 5822

#### Agenda

Date	Group 1 (September 6 – 11, 2015)	Group 2 (September 7 – 12, 2015)
6.9.2015.	Arrival of participants	
7.9.2015.	Didactic course	Arrival of participants
8.9.2015.	Excursion	Didactic course
9.9.2015.	E-learning course: Demonstration of best practices e-learning and main functionalities	Excursion
10.9.2015.	Development of e-learning concept and hands-on workshop	E-learning course: Demonstration of best practices e-learning and main functionalities
11.9.2015.	Departure of participants	Development of e-learning concept and hands-on workshop
12.9.2015.		Departure of participants

## Description

Participants of teacher training worked in various interactive settings using a variety of teaching methods ranging from individual reflection to pair work, smaller and larger group activities, discussions and short theoretical input sessions. The participants had to prepare learning outcomes for about 5-6 specific courses in advance (after the didactical course) within a group of about 4 persons. Teacher training was organized as demonstrations of best practices, hands-on demonstrations of most important functionalities of the open source e-learning management system “moodle” like layout elements and e-tivities (forum, wiki, quiz, task, feedback, etc.), group work for developing a didactical concept of an e-learning course based on the learning outcomes and individual hands-on work to implement selected parts of the concept.

## Learning Outcomes

After completion of the teacher training, participants were able to:

- know the basic principles, processes and methods of university didactics and academic instruction,
- formulate learning outcomes,
- state quality features of university didactics and academic instruction,
- analyse individual and institutional requirements and conditions of teaching,
- recognize the importance of teacher professionalization,
- understand their important role as instructor for learning processes in students,
- apply Principles of Good Teaching Practice,
- design a didactical concept for an e-learning course, based on learning outcomes,
- design a layout and e-tivities for an e-learning course,
- apply main functionalities of e-learning management systems based on the didactical concept.



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## List of trained teachers at BOKU

GROUP 1  
September 6 – 11,  
2015

HEI	Participant	E-mail
	Fatos Zerelli	fatoszerelli@gmail.com
UNKO	Ilir Niçko	ivangjelnicko@gmail.com
	Irena Kallco	irenakallco@gmail.com
	Tihana Sudarić	stihana@pfos.hr
UNIOS	Krunoslav Zmaić	kzmaic@pfos.hr
	Karolina Vrandečić	karolina.vrandecic@pfos.hr
	Mladen Zovko	zovko.mladen@gmail.com
SVEMO	Ivan Spužević	ivan.spuzevic@gmail.com
	Leona Puljić	leonapuljic224@gmail.com
	Darija Lemić	dlemic@agr.hr
UNIZG	Maja Čačija	mcacija@agr.hr
	Ana Pintar	apintar@agr.hr
AUT	Perparim Laze	perparimlaze@yahoo.com

GROUP 2  
September 7 – 12,  
2015

HEI	Participant	E-mail
	Nataša Miricki	mirecki@ac.me
UoM	Slavko Mirecki	slami@t-com.me
	Aleksandar Odalović	odalovica@t-com.me
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	Sylë Sylani	syle.sylanaj@uni-pr.edu
	Jasmin Grahić	j.grahic@ppf.unsa.ba
UNSA	Mirsad Kurtović	m.kurtovic@ppf.unsa.ba
	Fuad Gaši	f.gasi@ppf.unsa.ba
	Najada Kardiasi	kadiasi@yahoo.com
AUT	Magdalena Cara	magdacara@ubt.edu.al

### 2.3.2.

## LL experts and officers Training at the University of Natural Resources and Life Sciences, Vienna, Austria

Host institution	BOKU – University of Natural Resources and Life Sciences
Training	Project Management and LLL Programme planning for LLL experts and LL officers
Duration of mobility	3 days (including travel)
Contact person at BOKU	Ms. Marion Ramusch marion.ramusch@boku.ac.at + 43 47654-1021

### Agenda

Date	August 30 – September 2, 2015
30.8.2015.	Arrival of participants
31.8.2015.	Planning of LL programmes
1.9.2015.	Project management
2.9.2015.	Departure of participants

### Description

Lifelong learning is a fundamental principle of European education policy, and thus a mission of universities. In the wake of rising demand for university postgraduate programs, BOKU University has embarked on developing a broad portfolio of continuing education opportunities together with co-operation partners. Lifelong Learning at BOKU is practice oriented and led by research. The Programmes are self-financing, a good planning and a thorough calculation is a must. Continuing Education at BOKU includes all measures that promote and support Lifelong learning.

The training started with a brief introduction to the world of project management approaches in perspective of international research projects and delivers a definition of project management. The training covered all phases starting with the pre-project phase with all related planning activities (work packages, finances, milestones, etc.), the kick-off meeting, the efficient day to day management, the project controlling and quality assurance. Reaching the project goals or a decision for termination, the project needs to be closed down and finished in a controlled process. Main steps of a close down process, related responsibilities and outputs were trained as well. The training was supplemented by exercises where the participants had the opportunity to develop the main elements of a research project, directly applying taught knowledge. Theoretical knowledge was directly converted into practical skill.

### Learning outcomes

After completion of the LL experts and officers training, participants were able to:

- get an overview on available project management methodologies, standards and its relevance for research projects,
- understand what project management means and covers,
- define and structure objectives and non-objectives,
- set up deliverables and effective milestones,
- build up a project consortium in the project preparation phase (proposal phase),
- define important tasks, activities and outputs of a kick-off meeting,
- break down the project work in work packages and efficiently manage WPs,
- plan a realistic project budget and ways to control and manage project finances,
- Learn about common project management structures and procedures
- get an overview on available management tools and how to apply them in a project,
- define main steps of project reporting and controlling,
- plan for good quality and perform quality assurance,
- manage the project close down process and the close down meeting to successfully close a project,
- calculate different LL programmes (workshops, seminars, long-term continuing education programmes),
- plan, develop and manage own education programmes at their institutions.

## Harmonization of LL in ADA Region

Question	Answer
How should objectives be defined?	S.M.A.R.T
What is the difference between a deliverable and a milestone?	A deliverable is a tangible or nontangible, quantifiable and verifiable output of a project (e.g. a report, lab result, a prototype). A milestone is a time critical control-point in a project, often directly associated to the achievement of one or more deliverables. It marks the end of an important step in a project and helps to assess whether or not a project is on track. It usually triggers a management decisions.
What is a role in a project?	A set of expectations.
What is the main purpose of a kick off meeting?	The kick-off meeting is a team building a knowledge sharing event. Knowledge is transferred from the pre-project phase, the big picture communicated and all consortium partners are brought to the same level of knowledge.
What are typical outputs of a project kick-off meeting?	Refined project plans, documented initial decisions made, to-do lists for the immediate next steps.
What is a work package?	Major subdivision of the project work based on the project objectives.
What needs to be defined for every work package?	Descriptive name, a number, duration, a work package leader and contributors, objectives and activities, outputs and resources.
What is a person month?	A person month is the amount of work time equivalent to 1 person working for 1 month on a full time basis.
What defines the basis for your budget?	Besides the project requirements, the basis for a budget is always defined by the financial rules set by the project sponsor (e.g. European Commission).
What is the difference between a pure and a mixed project leadership structure?	In a pure structure, the project manager has the formal authority, in a mixed structure only shared authority.
What is an SOP?	Written procedure prescribed for repetitive use as a practice, in accordance with agreed upon specifications aimed at obtaining a desired outcome
What needs to be included in every report?	An explanation of the status quo and achievements, any deviations from the plan, justifications for deviations (and any corrective measures required).
What is typically assessed under the process of quality assurance?	Project performance, project outputs, team work (social aspects) and overall Project Management Activities.
What is the basis for quality assurance?	Definitions of roles, activities, processes, project objectives, output, timelines and goals.
What is the formal purpose of a project closing meeting?	To officially declare the end of the project and to dissolve the project team.
What is the formal purpose of a project closing meeting?	To officially declare the end of the project and to dissolve the project team.
What is an important output of the closing process, which is neglected by several project teams?	Clear to-does for the post-project phase.

## List of trained LL experts and officers at BOKU

**GROUP 1**  
**August 30 - September 2,**  
**2016**

HEI	Participant	Caegory	E-mail
UNKO	Ardian Careva	LL expert	acerava@gmail.com
	Gjergji Mero	LL officer	gjmero@yahoo.com
UNIOS	Marcela Šperanda	LL expert	marcela.speranda@pfos.hr
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	Jurica Primorac	LL officer	jurica.primorac@sve-mo.ba
UNIZG	Marko Vinceković	LL expert	mvincekovic@agr.hr
	Petra Doležalova	LL officer	pdolezalova@agr.hr
UoM	Jelena Latinović	LL expert	jelenalat@ac.me
	Aleksandra Despotović	LL officer	alexdt-com.me
UP	Fadil Musa	LL expert	fadil.musa@uni-pr.edu
	Bedri Dragusha	LL officer	bedri.dragusha@uni-pr.edu
AUT	Ferdi Brahusi	LL expert	fbrahusi@ubt.edu.al
	Denis Cela	LL officer	dcela@ubt.edu.al;



2.3.3.

**Teacher Training at the University of Hohenheim, Stuttgart, Germany**

Host institution	UHOH – University of Hohenheim
Training	Didactic training
Duration of mobility	5 days (including travel)
Contact person at UHOH	Ms. Angelika Thomas angelika.thomas@uni-hohenheim.de +4971145922499 +491791492194
	Ms. Maria Gerster-Bentaya m.gerster-bentaya@uni-hohenheim.de +4971145922649

Agenda

Date	Group 1 September 20 – 24, 2015	Group 2 September 22 – 26, 2015
20.09.2015.	Arrival of participants	
21.09.2015.	Didactic training	
22.09.2015.	Didactic training	Arrival of participants
23.09.2015.	Excursion	Excursion
24.09.2015.	Departure of participants	Didactic training
25.09.2015.		Didactic training
26.09.2015.		Departure of participants

**Description**

Sustainable agriculture takes place in a changing environment. Knowledge and skills acquired during previous learning phases need to be updated, some even unlearned. Learning theories and principles of human psychology today suggest more learner-centered approaches. Therefore, trainers / lecturers need to conduct trainings in accordance with these principles (applying an experiential learning approach also in teacher training is essential). The training contents were based on participants' experiences and needs. Interactive and activating methods, different forms of exchange of experiences, visualized presentations and discussions, group work and interactive exercises were applied during the training.

**Learning outcomes:**

After completion of the teacher training, participants were able to:

- design learner-oriented training modules (formulating learning objectives, deriving contents, choosing adequate methods, tools and materials),
- conduct learning sessions integrating participants experiences and skills considering group dynamics,
- use feedback tools (video, participatory collection & discussion methods)

**List of trained teachers at UHOH**

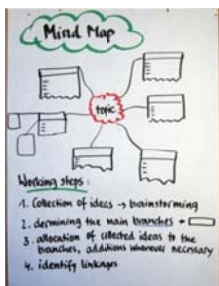
**GROUP 1**  
September 20 – 24,  
2015

HEI	Participant	E-mail
UNKO	Ardian Cerava	acerava@gmail.com
	Ilir Ničko	ivangjelnicko@gmail.com
	Gjergji Mero	gjmero@yaho.com
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UoM	Bozidarka Markovic	bmarkovic@t-com.me
	Dusica Radonjic	dradonjic@gmail.com
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	Tatjana Popovic	tatjanapopovic@t-com.me
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	Bedri Dragusha	bedri.dragusha@uni-pr.edu
UNIZG	Marija Cerjak	mcerjak@agr.hr
	Marina Tomić	matomic@agr.hr
	Edyta Đermić	edermic@agr.hr

## Harmonization of LL in ADA Region

**GROUP 2**  
September 22 – 26,  
2015

HEI	Participant	E-mail
UNIOS	Sonja Petrović	spetrovic@pfos.hr
	Andrijana Rebekić	arebekic@pfos.hr
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SVEMO	Lejla Knezović	lejla.knezovic@fpmoz.ba
	Andriana Planinić	adriana.kolobara@fpmoz.ba
	Mirjana Miličević	mirjana.milicevic@sve-mo.ba
UNSA	Mirza Uzunović	m.uzunovic@ppf.unsa.ba
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	Nermina Spaho	n.spaho@ppf.unsa.ba
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	Lirika Kupe Dorri	l.kupe@ubt.edu.al
	Alma Imeri	aimer@ubt.edu.al
	Julian Shehu	ubt@ubt.edu.al
UNIZG	Darija Bilandžija	dbilandzija@agr.hr



### 2.3.4. Teacher Training at the University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia

Host institution	UL – University of Ljubljana Biotechnical Faculty
Training	Communication and ways/methods of knowledge transfer
Duration of mobility	4 days (including travel)
Contact person at ul	Prof. Marija Klopčič Marija.Klopacic@bf.uni-lj.si +386 41546484

#### Agenda

Date	September 13 – 17, 2015
13.9.2015.	Arrival of participants
14.9.2015.	Communication: Principles, theory and practical training
15.9.2015.	Teaching Methods Using of different ways of knowledge transfer for students and adult people
16.9.2015.	Writing and Presenting Scientific papers Study tour (excursion)
17.9.2015.	Departure of participants

#### Description

During the training at the University of Ljubljana participants were introduced to ways (methods) of knowledge transfer to different age groups. Training consisted of planning of the programmes of knowledge transfer for specific groups (related to Lifelong Learning process), informatics, innovation, education, demonstration and practical trainings as well as interactive strategic thinking and networking related to the knowledge transfer. Principles, theory and practical training regarding professor-student communication and agricultural communication were held. Within training, following study tours were organized: the visit of Teaching and Research center for horse breeding Krumperk, visit of the Center for cattle and sheep breeding in Logatec, visit of labs for practical work of students (dairy lab, forage lab, slaughterhouse, and library).

#### Learning outcomes

After completion of the teacher training, participants were able to:

- improve professor-students communication
- use new techniques for delivering communication in the classroom
- use techniques for effective communication and getting feedback in classroom

## Harmonization of LL in ADA Region

- use different teaching methods and science communication (e.g. lectures, group work and discussions, exercises, assignments and labs, problems based learning, case studies, learning portfolio, self studies, supplemental instructions, etc.)
- improve agricultural communication with different partners and stakeholders
- communicate with media and to write press releases
- use different methods and forms of knowledge transfer for different age groups
- prepare well structured oral presentation and visual displays
- make poster presentation
- improve writing of professional and scientific articles

## List of teachers trained at UL

**GROUP 1**  
September 13 – 17,  
2015

HEI	Participant	E-mail
UNKO	Viola Prifti	vprifti@unkorce.edu.al
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2.

## Development of Lifelong learning at HEI





## 2.4. Implementation of developed LL activities (summer schools)

Pilot activities (pilot lines or deployment projects) are the best means to generate the knowledge base and the visibility. Partner institutions decided on the type of the activity (summer school) which was carried out in the pilot phase. Each partner institution carried out the design of each course, selection of the materials and learning activities, the sequence and ways of using them. The primary outcome of vocational education was expertise – being able to do skillful things of a kind and in the area of work that is quite clearly specified and understood. In order to provide a good LL model and primary outcomes of vocational education, pilot activities enabled the insight into a vocational student standard, which was described by using criteria expressed in words. Levels of competence obtained after a certain pilot activity were envisaged, from the lowest one - competence that involves the application of knowledge and skills in the performance of a range of varied work activities, to the highest level - competence that involves the application of skills and a significant range of fundamental principles across the wide and often unpredictable variety of contexts. Moreover, vocational education should be relevant to the real needs of employers is thus a very reasonable aspiration when designing pilot activities. An important aspect was, therefore, scope for updating content and approaches based on the current (and future) needs of employers.

After completion of pilot activities (summer schools) student questionnaires were evaluated. Altogether, eight different summer schools were organized at Partner countries and Croatia. Each partner prepared curricula based on the report on LL potentials and needs. The role of the EU partners was to review the curricula, and based on their experience to give suggestions for improvement.

### 2.4.1. The University of Zagreb, Faculty of Agriculture, Croatia

The University of Zagreb (1669) is the oldest and biggest university in South-Eastern Europe. The University of Zagreb Faculty of Agriculture (FAZ) is the leading institution in the field of agriculture and related sciences in Croatia. FAZ is continuously trying to acquire, develop and transfer knowledge in order to educate our students, scientists and experts. This enables us to enhance the production of food, industry, management of natural resources, and the development of the rural and urban environment, as our contribution to the total quality of living in the national and global framework. Since the academic year 2005/2006 FAZ has started with new study programs harmonized with the Bologna Process; undergraduate, graduate and postgraduate doctoral and specialist studies (3+2+3) (180+120+180 ECTS). The FAZ teachers and researchers are involved in implementation of basic, development and applied research projects, and actively participating in professional collaboration.

UNIZG, as a grant holder, had the leading role in this project. UNIZG prepared working methodology and working groups. UNIZG organized the “Kick off conference” and training for LL experts and officers. Preparation of consortium agreement and memorandum of understanding were performed by UNIZG. UNIZG prepared and distributed questionnaires, made reports on LL potentials at institutional and national

levels, and a case study. Institution participated in a workshop in Sarajevo, as well as in its organization. UNIZG prepared a draft of Regional guidelines and National strategies and distribute them to all partners. UNIZG also participated in the organization of Round table in Podgorica and the final conference in Tirana. Staff from UNIZG participated in teacher trainings, designing of pilot activities, and courses' curricula. Institution created, distributed and collected student questionnaires. UNIZG was in charge for the project's promotion. As the project coordinator, UNIZG had the main responsibility considering project activities, and creation of Interim and Final reports.

**2.4.1.1.****Decision making process in curriculum development****Report on LL potentials**

Survey (Interview) was conducted by three WP2 members individually at each department – Ivona Filipović, M.Sc., Senior Assistant Branka Šakić Bobić, Ph.D. and Assistant Marina Tomić, M.Sc. All 28 departments have been included in the survey - 26 responded (2 departments are not included in the results).

After analysis of the questionnaires results were following:

- Sufficient and highly motivated human resource / teachers
- Diversity of educational programmes depending on the topic and types
- Target groups: the most common identified but not strict
- 77% require additional experts (outside organizational unit)
- 46% is not familiar with evaluation process at all
- 92% is expecting administrative support at the Faculty level

**Report on LL needs**

In order to determine the needs of the Croatian market with regard to lifelong learning in the field of agriculture, a survey was conducted on three groups of respondents: agricultural secondary school teachers, local, regional and state administration and the producers. The survey consisted of the following question groups: (1) Status and training needs assessment, (2) Personal motivation for training and (3) Personal questions. The majority of questions were common to all three respondent groups, while a smaller number of questions referred to the particularities of certain respondent groups.

The online survey was open from October 1, 2014 until January 31, 2015. The respondents were contacted in different manners. Secondary school teachers were contacted through the secondary school principals, who were contacted by phone and asked to forward the survey link to their employees. The local, regional and state administration employees were contacted primarily via email, but a part of the respondents were also contacted verbally. Everyone was also requested to forward the survey link to their colleagues. The producers/processors were contacted via email (producer list from private bases), while a part of the respondents filled out the survey by directly contacting the interviewer.

**Sample description**

The survey was completely filled out by 246 respondents which included 57 agricultural secondary school teachers (23.2%), 83 public administration representatives (33.7%) and 106 producers (43.1%).

## Harmonization of LL in ADA Region

The percentage of women was significantly higher among the surveyed teachers and public administration employees (75%, i.e. 71%), while the percentage of men was significantly higher among the producers (73% were men). Considering that the survey was conducted online, the average age of the respondents, especially the producers, is relatively low with 46.6 years of age for teachers, 44.2 for public administration employees and 39.5 for the producers.

Persons with university degrees account for the largest percentage of the respondents (94.6% among the teachers, 78.3% among the public administration employees and 53.3% among the producers). The majority of public administration representatives have masters or doctoral degrees (approximately one fifth), while producers account for the largest proportion of respondents with secondary education (approximately one third).

More than half of the respondents do not have an agricultural education. The highest percentage of respondents with such education is among the public administration representatives (57.8%), while the percentage among the producers is the lowest (39.6%). Among the teachers and public administration employees, more men have completed an agricultural orientation, while among the producers more women have agricultural education. The majority of completed masters/doctoral degrees (85%) are in agriculture.

Among the respondents from public administration (N=83) the majority are employees of the Advisory Service (37.3%) and the Ministry of Agriculture (24.1%), while other respondents come from agencies, colleges and institutes connected to agriculture and rural development. With regard to the fields of agriculture they work in, crop production (31.3%), plant protection (30.1%) and agricultural economics (28.9%) are most widely represented.

Among the producers (N=106), small registered farms are most widely represented (45; 42.5%), the percentage of commercial producers is slightly lower (41; 38.7%), while the number of hobbyists is the lowest (19; 17.9%). With regard to the production concerned, crop farming is most widely represented, followed by milk and honey production, as well as vegetable crops, pomology and olive growing. Approximately 15% of the producers surveyed have been involved in production for more than 20 years, 39% of them have dealt with own production between 11 and 20 years, and 30% have been involved in production between 5 and 10 years, while 16.5% of the producers surveyed started the existing production in the last 5 years.

## Status and training needs assessment

Almost all of the respondents are familiar with the concept of lifelong learning. Only a small number of public administration employees (3.6%) and producers (5.7%) stated that they had not heard of the concept.

More than half of the respondents from all three groups consider that the existing offer of additional education/training programmes in the field of agriculture is insufficient, whereby the majority are women. Approximately 20% of the producers and teachers, and only around 8% of the public administration employees consider that the current offer is sufficient.

Areas in which the respondents lack knowledge	% of respondents		
	Schools	Administration	Producers
Animal science	12.3%	13.3%	19.8%
Crop production	17.5%	22.9%	39.6%
Ecological production	49.1%	39.8%	52.8%
Agrotourism	31.6%	24.1%	22.6%
Agricultural economics	15.8%	28.9%	26.4%
Agribusiness	31.6%	30.1%	25.5%
Rural development	17.5%	49.4%	29.2%
Agroecology	26.3%	22.9%	17.9%
Microbial biotechnology in agriculture	15.8%	10.8%	10.4%
Animal genetics and breeding	8.8%	4.8%	6.6%
Horticulture – vegetable crops	21.1%	15.7%	17.0%
Horticulture – ornamental plants	21.1%	8.4%	8.5%
Horticulture – viticulture	10.5%	9.6%	15.1%
Horticulture – enology	8.8%	8.4%	10.4%
Horticulture – fruit crops	14.0%	13.3%	18.9%
Animal nutrition and food	8.8%	7.2%	13.2%
Meat production and processing	8.8%	8.4%	7.5%
Milk production and processing	8.8%	8.4%	7.5%
Landscape architecture	24.6%	10.8%	8.5%
Agricultural engineering – machinery	12.3%	2.4%	26.4%
Agricultural engineering – soil amelioration	5.3%	6.0%	18.9%
Fisheries	10.5%	1.2%	5.7%
Hunting	7.0%	1.2%	6.6%
Apiculture	14.0%	8.4%	17.9%
Plant protection	28.1%	21.7%	41.6%
Phytomedicine	29.8%	20.5%	25.5%

In addition to the offered knowledge, individual respondents stated that they also lack knowledge in floristics, cultivation of medicinal and aromatic plants, fruit and vegetable processing, EU funds and agricultural legislation. The most common area in which respondents lack skills were: public speaking, presentation skills, foreign language knowledge and writing project proposals.

## Harmonization of LL in ADA Region

Areas in which respondents lack skills	% of respondents		
	Schools	Administration	Producers
Public speaking	21.1%	31.3%	20.8%
Communication skills	17.5%	25.3%	21.7%
Presentation skills	19.3%	36.1%	25.5%
Teamwork	19.3%	20.5%	16.0%
Trainer training	21.1%	30.1%	7.5%
Critical thinking	12.3%	14.5%	23.6%
Writing project proposals	71.9%	69.9%	43.3%
Working with computer programmes	8.8%	15.7%	17.9%
Foreign language knowledge	54.4%	36.1%	46.2%

The respondents from all three groups prefer a direct form of teaching in combination with practical work. More than four fifths of all respondents consider that faculties should provide additional education connected to sustainable agriculture. An additional 40.6% of producers consider that such education should be performed by higher education institutions.

**Do you need some of the forms of education/training valuation?**

	% of the respondents			
	No	Yes, ECTS points	Yes, entry into the employment record/portfolio	Yes, another type of certificate
Schools	43.9%	26.3%	19.3%	10.5%
Administration	38.6%	49.4%	0%	12.0%
Producers	58.7%	7.7%	28.8%	4.8%

### Why did we choose this topic?

According to the results of the analysis, UNIZG designed Summer school which corresponds to the needs mentioned in the report. Summer school covers additional education from the field of Ecological production, Agricultural economics and Agribusiness as well as Plant protection and Phytomedicine. During the summer school program participants also had the chance to practice their public speaking and presentation skills. Since there is a possibility of conducting programme both on Croatian and English participants can also improve their foreign language knowledge. Upon finishing the programme Certificate of completion, entry in employment record card / portfolio or 3 ECTS credits are awarded, depending on the needs.



### 2.4.1.2. International Summer School "Organic Agriculture - From Field to Fork"

The programme is designed to fit the LL needs of specific group of participants – agricultural producers, public administration within field of agriculture, high school teachers or students.

#### Summer School Description

Host institution	University of Zagreb Faculty of Agriculture Svetošimunska 25, 10000 Zagreb, Croatia
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. are starting your own family farm / organic production</li> <li>2. need additional education from the field of Organic agriculture</li> <li>3. want to learn more or improve your skills</li> </ol>
Learning outcomes	<p>PART I – Organic agriculture Knowledge on organic farming – footprint, vegetable production, production in protected areas, utilization of medicinal and aromatic plants, and relation to climate change.</p> <p>PART II – Marketing and Management in organic agriculture Knowledge on development of business projects in organic farming, organic agri-food market, trends and opportunities for organic agri-food products.</p> <p>PART III – Plant protection measures in organic agriculture Knowledge on ecologically-based pest management strategies for harmful insects, pathogens and weeds (bio pesticides) and cultural practices that can conserve beneficial organisms.</p>
Language	English or Croatian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion, entry in employment record card / portfolio or 3 ECTS credits are awarded upon finishing the programme.
Duration	15 days
Minimum number of participants	5
Maximum number of participants	20
Programme coordinator	Prof. Renata Bažok, Ph.D. E-mail: rbazok@agr.hr, Phone: +385 1 239 3969
LL expert	Assist. Prof. Marko Vincekević, Ph.D. E-mail: mvincekovic@agr.hr, Phone: +385 1 239 3953
LL officer	Petra Doležalova, M. Sc. E-mail: pdolazalova@agr.hr , Phone: +385 1 239 3627



**LL PROGRAMME: "Organic Agriculture : From Field to Fork – OrganicF2F"****PART 1 Organic agriculture**

Day	Time	Titles of the lectures	Lecturers
DAY 1 27.6.2016.	08:00-09:00	Dean's welcome speech Summer school coordinator's speech	Zoran Grgić Renata Bažok
	09:00-11:00	Introduction to organic agriculture	Ivica Kisić
	11:00-13:00	Global ecology	Željka Zgorelec
	14:00-16:30	Sampling and data processing in order to provide rational soil use in organic agriculture	Igor Bogunović
DAY 2 28.6.2016.	08:00-10:00	Adulteration of bee products as a threat to the ecological beekeeping	Lidija Svečnjak
	10:00-11:00	Ecological footprint of aquaculture	Danijel Matulić
	11:00-12:00	Challenges in front of recreational fishing	Tomislav Treer
	13:30-14:30	Hybrid fishes - problems and solutions	Tea Tomljanović
	14:30-15:30	ARE WE LOSING OUR FISH DIVERSITY? Introductions of alien freshwater fish species in Balkans (Europe), risk assessment and the impact of exotic invasions	Marina Piria
DAY 3 29.6.2016.	08:00-10:00	Organic farming and climate change	Darija Bilandžija
	10:00-12:00	Organic production of vegetables	Sanja Radman
	13:30-15:30	Disease-resistant cultivars as a solution for organic viticulture	Jasminka Karoglan Kontić
DAY 4 30.6.2016.	08:00-10:00	The Role of Agriculture and Related Activities in Protected Areas	Aleksandra Perčin
	10:00-12:00	Medicinal and aromatic plants: conservation, utilization and use	Zlatko Šatović, Martina Grdiša, Klaudija Carović-Stanko
	13:30-15:30	<i>Lecture sequel:</i> Medicinal and aromatic plants: conservation, utilization and use	

**PART II****Marketing and management in organic agriculture**

Day	Time	Titles of the lectures	Lecturers
DAY 5 1.7.2016.	08:00-09:00	Marketing trends in agribusiness - Overview of world organic food market	Marija Cerjak
	09:00-10:00	Market-driven marketing plan for organic agri-food products	Marija Cerjak
	10:00-12:00	Market segmentation - Organic food consumers' motives and obstacles	Marija Cerjak
	13:30-14:30	Product policy and product market combination	Marija Cerjak
	14:30-15:30	Organic food labelling and certification	Marina Tomić
	08:00-10:00	Students' presentation of the state-of-the-art of organic agriculture in their countries	Marija Cerjak
	10:00-12:00	Pricing strategy for organic agri-food products	Marina Tomić
	13:30-15:30	Guest Lecturer	BioVega
DAY 7 5.7.2016.	08:00-10:00	Marketing channels for organic agri-food products	Marina Tomić
	10:00-12:00	Promotion strategy of organic agri-food products	Marija Cerjak
	13:30-14:30	Business results of organic farming in the EU	Josip Juračak
	14:30-15:30	Organic farming versus conventional farming: the comparison of business indicators	Josip Juračak
DAY 8 6.7.2016.	08:00-09:00	Planning of business projects in organic farming	Branka Šakić Bobić
	09:00-11:00	Application of budgeting techniques in the business plan	Branka Šakić Bobić
	11:00-12:00	Time preference of money in the assessment of long-term projects	Josip Juračak
	13:30-14:30	Assessing the financial viability of projects in organic farming	Branka Šakić Bobić
	14:30-15:30	Risk assessment and sensitivity of investments	Josip Juračak

**PART III**

**Plant protection measures in organic agriculture**

Day	Time	Titles of the lectures	Lecturers
a) Entomology			
DAY 9 7.7.2016.	08:00-09:00	Non pesticide management of insect pests	Darija Lemić
	09:00-10:00	Area wide pest management by mass trapping – ecologically acceptable method of pest control	Renata Bažok
	10:00-11:00	Push-pull strategy as alternative (non chemical) measure of pest control	Ivan Juran
	11:00-12:00	Sterile Insect Technique	Ivana Pajač Živković
	13:30-14:30	Mating disruption - useful method in insect management	Ivana Pajač Živković
	14:30-15:30	Botanical insecticides - natural insecticides inside plants	Maja Čačija
DAY 10 8.7.2016.	08:00-09:00	Biological pesticides based on pathogenic microorganisms and naturalites	Renata Bažok
	09:00-10:00	Entomopathogenic nematodes (EPN)	Dinka Grubišić
	10:00-11:00	Systematic and morphology of major orders of natural enemies	Ivan Juran
	11:00-12:00	Parasitoid wasps: natural enemies of insects	Maja Čačija
	13:30-14:30	Natural enemies: Predaceous ground beetles	Darija Lemić
	14:30-15:30	Predatory true bugs in biological control of agricultural pests	Ivana Pajač Živković
b) Plant Pathology			
DAY 11 11.7.2016.	08:00-09:00	Plant pathogens and their control - efforts for ecological sustainability under rapid microbial evolution and local adaptation	Edyta Đermić
	09:00-10:00	Plant disease management: The perplexity of the problems (basics)	Edyta Đermić
	10:00-12:00	Importance of monitoring and forecasting in plant pathogens control	Edyta Đermić
	13:30-14:30	Control of fungal diseases in organic farming	Dario Ivić
	14:30-15:30	Plant – parasitic nematodes - importance and control. Ecologically acceptable nematode control measures.	Edyta Đermić

Day	Time	Titles of the lectures	Lecturers
		c) Herbology	
DAY 12 12.7.2016.	08:00-09:00	Weed management - ecological approach	Maja Šćepanović
	09:00-10:00	Determination of broad-leaf weeds species in cotyledon stages. Determination of grass weeds in a young stage of development	Ana Pintar
	10:00-11:00	Forecasting models of weed sprout to determine the optimal timing of weed control	Maja Šćepanović
	11:00-12:00	Analysis of weed seeds in the soil and seed viability	Maja Šćepanović, Ana Pintar
	13:30-14:30	Non-chemical weed control measures (physical, mechanical, biological)	Maja Šćepanović
	14:30-15:30	Slug and snails in agriculture. Ecologically acceptable slug control measures	Dinka Grubišić
DAY 13 13.7.2016.	08:00-20:00	Field excursion: Organic farm visit	Ivica Kisić Renata Bažok
DAY 14 14.7.2016.	-	Individual work / Free day for preparation	
DAY 15 15.7.2016.	08:00-10:00	Written exam	
	10:00-12:00	Group 1 – Oral presentations of seminars	Ivica Kisić Dinka Grubišić
	13:30-14:30	Group 2 – Oral presentations of seminars	Helena Virić Gašparić
	14:30-15:30	Curriculum / teachers evaluation questionnaires Results and Certificate award	

### LECTURE SUMMARY

#### PART 1

#### Organic agriculture

##### Introduction to organic agriculture

Ivica Kisić

Organic farming has become an established part of farming scene, but in spite of the considerable media attention there is still very little in way of published information on the subject, especially in this part of Europe. The recent increase in interest in organic farming in the world makes this term very popular. Organic farming took on a new lease of life during the 1980s, especially after the appearance of mad cow disease in Europe. Since that time, people begin to think what they eat. The problems of overproduction in the industrialised countries, underproduction in developing countries and environmental impact of agriculture have concentrated minds and brought about a dramatic reassessment of the achievements of the post 1945 era. In this lecture the following topics were discussed: difference between conventional and organic farming, soil fertility in organic farming systems, crop agronomy in organic agriculture, problems of weed in organic agriculture, organic standards and certification, how to recognize organic food on the market, mitigation of climate change with organic farming and biodynamic agriculture.

##### Global ecology

Željka Zgorelec

The lecture gave a basic introduction and the Scope of the Global Ecology, interdisciplinary study and terms used in Natural, Life and Environmental Science. Lecture explained holistic approach to Earth understanding from molecules to ecosystems, from regional to global, from theory to practice. Agenda: History – Ecology; Ecology/Environment/Nature; Abiotic and biotic factors; Ecological Levels-of-Organization Hierarchy; Subject matter of ecology; Global Ecology,/Agroecology, Organic Ecology/Sustainable Ecology; Soil and Soil Health; System Ecology : Energy & matter/nutrients in Ecological systems; Biogeochemistry (C, N cycles); Ecological footprint

##### Sampling and data processing in order to provide rational soil use in organic agriculture

Igor Bogunović

Soil is fundamental key for life on planet Earth, and knowledge about soils provides understanding for the key functions in soils. Soil plays a significant role in providing vital ecosystem services to support human well-being. But, notable studies have documented that soil properties vary across natural ecosystems. Spatial variability of soil properties in ecosystems is a direct result of the five soil forming factors: climate, organisms, relief, parent material, and time. Soils variability occurs also in agroecosystems, causing spatial variability in crop yields. Spatial variability of soil properties in agroecosystems may be related to combined action of soil forming factors as well as anthropogenic land use patterns, which vary in space and time across the landscape. Therefore, importance of spatio-temporal monitoring of soil functions in agroecosystems is necessary in order to better understand the state of their agricultural productivity. Standard soil sampling procedures do not provide qualitative information for precise management and monitoring of soil productivity. Therefore, new ways of sampling and data

processing (which include GIS and geostatistics) provide opportunity for better understanding spatial variability of soil properties and for rational use of soil amendments. Those new technologies provide us opportunities for reducing in-field crop and soil variability, which finally producer can avoid higher economic cost, reduce potential environmental problem and provide unique conditions for crops.

### Adulteration of bee products as a threat to the ecological beekeeping

Lidija Svečnjak

Honey bee products (honey, beeswax, propolis, royal jelly, bee venom) represent valuable biological substances produced by the honeybees (*Apis mellifera* L.). Due to their increasing commercial relevance on the international market, high price and unique quality attributes, these products are often a target of adulteration with low quality/price substances. The type and level of adulteration can vary significantly, from simple addition of sugar syrup into honey to more complex addition of chemically inert compounds that cannot be identified and/or detected easily. One of the most represented xenobiotic in modern apiculture nowadays is paraffin (petroleum derivative), commonly utilized for adulteration of beeswax (comb) foundations on which honey bees built their home - honeycombs. Given that honeycombs are being used for food storage and brood development in the hive, beeswax adulteration with paraffin has negative effect on honey bee colony and the entire beekeeping technology process because it can result with disorder in honey bee colony chemical communication, abnormalities of brood development, deformations of constructed combs, and questionable quality of honey stored in adulterated combs. Although beeswax adulteration represents one of the main beeswax quality issues today, there are still no internationally standardized analytical methods for its authenticity / quality control. Therefore, we have developed an approach for routine analytical detection of beeswax adulteration using FTIR-ATR spectroscopy, as a chemical fingerprinting tool providing reliable results on paraffin (and other adulterants) share in beeswax.

### Ecological footprint of aquaculture

Daniel Matulić

The concept of ecological footprint has helped to visualize the impact of human activities on the environment (including aquaculture) and to sensitize the sector towards environmental sustainability. Environmental sustainability of freshwater and marine aquaculture is, like the most of the other food production systems, compromised by certain risks. Research of "ecological footprint" of aquaculture indicated many insights on the environmental impact of aquaculture. The risks inherent in aquaculture are: alternation or destruction of habitats; excessive consumption of fresh water; organic pollution and eutrophication; chemical contamination by pesticides and drugs; infection with diseased organisms; the risk of genetic contamination of open water with organisms that fled; the introduction of exotic species; depletion of wild fish stocks by collecting wild seeds and natural fish feed.

### Challenges in front of recreational fishing

Tomislav Treer

There are 25 millions of anglers in Europe. European sector of recreational fishing employs 60 thousand people. Its financial value in many countries surpasses the aquaculture one. There are 60 thousand of registered anglers in Croatia together with 20 thousand anglers who occasionally buy licences for a day, week or month. The indirect benefits of recreational fishing include angling tourism and social and

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health benefits, especially for the veterans of war. However, modern recreational fishing faces series of challenges. Some of them relate to the ecology: the water pollution, dams with dysfunctional fish passes, poaching and bad management. Sometimes, anglers compete with professional fishermen and other water users. Recently, the ethical questions are becoming more important, particularly in developed countries. All these issues call for the cooperation of all the stakeholders involved.

## Hybrid fishes - problems and solutions

Tea Tomljanović

Effects of stocking with alien fish haplotypes and also implications for conservation and fisheries management were discussed. Diversity of *Salmo* spp. and common carp in Western Balkans which are most important for recreational fishing and for fish production were described. The Balkan Peninsula is believed to harbour a great deal of phenotypic diversity, and thus is considered as a hotspot in the evolution of many European species. This is reflected in numerous nominal trout taxa that have been described for the region, but their taxonomic status was uncertain until newly research by molecular techniques. This statement were analysed by several fish species.

## ARE WE LOSING OUR FISH DIVERSITY?

### Introductions of alien freshwater fish species in Balkans (Europe), risk assessment and the impact of exotic invasions

Marina Piria

Balkans belongs to the one of 35 biodiversity hotspots and together with the Mediterranean peninsulas of Iberia and Apenines, it contains much of genetic and species diversity. Many aquatic animals are long-established in the Balkans, but there are some recently introduced species even in isolated lakes. Surveys from several Balkan countries revealed that, 15-23% of their fishes are non-native, including some specific cases, as River Danube, with more than 50% of introduced fishes. The idea of transferring fish from other continents probably also arose during Renaissance times. However, documentation of fish introductions into Balkan area began in 19<sup>th</sup> century with common carp and goldfish *Carassius auratus* (Linnaeus, 1758) introductions. Primary motivation of introductions in Balkan countries was aquaculture and recreational fishing, followed by ornamental (garden and aquarium) purposes, biocontrol agents and to fill 'a vacant niche'. In most of Balkans countries, there are still no effective measures to control introductions or translocations of non-native fish species. Due to high level of endemism and great conservational value of inland water fish species in this region, especially in isolated and short rivers, introductions can cause real threat to ichthyofaunistic diversity. During this lecture, history of introductions, current dispersal, present status of alien fish species, their impact and compromise between organic aquaculture with alien and native fishes were discussed.

## Organic farming and climate change

Darija Bilandžija

Climate change and variability are a considerable threat to agricultural communities. The lecture outlined the main challenges posed by climate change and variability that can be addressed by organic agriculture as an adaptation and mitigation strategy after a short introduction to organic agriculture and climate change.



### Organic production of vegetables

Sanja Radman

Lecture Organic production of vegetables was divided into four parts. The first part discussed some specific rules (general and special) in organic production of vegetables. In this part the current phase of organic farming in the Republic of Croatia was presented (statistical data, the area under organic production of vegetables). The second part focused on seed and reproductive material, only allowed in organic production of vegetables. The third part covered some measures to protect vegetables from pests and diseases in organic agriculture, while in the last part the legislation as well as steps to eco sign was described.

### Disease-resistant cultivars as a solution for organic viticulture

Jasminka Karoglan Kontić

Grapevine (*Vitis vinifera* L.) is a species that originated from the European continent. In the mid-1800s, viticulture in Europe was afflicted with numerous grapevine pests that originated from North America, including powdery mildew (*E. necator*) and downy mildew (*P. viticola*). Since then, a regular plant protection program with various active ingredients is mandatory in grape production. In organic viticulture, the list of allowed plant protection products is very restricted and the problem of fungal diseases is the main obstacle for further increase of share of organic vineyards in the total grape growing area. As the most appropriate solution for this problem, guidelines for organic viticulture recommend growing of resistant varieties. These cultivars originated from crosses between American species and the European *V. vinifera* cultivars. In this lecture, the history of resistance breeding of grapevine was explained together with the reason for the bad reputation still connected with resistant varieties. The new generation of resistant varieties that originated from breeding programs in Germany, Hungary and Serbia were presented. The regulation of using resistant grapevine varieties for production of wine with protected geographic origin was discussed.

### The Role of Agriculture and Related Activities in Protected Areas

Aleksandra Perčin

Lecture defined the role and importance of protected areas (PAs). They are essential providers of ecosystem services and biological resources; key components in climate change mitigation strategies; and in some cases also vehicles for protecting threatened human communities or sites of great cultural and spiritual value. Covering almost 12 percent of the world's land surface, the global protected area system represents a unique commitment to the future; a beacon of hope in what sometimes seems to be a depressing slide into environmental and social decline. PAs are also a key element of biodiversity conservation. PAs provide ecosystem services necessary for food production now and in the future. In lecture the definition of the IUCN (International Union for Conservation of Nature) protected area and categories, but also categories according to the Croatian's laws were presented. The main feature of agriculture in protected areas is to preserve biodiversity through principles of good agricultural practice. In the protected areas of Croatia primarily allowed forms of agricultural practice is traditional agriculture. Lecture also provided examples and experiences of organic farming and traditional agriculture in PAs all over the world and methods how to achieve a crop production compatible with the other ecosystem services. It will be emphasized the importance of traditional agriculture, which is developed in a way that was consistent with environmental and social circumstances and based on the maintenance of biodiversity. Upon completion of the course students were able to compare the

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traditional, intensive and organic farming in terms of soil and water contamination in environmentally sensitive areas respectively in protected areas.

### Medicinal and aromatic plants: conservation, utilization and use

Zlatko Šatović; Martina Grdiša and Klaudija Carović-Stanko

The use of medicinal and aromatic plants (MAP) in Croatia has a very long tradition. Natural MAP populations show great biodiversity in morphological, biochemical and genetic level. The assessment of biodiversity is a starting point for efficient conservation of plant genetic resources and its use in plant breeding programmes. Current production of medicinal and aromatic crops in Croatia is very limited with tendency to grow. MAP producers and processors generally agree that marketing opportunities do exist in case of a number of species. They are source of a wide range of secondary metabolites which can be used for various purposes. Many of them are used in traditional and modern medicine as well as a spice, but also many of them show great potential as natural insecticide.

## PART II

### Management in organic agriculture

#### Marketing trends in agribusiness

##### Overview of world organic food market

Marija Cerjak

In order to better understand market developments and to adopt own business to changing market conditions it is necessary to recognise emerging marketing trends and to be familiar with national and global overview of a particular market. The goal of this lecture was to discuss recent marketing trends in agribusiness sector with a particular attention to organic sector as well as to present current state-of-the-art of the world organic food market.

##### Market-driven marketing strategy for organic agri-food products

Marija Cerjak

In a highly competitive agribusiness environment focusing on the needs of the customers can ensure competitive advantage to organic food producers. Therefore, apart from analyzing internal and external business environment, marketing strategy should be geared toward reaching those customers who would benefit the most from company's product or service. A market-driven marketing strategy includes elements like identifying target market and reacting to their needs.

#### Market segmentation

##### Organic food consumers' motives and obstacles

Marija Cerjak

One organisation cannot satisfy all consumers due to their various needs and wants. Therefore it is necessary to divide the market into sections e.g. segments to enable a business to better target its products to the relevant customers. Companies commonly split the market based on demographics, income, geography, behaviour and psychographics. In this lecture principles of market segmentation and common

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variables used to segment agri-food market was presented. Main motives and obstacles of organic food consumers were discussed.

### Product policy and product market combination

**Marina Tomić**

During this lecture the concept of organic product including core, actual and enriched product, product line and assortment as well as product life cycle concept were discussed. A product-market combination was explained as well.

### Organic food labelling and certification

**Marina Tomić**

Labeling is an important process in the food processing chain as labels are used to identify one product from another. Therefore, a label is an important marketing tool for food products and this is especially true for organic labels as they enable consumers to easily distinguish organic from conventional products. During this lecture students learned about food labelling in general as well as about recognised organic labels and certificates.

### Students' presentation of the state-of-the-art of organic agriculture in their countries

**Marija Cerjak**

Before coming to this lecture, students had to prepare a presentation about the state-of-the-art of organic agriculture in their countries. After students' presentations discussion about similarities and differences in organic food markets in students' countries was organised.

### Pricing strategy for organic agri-food products

**Marina Tomić**

Setting prices is one of the most difficult tasks in organic farming as there is no single resource that would help in defining selling price. During this lectures students were introduced to pricing strategies that could be used in organic agri-food sector.

### Marketing channels for organic agri-food products

**Marina Tomić**

Today's consumers are very demanding regarding food quality and safety, but also regarding their purchasing requests. The way that consumers make purchasing decisions has dramatically altered in the last decades what leads to a number of changes in selling channels. In this lecture students were introduced to different possibilities in sale of organic produce as well as advantages and disadvantages of various selling channels.

### Promotion strategy of organic agri-food products

**Marija Cerjak**

Promotion includes all activities that involve communication to consumers about product and its benefits and features. The main aim of promotional activities is to attract customer's attention and to give customer enough reason to buy the product.

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In this lecture different promotional strategies and tools used in organic food market were discussed.

## Business results of organic farming in the EU

Josip Juračak

Since 1980-es the market niche for organic farming products in developed countries steadily grows. More and more farmers look at this trend as a business opportunity. This is especially interesting in cases where the economy of size is not achievable due to many barriers. The knowledge of business results recently achieved in organic farming is needed as an input for making decision about starting the organic farming.

## Organic farming versus conventional farming: the comparison of business indicators

Josip Juračak

The organic farming is getting in share and importance in last few decades. Meanwhile, the debate about its economic and financial viability is continuously going on. Since today we have available different multiannual data sets and publications dealing with the financial efficiency of organic production, we can compare this type of farming with the conventional. This comparison is important for business and market, as well as for the policy makers.

## Planning of business projects in organic farming

Branka Šakić Bobić

In most of cases the process of starting organic production is quite demanding regarding to financial and human resources. Either conventional farmers or a newcomers that plan to produce for market, must be aware that this process in its core is a business project. Therefore, the knowledge of business planning steps and techniques is needed to avoid mistakes in activities intended.

## Application of budgeting techniques in the business plan

Branka Šakić Bobić

Probably the most important part of the business plan, beside the definition of market, is the financial plan. However, the financial plan cannot be developed without knowledge of budgeting and budget planning. The topic will include terms like costs, revenues, income, profit, and business ratios.

## Time preference of money in the assessment of long-term projects

Josip Juračak

The establishment of organic farming enterprise is the project that will generate benefits and costs in a long term. In the business planning benefits and costs are expressed in money terms. Since the level of prices, interests and exchange rates vary through the time; the variation must be taken into account in order to get realistic project assessment. The time preference of money implies the understanding of compound interest, discount rate, and discount factor.

### Assessing the financial viability of projects in organic farming

Branka Šakić Bobić

The financial and economic analysis of business projects is based on a set of commonly used business ratios and investment appraisal techniques. There are numerous business ratios used to evaluate business activity level, productivity, indebtedness, and profitability. Investment appraisal techniques are based on the concept of time preference of money. The most commonly used are net present value and internal rate of return.

### Risk assessment and sensitivity of investments

Josip Juračak

Like any other type of business, the organic farming is subject to various types of risks. The assessment of different risk sources and their expected impact on the future project is an inevitably part of investment analysis. It has to be taken into account during the project sensitivity analysis. The sensitivity analysis helps us to estimate the impact of negative changes in key assumed parameters on the project results.

## PART III

### Plant protection measures in organic agriculture

#### Non pesticide management of insect pests

Darija Lemić

Non-pesticide management (NPM) describes various pest-control techniques which do not rely on pesticides. NPM is a system that maintains insect populations at levels below those that can potentially damage a crop and cause economic injury, by having healthy crop and managing the population dynamics in the crop ecosystem. This involves understanding pests and predators life cycle. NPM also means shift from plant-pest relationship to pest-ecosystem relationship, from external inputs to local natural resources. It presents integration of all suitable management techniques in a harmonious manner with natural regulating and limiting elements of the environment to prevent insects from reaching damaging stage and damaging proportions. Students evaluated the importance of non-pesticide measures in agricultural systems. They learned about the techniques and methods of preventing insects to reach economic thresholds without using chemicals.

#### Area wide pest management by mass trapping – ecologically acceptable method of pest control

Renata Bažok

Integrated pest management (IPM) was developed 50 years ago as a system approach that provides an ecologically based solution to pest control problems. IPM is defined as a sustainable approach to managing pests that combines biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risk. Area wide (AW) is a form of IPM program that aims to reduce pests in a particular area underneath those numbers that can cause damage. The goal of this program is a long-term solution, as opposed to individual combat, aimed covers substantially less area with short-term elimination of damage. It is an organized system of pest control in which producers of similar or identical crops team up and operate on wide growing areas. Mass trapping using odor-baited traps

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is one of the older approaches to direct control of insects for population suppression and eradication (Steiner 1952). The aim of the lecture was to explain the basic principles of AW pest control and analyze the successful attempts to pest control by using AW approach and the used methods. The particular attention to the mass trapping was given and potential opportunities for the use of certain attractants was identified. The results of the four year AW control of sugar beet weevil was presented and analyzed as a case study.

## Push-pull strategy as alternative (non chemical) measure of pest control

Ivan Juran

The term push-pull was first conceived as strategy for insect pest management (IPM) in Australia in 1987. The use of repellent and attractive stimuli to manipulate the distribution of *Helicoverpa* spp. in cotton was investigated, thereby reducing reliance on insecticides, to which the moths were becoming resistant. Within this lecture the principles of the push-pull strategy, list of the potential components and present case studies reviewing work on the development and use of push-pull strategies in each of the major areas of pest control was described.

## Sterile Insect Technique

Ivana Pajač Živković

The Sterile Insect Technique (SIT/SIRM) is a biologically-based method for the management of common crop pests or human and animal pests. The method was first developed in the USA, and it has been used for 50 years. SIT involves releasing millions of sterile insects over a wide area to mate with the native insects present which results in infertile eggs being laid. Application of this safe and environmentally friendly method improves the quality and quantity of fruit production while reducing pesticide use and promoting integrated pest management. Participants of this lecture were introduced with the method and the history of its application in the world and learned the basic information about pests which can be controlled in this way.

## Mating disruption - useful method in insect management

Ivana Pajač Živković

Mating disruption using synthetic sex pheromones is an effective and environmentally friendly method in control of some insect pests. Reducing the use of insecticides can have additional benefits for pesticide resistance management and for preservation of beneficial insects, mites and spiders. Currently, mating disruption products are available for moth pests and primarily for use in orchards and vineyards. Participants of this lecture were introduced to the method and products for mating disruption using the example of economically important pests in orchards and vineyards and learned the basic information about advantages and disadvantages of applying this method.

## Botanical insecticides - natural insecticides inside plants

Maja Čačija

Many plants have insecticidal properties; that is, they are toxic to insects. Botanical insecticides are naturally occurring chemicals (insect toxins) extracted or derived from plants. They are also called natural insecticides or botanicals. Botanical insecticides have long been touted as attractive alternatives to synthetic chemical insecticides for pest management because they pose little threat to the environment or to human health. In general, they act quickly, degrade rapidly and

have, with a few exceptions, low mammalian toxicity. However, botanicals tend to be more expensive than synthetic pesticides, and some are not as widely available. Common botanical insecticides include pyrethrum and pyrethrins, rotenone, sabadilla, ryania, limonene and linalool, nicotine, neem and some essential plant oils. Most of these natural insecticides can be produced commercially and used in management of many different pests. Students were introduced to the basic characteristic of botanical insecticides, their source plant, mode of action and use against different groups of insect pests. The main advantages and disadvantages of most important botanical insecticides were explained and discussed. The examples of practical experiences were presented.

### Biological pesticides based on pathogenic microorganisms and naturalites

Renata Bažok

Biopesticides are biochemical pesticides that are naturally occurring substances that control pests by nontoxic mechanisms. They are living organisms (natural enemies) or their products (phytochemicals, microbial products) or by products (semiochemicals) which can be used for the management of pests that are injurious to crop plants. They are biological or biologically-derived agents that are usually applied in a manner similar to chemical pesticides, but achieve pest management in an environmentally friendly way. They pose less threat to the environment and to human health. The most commonly used biopesticides are living organisms, which are pathogenic for the pest of interest. These include biofungicides (*Trichoderma*), bioherbicides (*Phytophthora*) and bioinsecticides (*Bacillus thuringiensis*, *B. sphaericus*). Students were introduced to the basic characteristic of plant protection products based on pathogenic microorganisms and naturalites. Special emphasis was given to *Bacillus thuringiensis* based products and spinosyns. The main advantages and disadvantages of each active ingredient were explained and discussed. The examples of practical experiences were presented.

### Entomopathogenic nematodes (EPN)

Dinka Grubišić

Entomopathogenic nematodes (EPN) represent a group of soil-inhabiting nematodes that parasitize a wide range of insects. These nematodes belong to two families: Steinernematidae and Heterorhabditidae. Until now, more than 70 species have been described in the Steinernematidae and about 20 species of Heterorhabditidae. This lecture will present the most important EPN species which are used for pest control and methods of their application in plant protection. The most common technique considered for collecting EPN from soil, the modified White trap technique, which is used for the recovery of these nematodes from infected insects were presented.

### Systematic and morphology of major orders of natural enemies

Ivan Juran

The morphology of insects is the study and description of the form and structure of insects. There is a large variation in the modifications that have been made by various taxa to the basic insect body structure. This is a result of the high rate of speciation, short generations, and long lineages of the class of insects. In this lecture morphological features and systematic of natural enemies from orders Mantodea, Orthoptera, Dermaptera, Thysanoptera, Heteroptera, Hymenoptera, Coleoptera, Neuroptera and Diptera were described.



### Parasitoid wasps: natural enemies of insects

Maja Čačija

Parasitoid wasps are the natural enemies of arthropod hosts in natural ecosystems and can be used as biological control agents against insect pests in agroecosystems. They are highly diverse insects of order Hymenoptera and specialized to attack a particular host life stage (egg, larvae, pupae and adults), mainly of phytophagous hosts which are on or inside host plants. The wasps need the presence of hosts for their feeding, survival and reproduction, as they lay eggs on or inside other insects. Parasitoid larvae then eat their prey from the inside out, usually emerging from the prey carcass as a pupa or adult. The most important families of parasitoid wasps include Ichneumonidae, Braconidae, Trichogrammatidae and Aphidiidae. Many of the species can be produced commercially, purchased and released in pest infested areas. Pest management using parasitoid wasps as means of biological control represents no threat to humans, animals or the environment. The morphology, biology and ecology of most important parasitoid wasps, their choice of hosts and the process of parasitism was explained. Special emphasis was given to *Encarsia formosa* and means of this species' production and practical use in agriculture. The advantages and disadvantages of using parasitoid wasps as natural enemies in biological control of pests were discussed.

### Natural enemies: Predaceous ground beetle

Darija Lemić

Predaceous ground beetles, or carabids, belong to a large family of beneficial beetles called the Carabidae whose adults are medium to large soil-dwelling beetles and live as long as two to four years. Carabid beetles are important polyphagous natural enemies in agricultural landscapes with the potential of restraining many pest species. They are generalist predators whose adults and larvae feed on soil dwelling insect larvae and pupae, other invertebrates such as snails and slugs, and sometimes on weed seeds and organic litter. Over 2,500 species are known as natural enemies of agricultural pests. Their shape and color varies greatly. As a general rule, while common agricultural practices such as pesticide applications and tillage frequently reduce carabid beetle abundance organic and low-input production systems usually sustain more abundant beetle communities than conventional systems. Students evaluated the importance of carabid beetles as predators in agricultural systems. The morphology, biology and ecology of most important carabid species in agriculture production was explained. Students were introduced to the ways of through habitat manipulations and cultural practices which can enhance the natural regulation of arthropod pest and weed populations, and reduce the need for chemical controls. The examples of practical experiences were presented.

### Predatory true bugs in biological control of agricultural pests

Ivana Pajač Živković

True bugs are members of the order Hemiptera and suborder Heteroptera. There are more than 38,000 species of true bugs, and although some true bugs are considered pests, about one-third is predaceous. The lecture will cover the morphology and life cycle of true bugs. Participants of this lecture were introduced to the most important families of predatory true bugs (Reduviidae, Anthocoridae, Miridae, Geocoridae, Pentatomidae and Nabidae). Information about the products on the market that are used in pest control in agriculture was presented.

### Plant pathogens and their control - efforts for ecological sustainability under rapid microbial evolution and local adaptation

Edyta Đermić

Introduction to the component based on the preface to the different groups of plant pathogens. Through examples, participants were introduced with the various groups of pathogens and their importance, together with the specifics of the disease caused by different groups of pathogens. On examples of bacterial diseases and viroses the basic ecological and epidemiological characteristics of plant pathogens were shown. Stages in their development where they can be most effectively controlled, together with minimal environmental risk, were emphasized.

### Plant disease management: The perplexity of the problems (basics)

Edyta Đermić

The available indirect and direct control measures for control of prokaryotic and acellular pathogens in organic production were presented. Special attention was given to the quick dieback of olives (caused by *Xylella fastidiosa*) and to available control measures.

### Importance of monitoring and forecasting in plant pathogens control

Edyta Đermić

Within this lecture, key steps in the pathogenesis of fire blight of apple and pear (pathogen *Erwinia amylovora*) and measures for its control (usually based on field monitoring and forecasting) was covered. Basic principles of forecasting in phytobacteriology were presented.

### Control of fungal diseases in organic farming

Dario Ivić

Participants were introduced with the significance and occurrence of fungal diseases in organic farming, with the special reference to general principles of disease control measures. The main agro-technical, mechanical and biological measures used in organic farming were presented. Plant protection products authorized for use in organic farming were elaborated, along with future perspectives of such products.

### Plant – parasitic nematodes: importance and control. Ecologically acceptable nematode control measures.

Dinka Grubišić

Nematodes are a diverse group of worm-like animals. They are found in virtually every environment, both as parasites and as free-living organisms. This lecture focused specifically on plant parasitic nematodes, which are very small or microscopic, can cause significant damage to crops and are extremely widespread. Because nematodes are difficult or impossible to see in the field, and their symptoms are often non-specific, the damage they cause is often attributed to other, more visible causes. Farmers alike often underestimate their effects. In this lecture the main plant parasitic nematodes as aerial and root and tuber parasites and symptoms of nematode damage were presented. Also ecologically acceptable nematode control measures were presented as follows: Cultural practices: crop rotation, tillage, planting date adjustment and planting resistant and tolerant varieties, weed control, irrigation (sinking) production areas, trap crops, antagonistic plants; Biopesticides: application of antagonistic fungi and bacteria;

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Physical control measures: soil solarization, thermal sterilization of the soil and plant material.

## Weed management - ecological approach

Maja Šćepanović

Participants were introduced with basic weeds management methods as well as the importance of knowledge of the biological and ecological characteristics of weeds in order to protect and preserve the integrity of the ecosystem.

## Determination of broad-leaf weeds species in cotyledon stages. Determination of grass weeds in a young stage of development

Ana Pintar

Participants were explained the keys to identify broadleaf and annual grass weeds in the early developmental stage when performing their control. Live plant material – cotyledons of broadleaf and annual grass weeds was available for practical work. After the introductory theoretical part participants practiced determining weed species in the early development stage.

## Forecasting models of weed sprout to determine the optimal timing of weed control

Maja Šćepanović

Participants were introduced to the basic types of reproduction of annual and perennial weeds which are the basis for the proper determination of their control. The dormancy of weed seeds and other mechanisms that influence the germination of weeds in different ecological conditions was defined. The possibility for forecasts weediness (determination the bank of weed seeds) and application of forecasting models of emergence of weeds in determining the optimal time for their control was explained.

## Analysis of weed seeds in the soil and seed viability

Maja Šćepanović

Practical laboratory work for analysis of weed seeds from bank of seeds by rinsing samples was organized. Obtained seeds of weeds participants were determined and tested by Crush test for their germination.

## Non-chemical weed control measures (physical, mechanical, biological)

Maja Šćepanović

Within this lecture students were introduced to the basic non-chemical weed control measures: physical (flaming, flooding), mechanical (tillage, weeding, grazing, shading, depletion) and biological - biopesticides (macrobiological, microbiological, allelopathy, natural pesticides and naturalites).

## Slugs and snails in agriculture. Ecologically acceptable slug control measures

Dinka Grubišić

Slugs and snails are serious pests of many agricultural crops. They cause damage of plants and pollute products by mucus and feces. Current control methods rely on chemical molluscicides that are often ineffective and can harm non-target organisms. Novel approaches for slug and snail control that do not rely on chemical

pesticides and are suitable in organic production. The lecture provided knowledge about: Cultural practices – crop rotation, tillage, spatial isolation of the fields, adjusting planting date, antagonistic plants; Biopesticides–antagonistic plant products with repellent performance, parasitic nematodes; Mechanical control measures and Biotechnological plant protection measures.

### List of lecturers with contact

Name and last name	Contact
Full Professor Ivica Kisić, PhD	<a href="http://www.agr.unizg.hr/en/address-book/195/">http://www.agr.unizg.hr/en/address-book/195/</a>
Professor Jasminka Karoglan Kontić, PhD	<a href="http://www.agr.unizg.hr/en/address-book/187/">http://www.agr.unizg.hr/en/address-book/187/</a>
Full Professor Zlatko Šatović PhD	<a href="http://www.agr.unizg.hr/en/address-book/400/">http://www.agr.unizg.hr/en/address-book/400/</a>
Associate Professor Marina Piria, PhD	<a href="http://www.agr.unizg.hr/en/address-book/328/">http://www.agr.unizg.hr/en/address-book/328/</a>
Assistant Professor Željka Zgorelec, PhD	<a href="http://www.agr.unizg.hr/en/address-book/453/">http://www.agr.unizg.hr/en/address-book/453/</a>
Assistant Professor Daniel Matulić, PhD	<a href="http://www.agr.unizg.hr/en/address-book/262/">http://www.agr.unizg.hr/en/address-book/262/</a>
Assistant Professor Tea Tomljanović, PhD	<a href="http://www.agr.unizg.hr/en/address-book/429/">http://www.agr.unizg.hr/en/address-book/429/</a>
Young Researcher Igor Bogunović, PhD	<a href="http://www.agr.unizg.hr/en/address-book/52/">http://www.agr.unizg.hr/en/address-book/52/</a>
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Postdoctoral researcher Lidija Svečnjak, PhD	<a href="http://www.agr.unizg.hr/en/address-book/394/">http://www.agr.unizg.hr/en/address-book/394/</a>
Young Researcher Sanja Radman, PhD	<a href="http://www.agr.unizg.hr/en/address-book/353/">http://www.agr.unizg.hr/en/address-book/353/</a>
Full Professor Tomislav Treer, PhD	<a href="http://www.agr.unizg.hr/en/address-book/434/">http://www.agr.unizg.hr/en/address-book/434/</a>
Associate Professor Marija Cerjak, PhD	<a href="http://www.agr.unizg.hr/en/address-book/73/">http://www.agr.unizg.hr/en/address-book/73/</a>
Young Researcher Marina Tomić, MSc	<a href="http://www.agr.unizg.hr/hr/address-book/428/">http://www.agr.unizg.hr/hr/address-book/428/</a>
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Postdoctoral researcher Maja Čacija, PhD	<a href="http://www.agr.unizg.hr/en/address-book/76/">http://www.agr.unizg.hr/en/address-book/76/</a>
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Dario Ivić, PhD	<a href="http://www.hcphs.hr/kontakt/">http://www.hcphs.hr/kontakt/</a>
Assistant Professor Maja Šćepanović, PhD	<a href="http://www.agr.unizg.hr/en/address-book/401/">http://www.agr.unizg.hr/en/address-book/401/</a>
Assistant Ana Pintar, MSc	<a href="http://www.agr.unizg.hr/en/address-book/493/">http://www.agr.unizg.hr/en/address-book/493/</a>

### List of participants with contacts

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Some insights and photos from summer school in Zagreb:



Keep up with good work!  
:)

I was very satisfied with summer school courses, they were interesting and the teachers were very good.

Teachers did good job, they presented their themes in right way.



### 2.4.2. **Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Croatia**

The Josip Juraj Strossmayer University of Osijek is one of the the oldest and biggest universities in Croatia, with first high education institutions and studies dating back to 1707. The Faculty of Agriculture in Osijek is the leading institution in the field of agriculture and related sciences in the region. Mission of the Faculty is the development and systematic improvement of dynamic and multidisciplinary research environment in which research potentials will be exploited in maximum and creation of new and improvement of existing knowledge is a constant. This research environment provides excellent learning process and transfer up to date knowledge and skills to our students and enable them to become leading agricultural experts and to apply new knowledge in everyday production practice. Faculty with its research environment, education of agricultural experts and continuous development of knowledge and skills needed for lifelong education serves to the community and contributes to the development of society on the whole. Since the academic year 2005/2006 University and all of its faculties have started with new study programs harmonized with the Bologna Process; undergraduate, graduate and postgraduate doctoral and specialist studies 3+2+3, i.e. 180+120+180 ECTS. The Faculty of Agriculture teachers and researchers are involved in implementation of basic, development and applied research projects on national and international level.

Role of Faculty of Agriculture in Osijek in this project was diverse. Participation of project members in opening and closing conference and different teacher trainings ended as planned. Besides the work on dissemination and project's activities and visibility, the team members prepared Regional and National guidelines. One of the biggest and most important activities was preparation and organisation of pilot activity - International summer school "Management of non-agricultural activities". Faculty also worked on dissemination of project's activities and project's visibility.

#### 2.4.2.1. **Decission making process in curriculum development**

The Faculty of Agriculture in Osijek consists of 11 departments and one independent chair. An interview (survey) was conducted in order to determine the department potentials for lifelong learning for sustainable agriculture.

The Faculty of Agriculture in Osijek started the lifelong learning programmes in 1997, with the programme of Training of Staff in Agricultural Pharmacies. Four additional lifelong learning programmes were subsequently approved, the first being the Training Programme for Producers of Honey and Other Bee Products on Family Farms (headed by: Prof. Zlatko Puškadija, PhD). This programme lasts for 30 hours, the content is divided into theory and practice, and is conducted in the form of seminars: seminar for beginners; seminar for experienced beekeepers; and seminar on integrated pest control. Upon completing the aforementioned programme, a candidate is issued a certificate in accordance with the University Regulations. The Training Programme for Producers of Milk and Cheese on Family Farms (Prof. Pero Mijić, PhD) was given permission for realisation by the Senate of the Josip Juraj Strossmayer University in 2011. The educational programme lasts for 60 hours over three weeks. The content is divided into theory and practice, followed by an exam. The programme is conducted in cooperation with the Croatian Chamber of Agriculture and the Croatian Agricultural Agency. Upon completing the aforementioned programme, a candidate is issued a certificate in accordance with the University Regulations. The Department for



Agroeconomics conducts two programmes as part of the lifelong learning concept. The first programme is Expert for Rural Economy (headed by: Prof. Krunoslav Zmaić, PhD), which lasts for 150 hours and is conducted through semesters. Content is divided into ten programme units and one seminar, and is conducted through interactive workshops and a final exam. In order to undergo this education, the candidates shall have a completed undergraduate or graduate study. The candidate is issued a certificate, in accordance with the University Regulations. After completing the first programme, it is possible to enrol into the second programme, Management of Rural Development Programmes (headed by: Tihana Sudarić PhD, Docent). The programme lasts for 150 hours and contains 110 hours of interactive workshops and 40 hours of practical professional work. A candidate is issued a certificate, in accordance with the University Regulations. The programmes conducted by the Department for Agroeconomics are accredited by the Ministry of Science, Education and Sports. After completing the programme, a candidate obtains 60 ECTS points and this education is entered into the employment record.

The Department for Agroecology (department head: prof. Zdenko Lončarić, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topics are the following:

1. Soil fertility and soil fertility control (postgraduate specialist study, workshop)
2. Fertilisation (postgraduate specialist study, workshop)

Target groups: those interested in acquiring a profession at an older age (1), in acquiring new knowledge as part of the profession (2), in acquiring another profession (3), in recognition of previously acquired knowledge and experience (4), in personal advancement (5).

The period of programme implementation is not relevant. Collaborators from another department at the Faculty are necessary in order to implement the programme, due to the overload of department employees.

They are not familiar with the procedure of lifelong learning evaluation. In case of initiating a LL programme, it is expected to receive assistance from the common services at the Faculty in the evaluation procedure, promotion and organisation. The period for programme creation is 6 months,

Department for Agroeconomics (department head: Prof. Jadranka Deže, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topic is the following:

1. Farm management (workshop)

Target groups: those interested in acquiring a profession at an older age (1), in acquiring new knowledge as part of the profession (2), in acquiring another profession (3), in recognition of previously acquired knowledge and experience (4), in personal advancement (5).

The programme shall be held during the winter months. Collaborators from another department at the faculty are necessary in order to implement the programme due to (1) overload of department employees, as well as economy experts due to (5) the connection with the practice (economy). They are partially familiar with the procedure of LL evaluation and expect assistance from the common services at the Faculty, through promotional activities.

## Harmonization of LL in ADA Region

Department for Plant Production (department head: Prof. Andrija Kristek, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topics are the following:

1. Plant production (lecture, workshop)
2. Fruit growing – viticulture (course, workshop)
3. Horticulture (course, workshop)

Target groups: those interested in acquiring new knowledge as part of the profession (2) and for personal advancement (5).

The period for programme implementation is winter or spring, depending on the programme. Collaborators from another department at the faculty are necessary in order to implement the programme. They are partially familiar with the procedure of lifelong learning evaluation, and in case of LL programme initiation it is expected to receive assistance from the common services at the faculty. The period for programme creation is 12 months.

Department for Chemistry, Biology and Physics of Soil (department head: Prof. Vesna Vukadinović, PhD) does not have the potential to create and implement the specific education, training and development lifelong learning programmes due to the overload of department employees and an insufficient number of young experts. Namely, the department has only 9 employees, of which 5 have scientific teaching titles. Considering that scientific research areas require extensive field and laboratory work, from the current perspective it is impossible to include this department into the implementation of some of the new specific lifelong learning programmes.

Department for Hunting, Fishery and Beekeeping (department head: prof. Anđelko Opačak, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topics are the following:

1. Breeding and protection of wild animals (specialist postgraduate professional study)
2. Beekeeping (specialist postgraduate professional study, lecture)

Target groups: those interested in acquiring a profession at an older age (1), in acquiring new knowledge as part of the profession (2), in acquiring another profession (3), in recognition of previously acquired knowledge and experience (4), in personal advancement (5).

The period of programme implementation is not relevant for the programme Breeding and protection of wild animals, while the programme of Beekeeping shall be held in winter or summer. Collaborators from another department at the faculty, as well as economy experts, are necessary in order to implement the programme due to the programme specificity. They are familiar with the procedure of lifelong learning evaluation, and with the manner in which the University is competent for it. In case of initiating a LL programme, it is expected to receive assistance from the common services at the Faculty in the evaluation procedure, promotion and organisation. The period for programme creation is 2-3 months.

Department for Mechanization in Agriculture (department head: Prof. Đuro Banaj, PhD) does not have the potential to create and implement the specific education, training and development lifelong learning programmes.

Department for Agricultural Technics (department head: Ivan Plaščak, PhD, Docent) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topic is the following:

1. Tractor and agricultural machinery maintenance (course, lecture)

Target groups: those interested in acquiring new knowledge as part of the profession (2), in personal advancement (5), younger age groups (6), as well as everyone else regardless of the age (8).

The period for programme implementation is winter. Collaborators from another department at the Faculty are necessary in order to implement the programme, due to its specificity. They are not familiar with the procedure of lifelong learning evaluation. In case of LL programme initiation, they do not expect assistance from the common services at the Faculty. The period for programme creation is 6 months.

Department for Special Zootechnique (department head: prof. Goran Kušec, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topics are the following:

1. Application of DNA technologies in Animal Husbandry (course)
2. Production of dry/fermented meat products in households (course)
3. Genetic traceability of animal products (workshop)
4. Promotion and protection of name of animal products in EU (lecture)
5. Scientific methods in branding of animal products (lecture)

Target groups: those interested in acquiring new knowledge as part of the profession (2) and in personal advancement (5).

The period of programme implementation is not relevant. The department is capable of implementing all programmes and does not expect assistance from the common services. The period for programme creation is 3-6 months.

Department for Animal Husbandry (department head: prof. Marcela Šperanda, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topics are the following:

1. Technology of pigs production, processing and marketing (course)
2. Practical guide for dairy cow management (workshop)
3. Problems in pig production (birth weight, growth after weaning, feeding regime, open days, health issues, gilt selection) (workshop)
4. Clean soil for a healthy product (lecture)

Target groups: those interested in acquiring new knowledge as part of the profession (2) for all programmes, for the Technology of pigs production also those interested in personal advancement (5), and for the Practical guide for dairy cow management, in addition to the aforementioned also those interested in recognition of previously acquired knowledge and experience (4). For the programme of Problems in pig production the target group are those interested in acquiring another profession (3), as well as those interested in personal advancement (5). Clean soil for a healthy product

## Harmonization of LL in ADA Region

is intended for the group interested in acquiring another profession (3) and those interested in recognition of previously acquired knowledge and experience (4).

The period of programme implementation is not relevant, however winter is suitable for the first two above mentioned programmes. Collaborators from another department at the Faculty, as well as economy experts, are necessary in order to implement the programme due to the long-term connection, control and implementation of new knowledge. They are completely familiar with the procedure of lifelong learning evaluation. In case of initiating a LL programme, it is expected to receive assistance from the common services at the Faculty in the evaluation procedure, promotion and organisation. The period for programme creation is 3-8 months, depending on the programme.

Department for Plant Protection (department head: prof. Jasenka Ćosić, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topic is the following:

### 1. Cultivated plants protection (lecture)

Target groups: those interested in acquiring new knowledge as part of the profession (2) and those interested in personal advancement (5).

The period of programme implementation is not relevant. Collaborators from another department at the Faculty are necessary (1) due to the programme specificity. They are not familiar with the procedure of LL evaluation, and expect assistance from the common services for the management of financial affairs and organisation.

Independent Chair for Informatics and Kinesiology (independent chair head: prof. Anica Perković, PhD) has the potential (number of employees, motivation, load) to create and implement the specific education, training and development lifelong learning programmes. The potential topic is the following:

Target groups: those interested in acquiring new knowledge as part of the profession (2) and those interested in personal advancement (5).

The period for programme implementation are the winter months. Collaborators from another department at the Faculty are necessary (1) due to the programme specificity. They are not familiar with the procedure of LL evaluation, and expect assistance from the common services at the Faculty, through promotional activities and organisation. The period for programme creation is 3 months.

Before organisation and approval of International summer school "Management of non-agricultural activities", Faculty of Agriculture in Osijek already had 4 different active LL programmes in the field of agriculture that were actively organised every year for the 5 last years. Preparation of "Management of non-agricultural activities" was a logical choice after regular survey among agricultural producers and student population conducted in the beginning of this project. Based on previous experience, Faculty decided to prepare and develop curriculum for the proposed pilot activity and asked for a University Senat for approval. Approval arrived on 29 September 2015 and the school was predicted to be held at the beginning of June next year.



## 2.4.2.2.

**International Summer School “Management of non-agricultural activities”**

The programme is designed to fit the LL needs of specific group of participants – agricultural producers, owners of family farms, public administration within the field of agriculture, high school teachers or students etc.

**Summer school description**

Host institution	Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture in Osijek Vladimira Preloga 1, 31000 Osijek, Croatia
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. are starting your own family farm / organic production</li> <li>2. need additional education on management of non-agricultural activities</li> <li>3. want to learn more or improve your skills</li> </ol>
Learning outcomes	<ul style="list-style-type: none"> <li>Planning and organizing activities of family farm</li> <li>Connections in business and diversification of rural activities</li> <li>Development of products and services through operational marketing planning</li> <li>Pricing of products and services of non-agricultural activities</li> <li>Standardization of quality and protection of agricultural products</li> <li>Finding sources of financing development projects</li> <li>Awareness of social business in the local community</li> </ul>
Language	<p>English or Croatian language</p> <p>Content can be modified depending on the specific group interest.</p>
Validation	Certificate of completion, entry in employment record card / portfolio or 10 ECTS credits are awarded upon finishing the programme.
Duration	14 days
Minimum number of participants	5
Maximum number of participants	20
Programme coordinator	<p>Prof. Krunoslav Zmaić, PhD</p> <p>E-mail: krunoslav.zmaic@pfos.hr</p> <p>Phone: +38531554842</p>
LL expert	<p>Prof. Tihana Sudarić, PhD</p> <p>E-mail: tihana.sudaric@pfos.hr</p> <p>Phone: +38531554842</p>
LL officer	<p>Daniel Haman, LL.M.</p> <p>E-mail: daniel.haman@pfos.hr</p> <p>Phone: +38531554812</p>

**LL PROGRAME: “Management of non-agricultural activities”**

Day	Time	Titles of the lectures	Lecturers
DAY 1 1.6.2016.	08:30- 9:00	Dean's welcome speech Summer school coordinator's speech	Prof. Vlado Guberac, PhD Prof. Krunoslav Zmaić, PhD
	9:00- 11:00	Bussines network	Prof. Tihana Sudarić, PhD
	11:00- 13:00	Protection of agricultural product	Prof. Ružica Lončarić, PhD
DAY 2 2.6.2016.	09:00- 11:00	Development of products and services in rural areas	Prof. Igor Kralik, PhD
	11:00- 13:00	Social business in local community	Prof. Snježana Tolić, PhD
DAY 3 3.6.2016.	09:00- 14:00	Field trip (excursion) to Vukovar	—
DAY 6 6.6.2016.	09:00- 11:00	Planning and organizing activities of rural farm	Prof. Jadranka Deže, PhD
	11:00- 13:00	Quality management and standardization	Jelena Kristić, PhD
DAY 7 7.6.2016.	09:00- 11:00	Marketing Plan	Prof. Ružica Lončarić, PhD
		CAP	Prof. Krunoslav Zmaić, PhD
	11:00- 13:00	Diversification of rural activities	Prof. Tihana Sudarić, PhD
DAY 8 8.6.2016.	09:00- 11:00	Sources of financing development project	David Kranjac, MSc
	11:00- 13:00	Development of products and services in rural areas	Prof. Igor Kralik, PhD
DAY 9 9.6.2016.	09:00- 13:00	Case study by special guests	Prof. Arnold Csonka, PhD, University of Kaposvár, Hungary Vladimir Poznić, businessman and entrepreneur, Osijek
DAY 10 10.6.2016.	09:00- 14:00	Field trip (excursion) to Kopački rit	—
DAY 13 13.6.2016.	09:00- 11:00	Planning and organizing activities of rural farm	Prof. Jadranka Deže, PhD
	11:00- 13:00	Quality management and standardization	Prof. Jelena Kristić
DAY 14 14.6.2016.	09:00- 11:00	Pricing product and services	Prof. Ana Crnčan, PhD
	11:00- 13:00	Social business in local community	Prof. Snježana Tolić, PhD
	13:00 – 14:00	Closing and certificates awarding ceremony	—

## LECTURE SUMMARY

### Bussines network

Tihana Sudarić

The lecture presented a basic introduction in business network through cooperatives in agriculture, clusters, LAGs, producer's organization and other associations connected with rural development. The importance of lecture was presented through interactive involvement of students with examination of legislation and organization process of different types of business network. The main aim of business network is in business connections of small enterprises with large enterprises and systems, joint promotion, TQM System - the adoption of ISO standards, technological developments (rings), education of its members, distribution (storage capacity), opportunities to develop new brands, mutual networking and coordination of all support institutions, to ensure adequate and favorable financial resources for development and intensive communication with entrepreneurs and market.

### Protection of agricultural product

Ružica Lončarić

In frame of this lecture, students were informed about protection of agricultural products through the prism of Croatian traditional agricultural products example. Croatia has many traditional products and supply of these products is not sufficient to meet domestic and tourist markets. Products are protected because: higher price, creating identity and recognition, direct connection of products with specific geographical areas gives added value, the establishment of interest associations if they do not yet exist in a common purpose in the market, and promote a common food product. Students are informed about protection labels shemes: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (PSG). Students are introduced in achievements of Croatian agricultural products protection (PDO and PGI labels).

### Pricing product and services

Ana Crnčan

Price of a product is the financial expression of values comprising all elements spent in its production. The procedure for dividing total costs into specific cost units is called calculation or calculation of cost price. In agricultural production, the following methods for calculation of cost price are usually used: a method of division, subtraction, distribution and a method of "costs plus". The aim of calculating the cost price is to burden each product with certain amount of costs, which are incurred within its production. Calculation of the cost price for products and services facilitates more effective control of costs and better production efficiency, as well as more precise determination of optimal volume, structure and intensity of production, thus creating a basis for business decision-making.

### Sources of financing development project

David Kranjac

Sourcing money may be done for a variety of reasons. Traditional areas of need may be for capital asset acquirement - new machinery or the construction of a new building or depot. The development of new products can be enormously costly and here again capital may be required. Normally, such developments are financed internally, whereas capital for the acquisition of machinery may come from external

## Harmonization of LL in ADA Region

sources. This lecture emphasized the importance of EU structural and cohesion funds in agriculture when comes to financing development projects.

### Implementation of CAP

**Krunoslav Zmaić**

Lecture was about the Common Agricultural Policy (CAP), it's the agricultural policy of the European Union. It implements a system of agricultural subsidies and other programmes. It was introduced in 1962 and has undergone several changes since then to reduce the cost (from 71% of the EU budget in 1984 to 39% in 2013) and to also consider rural development in its aims. The policy has evolved significantly since it was created by the Treaty of Rome (1957). Substantial reforms over the years have moved the CAP away from a production-oriented policy. The 2003 reform has introduced the Single Payment Scheme (SPS) or as it is known as well the Single Farm Payment (SFP). The most recent reform was made in 2013 by Commissioner Dacian Ciolos and applies for the period 2014 to 2020.

### Social business in local community

**Snježana Tolić**

The aim of this lecture was to introduce students to some processes and activities in the local community, which contributed to create conditions for faster development of social entrepreneurship and social business under CLLD policy. Community-Led Local Development (CLLD) is the policy used for wider application of LEADER approach, not only in rural areas. Since, its launch in 1991 by the European Commission as a Community Initiative the LEADER local development approach has provided rural communities in the EU with a method for involving local partners in shaping the future development of their area. The LEADER approach has attracted a high level of interest within the EU and far beyond, not only in rural areas but also in urban and coastal areas. Under CLLD most important role have social business. The term social and solidarity economy refers to organizations characterized by the pursuit of multidimensional social, economic, and ecological objectives, various forms of cooperative and solidarity relations, and internal decision-making based on self-management associated with democratization of the economy. The term includes both traditional co-operatives and mutual associations, but also social enterprises and community associations.

### Planning and organizing activities of rural farm

**Jadranka Deže**

Topic of the lecture Planning non-agriculture activities of rural farm was divided into seven steps in planning process. The two key elements in successful plan of activities on rural farm are the program or project itself and the interest and involvement of farm members. Following of those seven steps will help manager to choose and to plan a successful program to interest and involve farm members. The seven steps are: Situation analysis / SWOT, Identification farm needs / problems / purpose and goals / Pyramid activities; Defining goals/Brainstorming, selecting methods/Algorithm, Planning the details/Time Sheet and Do it. This methodology can help manager to achieve success and good practice in organizing non-agriculture activities of rural farm.

### Marketing Plan

**Ružica Lončarić**

Students were introduced in importance and the need for a good Marketing Plan, the key components of a Marketing Plan and importance of Marketing Plan in tandem with your overall business plan. Students were guided through the elements



of the marketing plan: 1) description of business, 2) conduction of situation analysis, 3) defining customers, 4) strategion of market entry, 5) forecasting sales or demand measurement, 5) defining marketing budget, 6) integration of marketing communication, 7) identification of sales channels, 8) tracking marketing activities, 10) evaluation of progress. Students participated in discussion regarding marketing plan on concrete firm example: McDonalds.

### **Diversification of rural activities**

**Tihana Sudarić**

Lecture defined the role and importance of diversification of rural nonagricultural activities in rural areas. The aim of lectures was to analyze the primary, secondary, tertiary and quarterly activities relevant to the development of rural areas. Farm diversification includes new products and services in order to improve its primary agricultural production. Diversification on farms is common practice in rural areas around the world because diversification offers the opportunity to reduce the risk of income with added value. The most additional activities on farm are tourism, craft, food processing, woodworking, production of renewable energy, direct sale of agricultural product, different kind of services.

### **Development of products and services in rural areas**

**Igor Kralik**

Participants were introduced with the model for the development of rural areas with special attention on development of production and services in rural areas, and integration of rural development strategies into economic/development strategies. Moreover, entrepreneurship as a strategic development intervention that could accelerate the rural development process and importance of local food & short supply chains for development of production and services in rural areas was presented to them.

### **Quality management and standardization**

**Jelena Kristić**

In recent years' quality management has become a new management segment and the most important factor in the market survival as well as in the growth and the development of business entities in most European and other countries worldwide. There is a strong relationship between a high level of TQM application and the horizontal and flexible organization structure, defined mission and vision, systematic observation of changes in the market, stable top management support, employee empowerment and their involvement in quality management activities, creating business environment that supports employee initiatives, education and training, measurable quality objectives, clear understanding of quality concept, business process evaluation and improvement, by using a proactive approach, and finally, orientation towards consumers. TQM improves the financial, economic and business performance i.e. increases market share, price competitiveness, competitive advantage, total sales, and the introduction of new products, profitability, input use efficiency, exports, as well as employee and consumer satisfaction. Cost reduction is another advantage. Understanding the role of TQM is essential for gaining competitive advantage, which agricultural entities can achieve only through the synergy of all these elements.

## Harmonization of LL in ADA Region

### List of lecturers with contact

Name and last name	Contact
Full professor Krunoslav Zmaić, PhD	<a href="http://www.pfos.hr/hr/kontakt/imenik/krunoslav-zmaic-3/">http://www.pfos.hr/hr/kontakt/imenik/krunoslav-zmaic-3/</a>
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Associate professor Ljubica Ranogajec, PhD	<a href="http://www.pfos.hr/hr/kontakt/imenik/ljubica-ranogajec-6/">http://www.pfos.hr/hr/kontakt/imenik/ljubica-ranogajec-6/</a>
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### List of participants with contact

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Some insights and photos from summer school in Osijek



Everything was fun and I enjoyed it!

Teachers were very committed to the project which is highly appreciated.

It was really a pleasure to meet them and I hope to meet teachers like them, everytime!

### 2.4.3. University "Fan S. Noli", Faculty of Agriculture, Korçë, Albania

University "Fan S. Noli" Korçë is an institution of higher education and scientific research, the main center in the southeast region of Albania. The Faculty of Agriculture is the foundation stone of "Fan S. Noli" University. The University of Korça [UNKO] was created on 7 January 1992, on the basis of the Higher Agricultural Institute of Korça (1971-1992). In 1994 it was given the name "Fan S. Noli". The studies in this University are organized in two levels: first level and second level, based on the Bologna Declaration. The Bologna Declaration is part of its daily program and they are properly respecting the Law of Higher Education, this way integrating Korça's university in the European Space of Higher Education undergraduate. Agriculture Faculty of UNKO performs undergraduate, graduate and postgraduate education in some fields of agronomy from plant science graduate and postgraduate doctoral and specialist studies (3+2+3), agricultural economy and agricultural engineering. Since 1992 the Faculty has gone through an entire conceptual and structural reformation, to cope with the social and educational transformations that occurred with the change of the political system in Albania. In this respect the first Master program "Integrated Rural Development" was opened in the academic year 2008-2009. The Agriculture Faculty also offers the only Ph.D. program at the University in Sustainable Horticulture, a program that was first opened in 2011. Teachers and researchers are involved in implementation of basic development and applied research projects, and actively participating in professional collaboration.

UNKO, as a partner country, set up working groups and to developed working concept at institution level. UNKO participadet in translation and distribution of questionaries. UNKO prepared reports on LL potentials at institutional and national level, and a case study. UNKO also participated in a workshop in Sarajevo. In cooperation with other partners, UNKO prepared Regional guidelines and National strategies. UNKO participated in a Round table in Podgorica and on the final conference in Tirana. Staff from UNKO participated in teacher training, designing of pilot activities, and courses' curricula.

#### 2.4.3.1. Decision making process in curriculum development

Research objectives to be measured were the social and academic background qualification of producers, high schools teachers and students in agriculture education, the social background of students and producers in agriculture education, and the general perception of teachers, students, producers and other actors in Agriculture Sector.

Survey / interview were conducted by all working packages members included in LifeADA project from both partners UNKO and University of Tirana. All departments have been included in the survey.

After analysis of the questionnaires, results were following:

1. Sufficient and highly motivated human resource / teachers
2. Diversity of educational programmes depending on the topic and types
3. Target groups: the most common identified but not strict

4. 66% were familiar with lifelong learning term
5. 44% require additional experts (outside organizational unit)
6. 74.7% is expecting administrative support at the Faculty level

In order to determine the needs of the Albanian market with regard to lifelong learning in the field of agriculture, a survey was conducted on three groups of respondents: agricultural secondary school teachers, local, regional and state administration and the producers. The survey consisted of the following question groups: (1) Status and training needs assessment, (2) Personal motivation for training and (3) Personal questions. The questionnaire was standard for all project partner countries. The majority of questions were common to all three respondent groups, while a smaller number of questions referred to the particularities of certain respondent groups.

The online survey was open from 1 October 2014 until 31 January 2015. The respondents were contacted in different manners. Secondary school teachers were contacted through the secondary school principals, who were contacted by phone and asked to forward the survey link to their employees. The local, regional and state administration employees were contacted primarily via email, but a part of the respondents were also contacted verbally. Everyone was also requested to forward the survey link to their colleagues. The producers/transformers were contacted directly by the interviewer.

Since the study was purely descriptive, descriptive analysis of the data was simple percentages and frequencies. The percentages were used to analyze all responses. Frequency and percentage tables were used to describe the data that were collected from respondent using Statistical Package for Social Sciences. The frequency and percentage tables enabled us to have an overall view of the findings, to identify trends and to display the relationship between parts of the findings.

### **Sample description**

The concept of lifelong learning has become of vital importance with the emergence of new technologies that change how we receive and gather information, collaborate with others, and communicate. This research was sought to find out challenges in teaching and learning of practical agriculture in Albania. The research was a descriptive survey. In this study all respondents were selected using simple random method. The same standard questionnaire [for all partner countries included in LifeADA project] was designed for all respondents grouped: producers [87 respondents all together], high schools teachers and students [96 respondents all together] and people employed in administration [55 respondents all together]. They were asked to choose the answer appropriately, representing their perceptions.

Frequency and percentage tables were used to describe the data that were collected from respondent using Statistical Package. Current programs of additional education and training in the field of agriculture were perceived as insufficient by 49% of employees in administration, 47% of secondary schools and 37% of producers. This indicates that future policies and strategies should be developed to increase the level of training and lifelong education.

### Assessment and the need for specialization

In general, the respondents resulted that they were informed with the concept of lifelong learning LL representing 66% of respondents, whereas the rest of 34% have not heard about LL. Most informed with the concept of lifelong learning LLL were the employees of the administration with 95%, followed by 78% of producers. Data showed that there is the same situation in secondary high schools. For a more qualitative commitment regarding to additional training in order to remain at the current position respondents perceived that 65% of employees in the administration have required for additional training and 60% from the respondents in secondary schools. For a more qualitative commitment in relation to additional education in agriculture, the perception for more additional training from private producers resulted necessary 52% as indispensable, 33% as desirable, and 15% do not perceive any need for additional training.

After completing basic education level, 52% of producers and 88% of employees in administration and secondary schools have been trained in basic trainings, required for their work. For the producers about half of them had not received any training after basic education level. We think that within the category of producers we observe a consolidated group of 52% who have a positive perception for qualifications in areas which are focused as fruitful.

About the rate of the information in the field of training is interesting to note that about 82% of administration employees were informed and very informed, 55% of high schools employers were informed and very informed and 54% of producers were well informed. Administration employees perceive the fact they are better informed with 49%, followed by producers with 29% and secondary school employees by 24%. The fact that high schools employers were less informed with 46%, besides other reasons is the absence of agricultural high schools with the exception of a limited number in the country. In the future we remain focused on the increase of the level of secondary education profiling, aiming it towards agricultural profile. Current programs of additional education and training in the field of agriculture were perceived as insufficient by 49% of employees in administration, 47% of respondents from secondary schools and 37% of producers. This indicates that future policies and strategies should be developed to increase the level of training and lifelong education.

By the analysis of respondents in relation to lacking knowledge, and concrete knowledge that were lost over time and can be regained with the necessary and additional training resulted that producers perceived lack of the knowledge and additional knowledge for agro-tourism, genetics and breeding, fructiculture, orchards, phytomedicine, beekeeping, and plant protection. From the producers it was perceived as necessary the completion and updating of knowledge in almost all areas.

High schools and administration employees have an asymmetry in the perception of missing and lost knowledge and the need for training required and additional qualifications. Also we think that organizing additional training and those necessary have to be done in different ways between these groups.

From analysis of the survey data regarding training needs according to the specifications show that is perceived as necessary the knowledge of foreign languages were more important for administration employees with 33%, followed by producers with 16% and by high schools with 15%. The most favorite foreign languages were English, followed by Italian and German language. Training for expert was perceived as a necessity for 24% of administration employees, 19 high schools and 16% of producers' respondents.



### Motivation for specialization

Based on data analysis, the most undecided regarding willingness to participate in additional training in the field of agriculture were producers with 67%, followed by high schools with 31% and administration employees by 29%. The most disposals for additional training were administration employees with 62% followed by high schools 49% and 26% of producers. Regarded to the lack of willingness for additional training were the employees of high schools with 20% followed by administration employees with 9% and 7% producers. Based this survey, about 64% of producers, 78% of high schools and 47% of the administration were unsure about willingness to participate in co funding for additional training. Short and intensive workshops were perceived as the most favorite forms of respondents followed by intensive courses and lectures in the auditorium. As the most effective way of training, direct lessons were perceived with 69% of administration employees, 43% of producers and 28% of high school employees, followed by practical work with 43% of high schools, 38% of manufacturers and 18% of the employees of the administration. In relation to the perception of online seminars and distance learning, a positive perception had the high schools respondents with about 31%, 9% by the administration and 6% by producers' respondents.

A positive feedback is the fact that all three respondent groups perceive the university as leader for additional training in the field of agriculture with more than 78%, followed by vocational schools. From our data analysis, the majority of respondents perceive additional training for building their capabilities and not for certification. Regarded to certification the majority likes certification in the workbook with 40% by the administration, 30% of manufacturers and 1% of secondary schools.

In this survey, regarded to the age structure of respondents we have this picture: 7 % of respondents belonged up to 25 years old, 41% of respondents were in the segment 25-45 years old, whereas 52 % of respondents were over 45 year old. Regarded to the gender 61% belong to the male gender, whereas 39 % belong to female gender. Information sources for this survey was taken by men which occupy 82% versus 18% of women in gender structure of producers, 63% female versus 37% male for high schools and 70% males versus 30 females in public administration.

Indicators of perception regarded to additional training in this survey were obtained by this structure of economic activity: Agriculture 11%, animal products 24%, 29% fruit growing, processing 8%, commerce 14% and mixed farming economy 14%. In terms of education level of respondents, to producers dominates secondary school education with 67%, in secondary school respondents university degree by 100% of respondents, whereas in the administration respondent's university degree by 84%. In the administration were noticed few respondents with master and doctorate.

### Status and training needs assessment

The majority of the respondents were familiar with the concept of lifelong learning. In this context 35% of public administration employees and 40 % of producers, stated that they had not heard of the concept. More than half of the respondents from all three groups consider that the existing offer of additional education/training programmes in the field of agriculture is insufficient, whereby the majority were women.

## Harmonization of LL in ADA Region

Areas in which the respondents lack knowledge	All data are in % of respondents		
	Schools	Administration	Producers
Animal science	21	5	24
Crop production	18	1	13
Ecological production	18	18	22
Agrotourism	29	42	36
Agricultural economics	15	10	13
Agribusiness	20	21	7
Rural development	13	35	18
Agroecology	24	19	20
Microbial biotechnology in agriculture	18	21	33
Animal genetics and breeding	29	20	22
Horticulture – vegetable crops	28	10	9
Horticulture – ornamental plants	10	8	22
Horticulture – viticulture	16	9	16
Horticulture – enology	9	9	13
Horticulture – fruit crops	22	11	16
Animal nutrition and food	9	10	11
Meat production and processing	11	17	16
Milk production and processing	15	9	16
Landscape architecture	17	30	25
Agricultural engineering – machinery	13	15	9
Agricultural engineering – soil amelioration	9	7	5
Fisheries	15	11	16
Hunting	10	13	20
Apiculture	22	14	25
Plant protection	22	17	18
Phytomedicine	24	31	27

In addition to the offered knowledge, individual respondents stated that they also lack knowledge in Postharvest technology, Phytomedicine, cultivation of medicinal and aromatic plants, fruit and vegetable processing, Rural development, EU funds and agricultural legislation.



Areas in which respondents lack skills	All data are in % of respondents		
	Schools	Administration	Producers
Public speaking	5	10	5
Communication skills	5	6	2
Presentation skills	8	7	4
Teamwork	19	15	9
Trainer training	17	19	24
Critical thinking	8	2	10
Writing project proposals	10	17	4
Working with computer programmes	9	7	9
Foreign language knowledge	16	15	33

The respondents from all three groups prefer a direct form of teaching in combination with practical work. More than four fifths of all respondents consider that faculties should provide additional education connected to sustainable agriculture. An additional 40.6% of producers consider that such education should be performed in collaboration with higher education institutions.

Necessary form of education/training valuation is as below:

Do you need some of the forms of education/training valuation?

	% of the respondents			
	No	Yes, ECTS points	Yes, entry into the employment record/portfolio	Yes, another type of certificate
Schools	74%	13%	1%	4%
Administration	53%	4%	40%	4%
Producers	5%	17%	30%	5%

## Conclusions

Learning methods need to be adapted to different levels of professional education. Topics that are highly relevant for some farmers are of little interest to others. Traditional methods of education, training and management have to be scrutinized, aiming to ensure that farmers and other members of the agricultural sector participate in lifelong learning activities. Farmer-university networks function effectively if all partners involved work together as equal partners.

The majority of the respondents are familiar with LL concept and aware of a need for additional education. The most informed with the concept of lifelong learning LL are employees of the administration. After completing basic education level 52% of producers and 88% of employees in administration and secondary schools have been trained in basic training required.

Producers perceive the organization of training needed by problems and preferred fields of them. High schools and administration employees has an asymmetry in the

## Harmonization of LL in ADA Region

perception of missing and lost knowledge and the need for training required and additional qualifications. Current programs of additional education and training in the field of agriculture were perceived as insufficient by employees in administration, secondary schools and producers. This indicates that future policies and strategies should be developed to increase the level of training and lifelong education.

In relation to lacking knowledge, and concrete knowledge that were lost over time and can be regained with the necessary and additional training resulted that producers perceived lack of the knowledge and additional knowledge for postharvest technology, agro-tourism, genetics and animal breeding, fruit growing, orchards, agricultural pharmacy, beekeeping, and plant protection. From the producers it was perceived as necessary the completion and updating of knowledge in almost all areas.

As the most effective way of training, direct lessons were perceived with 69% of administration employees, 43% of producers and 28% of high school employees, followed by practical work with 43% of high schools, 38% of manufacturers and 18% of the employees of the administration. In relation to the perception of online seminars and distance learning which is perceived by many of the high schools, administration and producers, we consider as a very promising situation for distance electronic platform learning. Short and intensive workshops were perceived as the most favorite forms of respondents followed by intensive courses and lectures in the auditorium.

By the analysis of respondents, UNKO designed Summer school which corresponds to the needs mentioned in the report. Summer school covers additional education from the field of Postharvest technology and marketing of agricultural products, related with other sciences as Horticulture – vegetable crops, Horticulture – ornamental plants, phytomedicine, etc.

During the summer school program participants had the chance to practice their public speaking and presentation skills. Since there is a possibility of conducting programme both on Albanian and English, participants can also improve their foreign language knowledge. Upon finishing the programme, Certificate of completion, entry in employment record card / portfolio or 4 ECTS credits is awarded, depending on the needs.



## 2.4.3.2.

### International Summer School "Postharvest technology and marketing of agriculture products"

The programme is designed to fit the LL needs of specific group of participants – agricultural producers, public administration within field of agriculture, high school teachers or students.

#### Summer school description

Host institution	University of Korça, Faculty of agriculture Shëtitorë "Rilindasit", 7001, Korça, Albania
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. are running your own business as intermediary or transformer of fresh fruits</li> <li>2. are running your own business as refrigerator operator</li> <li>3. need additional education from the Postharvest technology</li> <li>4. need additional education from marketing of agricultural products</li> <li>5. want to learn more or improve your skills in this field</li> </ol>
Learning outcomes	<p>PART I– Marketing on agriculture products Knowledge on development of business projects in marketing of fresh products, marketing concept and marketing systems, links between agriculture and food industry, problems caused by variability, etc.</p> <p>PART II – Postharvest technology Knowledge on postharvest technology –vegetable variability from postharvest behavior point of view, determination of harvest time, storage of fresh products and different schemes of postharvest technology.</p>
Language	English or Albanian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion, entry in employment record card / portfolio or 4 ECTS credits are awarded upon finishing the programme.
Duration	10 days
Minimum number of participants	5
Maximum number of participants	15
Programme coordinator	Assoc.Prof.Dr. Ilir Niçko E-mail: nicko_ilir@yahoo.com Phone: 00 355 82248945
LL expert	Prof.Dr. Kristaq Teneqexhi E-mail: kristaq.teneqexhi@yahoo.com
LL officer	Ardian Çërava M.Sc. E-mail: acerava@gmail.com

**LL PROGRAMME: "Postharvest technology and marketing of agriculture products"**

Day	Time	Title of the lecture	Lecturers
Day 1 05.09.2016	09:00-10:00	Dean's welcome speech	Gjergji Mero
		Summer school coordinator's speech	Ilir Niçko
	10:00-12:00	The importance of agricultural and food marketing to developing countries.	Aldona Minga
	13:30-15:30	Marketing of agricultural products	Ardian Çërava
Day 2 06.09.2016	09:00-11:00	The adoption process for agricultural products	Aldona Minga
	11:00-15:30	Branding of local products	Ardian Çërava
Day 3 07.09.2016	09:00-11:00	The effect of products characteristics on the rate of adoption	Aldona Minga
	11:00-15:30	Branding of products with place of origin	Ardian Çërava
Day 4 08.09.2016	09:00-11:00	The problems of marketing caused by the variability.	Aldona Minga
	11:00-15:30	Managing of value chain of agricultural products	Ardian Çërava
Day 5 09.06.2016	09:00-11:00	Managing of value chain of agricultural products	Ardian Çërava
	11:00-15:30	Case studies for logistics for post-harvest of apple productions	Ardian Çërava
Day 6 12.09.2016	09:00-10:00	The origin of the post-harvest technology	Ilir Niçko
	10:00-11:00	Fruits and vegetables, their diversity	Ilir Niçko
	11:00-14:30	Biology and biochemistry of fruits and vegetables	Kristaq Teneqexhi
	14:30-15:30	Stresses in the post-harvest products	Ilir Niçko

Day	Time	Title of the lecture	Lecturers
Day 7 13.09.2016	09:00-10:00	The environmental factors that influence the deterioration of fruits and vegetables	Kristaq Teneqexhi
	10:00-11:00	The pre harvest factors that influence the quality of fresh products	Kristaq Teneqexhi
	11:00-12:00	Ethylene, biology and its importance in the post-harvest technology	Kristaq Teneqexhi
	13:30-15:30	Commercial Norms for fresh fruit and vegetables	Illir Niçko
Day 8 14.09.2016	09:00-10:00	Indicators of maturing and ripening	Kristaq Teneqexhi
	10:00-12:00	Cooling commodities, cooling -chain of fresh fruits and vegetables, technical problems, alternative sources of cooling	Kristaq Teneqexhi
	13:30-16:30	Determination of dry matter; Determining titrable acidity; Determination of moisture in fruit and vegetables Determining the hardness of fruits and vegetables through penetrometer. Measuring the number of formol; Iodine test, measurement of vitamin C	Arben Gjata
Day 9 15.09.2016	09:00-10:00	Modified-atmosphere and controlled atmosphere am-ak, their role in the physiology of fresh fruits and vegetables	Illir Niçko
	10:00-11:00	Preparation of products for market	Illir Niçko
	11:00-12:00	Consumer demands on product quality and safety	Kristaq Teneqexhi
	12:00-13:30	Standardization of product-quality measurements for standardization	Illir Niçko
	14:30-15:30	Application storage technology of fruits and vegetables, qualitative aspects - case studies: tomatoes, cucumber	Illir Niçko
Day 10 16.09.2016	09:30-12:30	Control test	Illir Niçko
	19:00-21:00	Certificate award	

### LECTURE SUMMARY

#### PART I

#### Marketing of Agricultural Products

##### The importance of agricultural and food marketing to developing countries

**Aldona Minga**

The importance of agricultural and food marketing is crucial to developing countries. In this lecture the marketing concept, marketing systems and marketing functions were discussed. What are links between agriculture and the food industry, agricultural and food marketing enterprises, marketing boards in developing countries?

##### The adoption process for agricultural products

**Aldona Minga**

One of basic processes in marketing is the adoption process for agricultural products, which include the impetus to innovation, the new product development process, the adoption process, the effect of products characteristics on the rate of adoption.

##### Marketing of agricultural products

**Ardian Çërava**

Students were introduced to the concepts of agricultural marketing which plays an important role not only in stimulating production and consumption, but in accelerating the pace of economic development. The agriculture marketing system plays a dual role in economic development in countries whose resources are primarily agricultural. Increasing demands for money with which to purchase other goods leads to increasing sensitivity to relative prices on the part of the producers, and specialization in the cultivation of those crops on which the returns are the greatest, subject to socio-cultural, ecological and economic constraints. It is the marketing system that transmits the crucial price signals.

##### The effect of products characteristics on the rate of adoption

**Aldona Minga**

Some of the characteristics on the rate of adaption are market liberalization, economic structural adjustment programs, macro-economic stabilization, the role of the state in liberalized markets, strategies for reforming agricultural marketing parastatals, obstacles to be overcome in commercialization and privatization of agricultural marketing parastatals, dealing with accumulated deficits.

##### The problems of marketing caused by the variability

**Aldona Minga**

In this lecture the problems of marketing caused by the variability, introduction to the elements of variability, the possible solution to the problems of variability, standardization of agricultural products, some packages according to directives of United Nation Economic Commission for Europe UNECE were discussed.

### Branding of local products

Ardian Çërava

Branding of local products: A valuable technique to enhance the sale of locally-produced goods to tourists is to 'brand' them under a local or regional theme. The brand is a way of addressing quality issues, coordinated marketing, product development and product recognition, students learned different techniques in branding of local products.

### Branding of products with place of origin

Ardian Çërava

Country branding means much more than adding a "Made in..." label to a product. A product's country of origin constitutes an important piece of branding that, in many cases, can be so influential it overtakes the brand's other reputation builders. Students have learned different methods and rules for labeling products with place of origin.

### Managing of value chain of agricultural products

Ardian Çërava

Value chains are organized linkages between groups of producers, traders, processors, and service providers (including nongovernment organizations) that join together to improve productivity and the value added from their activities. In a well-managed value chain, the value of the end-product is often greater than the sum of individual value additions. By joining together, the participants in a value chain increase competitiveness and are better able to maintain competitiveness through innovation. The limitations of each single participant in the chain are overcome by establishing synergies and governance rules aimed at producing higher value. The main advantages to commercial stakeholders from being part of an effective value chain comprise being able to reduce the cost of doing business; increase revenues; increase bargaining power; improve access to technology, information, and capital; and, by doing so, innovate production and marketing processes to gain higher value and provide higher quality to customers.

### Case studies for logistics for post-harvest of apple productions

Ardian Çërava

Case studies for logistics for post-harvest of apple productions and a case study about apple production in the region of Korça were presented to students. On hand information about the apple industry in the Korça Region as well as creation of own logistics system for taking the product from the fields to the processors was presented to students.

## Part II

### Postharvest Technology

#### Laboratory work

Arben Gjata

Determination of harvest time of fresh fruits and vegetables is not an easy job neither for agronomist nor transformer. For this purpose to many indicators and indexes were to be used. Among them the most useful are determination of dry matter; determination of moisture in fruit and vegetables, determining titrable



## Harmonization of LL in ADA Region

acidity, determining the hardness of fruits and vegetables through penetrometer, measuring the number of formol, iodine test, measurement of vitamin C in fresh fruits and vegetables and others.

## The origin of the post-harvest technology

### Ilir Niçko

Origin of post harvesting technology of fresh produce, causes of losses after collection and size of the problem, the origins of post-harvest technology, definitions of harvesting, post-harvest, loss; post-harvest losses, factors that cause post-harvest losses, non-technical factors affecting post-harvest losses, reducing post-harvest losses, pre-harvest treatments, harvesting and processing field, "treatment" and the time of harvest, the size of the post-harvest losses.

## Fruits and vegetables, their diversity from the postharvest behavior

### Ilir Niçko

In this lecture the diversity of fruits and vegetables, different commodity postharvest behavior, definition of fruits and vegetables, morphological characteristics of fruit and vegetables, the chemical composition and nutritional value of fresh fruits and vegetables, their importance in human diet and metabolic changes during post-harvest were discussed.

## Biology and biochemistry of fruits and vegetables

### Kristaq Teneqexhi

Losses in quality can affect horticultural crops between harvest and consumption. The magnitude of postharvest losses in fresh fruits and vegetables is estimated from 5 to 25% in development countries and 20 – 50% in developing countries, depending upon the commodity cultivar and handling conditions. To reduce these losses, producers and handlers must first understand the biological and environmental factors involved in deterioration and second, use postharvest techniques that delay senescence and maintain the best possible quality. Fresh fruits, vegetable and ornamentals are living tissues that are subject, to continuous change after harvest. Some changes are desirable, but from the consumer's stand point are not. Postharvest changes in fresh produce cannot be stopped, but they can be slowed within certain limits. Senescence in the final stage in the development of plant organs, during which a series of invertible events leads to breakdown and death of plant cells.

## Stresses in the post-harvest products

### Ilir Niçko

Stress is usually seen as an environmental factor that is able to promote a series of injuries in a living system. More specifically, stress is an external factor, or interplay of factors of such a size that tends to interrupt the physiological processes of an organism. However, a stress can interrupt the speed limit or normal metabolic processes. On the basis of this definition, it is apparent that the environmental conditions recommended for post-harvest preservation of items represent stresses. In this context the stress is determined in relation to the use of the final product. Thus stresses are of two types: Elastic or reversible stresses, where by the removal of stressful factor, the product gets the previous situation; Plastic or irreversible stress, where by the removal of stressful factor, the product suffers permanent damage to tissues. In this lecture the nature of stress about the article, stresses caused by temperature, high temperatures, cooling in low temperatures, freezing

temperatures, water stress, stresses caused by the composition of atmospheric gaseous, stresses caused by the concentration of O<sub>2</sub>, CO<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, stresses caused by radiation, chemical factors, mechanical factors, pathogens, and by geotropic factor. Stress importance and their use in postharvest technology were outlined.

### The environmental factors that influence on the deterioration of fruits and vegetables

#### Kristaq Teneqexhi

Pre-harvest factors in marketing of fresh products, market factor on the production of fresh fruits and vegetables, influence of agricultural practices on quality of fresh products, deterioration of fresh agricultural product, good handling practice, and mechanical damages during the line of processing of fresh products.

### The pre harvest factors that influence the quality of fresh products

#### Kristaq Teneqexhi

Although fruit or vegetable quality can only be maintained not improved, after harvest, little research has been conducted on the influence of pre-harvest factors on postharvest quality of fruits other than citrus and pome fruits. Because vegetables are typically produced during short growing seasons with intensive inputs, the role of pre-harvest factors on vegetable quality and potential postharvest life has been studied in more detail. In general, pre-harvest factors that can be managed should be aimed to optimize their impact on postharvest quality. Pre-harvest factors often interact in complex ways that depend on specific cultivar characteristics and growth on development stage sensitives. The tremendous diversity of fruits and vegetables that are produced commercially and the general lack of research relating pre-harvest factors to postharvest quality precludes generalizations about pre-harvest influences that uniformly apply to all fruits and vegetables.

### Ethylene, biology and its importance in the post-harvest technology

#### Kristaq Teneqexhi

Ethylene's role as a potent plant growth regulator, affecting many phases of plant growth and development, was established only in the last 100 years, but its effects have been known for centuries. The use of ethylene influence the ripening of fruits dates to antiquity. Example included the ripening of sorb apples in Southern Italy in an atmosphere created by burning straw. Ethylene plays a role in the postharvest life of many horticultural crops – often deleterious, speeding senescence and reducing shelf – live and sometimes beneficial, improving the quality of the product by promoting faster, more uniform ripening before retail distribution. The ethylene stimulates: germination of some dormant seeds, changes the direction of seedling growth, stimulates growth of special aerating roots, may stimulate flowering etc.

### Indicators of maturing and ripening

#### Kristaq Teneqexhi

The first step in the postharvest life of the product is the moment of harvest. For most fresh produce, harvest is manual so the harvester is responsible for deciding whether the produce has reached the correct maturity for harvest. The maturity of harvested perishable commodities has an important role on their storage life and quality and may affect the way they are handled, transported and marketed. In postharvest physiology we consider mature and ripe to be distinguished forms for different stages of fruit development. Mature is best defined by having completed

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natural growth and development. Horticultural maturity is the stage of development at which a plant or plant part possesses the prerequisites for use by consumers for a particular purpose.

### Commercial Norms for fresh fruit and vegetables

#### Ilir Niçko

Commercial norms, regardless of the type of production, are valid for products that someone sells to customers in fresh state through all levels of trade as well as during import and export. The products, which are sold to consumers directly from the farm to their personal needs and the products that they pass to enterprises for selection processing, are excluded from the application of Commercial norms. Commercial norms are not valid for products that are destined for the processing industry, when the destination is confirmed. The Commission of the European Community may make exceptions to the Commercial norms in local level for some products, for which there are special traditions consumption. In this lecture commercial norms for the fresh fruit and vegetables, implementation and validity of commercial norms, minimum properties, evaluation criteria of quality fresh products, the criteria of classes, packaging design, label design and its elements, by using study cases were discussed.

### Cooling commodities, cooling -chain of fresh fruits and vegetables, technical problems, alternative sources of cooling

#### Kristaq Teneqexhi

Controlling product temperature is the most important method of slowing quality loss in perishables. Some products are so sensitive to temperature abuse that they should be harvest when temperature is too warm. Initial cooling of horticultural products to near their optimal storage temperature can be done with several cooling methods, including room cooling, forced air cooling, hydro-cooling, package icing and vacuum cooling. A few cooling methods as: room cooling, forced – air cooling and hydro-cooling are used with a wide range of commodities.

### Selection of cooling method, factors affecting the selection of cooling method

#### Ilir Niçko

Effective Cooling and temperatures management in cooling systems under development, require a good understanding of the product and trading requirements and cooling methods that are used. Full and quick cooling and product temperature management is now accepted as the basis of a successful marketing. This is because the product temperature requirements are recognized more and more associated with adjusting the cooling method and market demands. Cooling system is part of the total processing of perishable products. Speed cooling effects occur whenever the system interventions. The introduction of crates and field container in block cooling has made it difficult as process. Cooling can be improved by designing the most suitable packaging and packaging model in the palette. The increase of the cost for a faster cooling can be relatively small when calculating the total cost of the cooling system. In this presentation I will outline the selection of cooling method, the cost of using cooling systems, evaluation of cooling capacity, effective management of a cooler, psychrometric diagram and its elements dry bulb temperature, wet bulb temperature, dew point temperature, air pressure, absolute and relative humidity, the effect of variables at the time of storage, injuries from low temperatures and freezing temperatures.

### Modified-atmosphere and controlled atmosphere CA and MA, their role in the physiology of fresh fruits and vegetables

**Ilir Niçko**

The modified atmosphere (MA) and controlled atmosphere (CA), means removal or addition of gases, resulting in a composition atmospheric around the article, which is different from that of outdoor air (78.08% N<sub>2</sub>, 20.95% O<sub>2</sub>, 00:03 % CO<sub>2</sub>). Usually, this means a reduction of the concentration of O<sub>2</sub> and CO<sub>2</sub> concentration increase. As concepts, Controlled Atmosphere and Modified Atmosphere vary from process control, namely, whether man is active. Using the CA should be regarded as an additional measure to proper temperatures and appropriate relative humidity. Issues in this presentation will be on modified atmosphere and controlled atmosphere, their role in physiology of fruits and vegetables, developing storage techniques with CA and MA. storing with controlled atmosphere (CA) and modified (AM), CA effects on the physiology of fruit and vegetables ca effects on ethylene biosynthesis, the construction of facilities that use CA and MA, conservation techniques with controlled atmosphere fruit and vegetables, factors designing storage environments with controlled atmosphere fruit and vegetables, control systems, O<sub>2</sub> control systems, automation of measurements of the composition of gaseous, recommended conditions for storage of fresh fruits and vegetables with MA and CA.

### Preparation of products for market

**Ilir Niçko**

Preparation of product for market is of a very high importance. Regardless of the destination, preparation for the fresh market comprises four basic key operations removal of unmarketable material, sorting by maturity and/or size, grading, packaging. Any working arrangement that reduces handling will lead to lower costs and will assist in reducing quality losses. This material focused on department of packaging, design, department of packaging functions, box packaging, reception, removing, waste cutting, categorization, special functions, selection, waxing, coloring (adding color) control of ripening treatment temperature, suppression of offshoots, handling gases before packaging storage.

### Consumer demands on product quality and safety

**Kristaq Teneqexhi**

The consumer is demanding every day more qualitative products. For this purpose the lecture described quality components, nutrition as a qualitative element, safety from the point of quality, organic food, biotechnology and its use in improving quality, food irradiation, making product-buying decisions.

### Standardization of product-quality measurements for standardization

**Ilir Niçko**

The quality is the amount of quality features that distinguish one product from another, and that condition their acceptance by the customer or not. The quality characteristics differ for a variety of factors, but rather by type of product, the method of use and finally, requirements of the market. In this lecture vegetable quality assessment, quality standards for standardization of quality measurements, standardization of quality measurements, organoleptic, intrinsic and/ or appearance, social, diet, psychological, traditional factors on quality assessment were described as well as the methods of assessing quality of fresh products.

### Application storage technology of fruits and vegetables, qualitative aspects

#### Ilir Niçko

In this lecture the application of the quality standards, post-harvest technology, by using study cases were described. Application of quality standards, the overall scheme of post-harvest technology for tomatoes, onion, carrot cucumber manual grading and packaging of potato, flowers post-harvest technologies, standardization, calibration, manufacturing, packaging, materials used, codes and classification of flowers by quality factors affecting post-harvest time; ways and methods of conservation of fresh flowers, potted flowers and dried flowers. -Post-harvest technology of fruits and vegetables, the qualitative aspects - case studies. Storage of underground-bulb vegetables, tubers, rhizome, onions etc. Postharvest technology of citrus fruits, orange, lemons, tangerine etc.

#### List of lecturers with contact

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Some insights and photos from summer school in Korça:



Keep on like this  
for awhile!  
:)

I was very satisfied with these  
summer school courses  
although it is not 100% part of  
my interests!

A very nice experience,  
it was beyond my  
expectations!!



### 2.4.4. **University of Tirana, Faculty of Agriculture and Environment, Albania**

Agricultural University of Tirana (AUT), is the only center of university training, postgraduate, research and extension training in agriculture and food sciences in Tirana (Agronomy, Horticulture and protection of plants, Economy and Agrarian Policy, Agri-Environment and Ecology, Agrifood Technology, Animal Husbandry and Business Livestock, Aquaculture and Fisheries Management, Forestry Engineering, Wood Processing and Veterinary Medicine etc.). It was established on November 1, 1951. It is a unique university campus in Albania, located on a wooded hill in north-western suburbs of Tirana, just 7 km from the city center. Agricultural University of Tirana has the mission of vocational education and research in the field of agriculture, food and environment. Its mission is related to the agricultural establishment in the development of modern agriculture and ensuring healthy food and quality. Major objective of AUT is focusing on producing and distributing enough needed, high quality agricultural and livestock products, careful management of land, water, air and harmonized use of the functions of green space and blue. Agricultural University of Tirana aims to become a center of excellence, postgraduate research and training for professional preparation of specialists in the field of agriculture, food and environment. Combining education with research at a high level, it requires not only prepared qualified specialists, but also responsible citizens in the service of society, particularly for rural development, sustainable development, agriculture, etc. AUT has five Faculties: Faculty of Agriculture and Environment, Faculty of Economics and Agribusiness, Faculty of Biotechnology and Food, Faculty of Forest Sciences, Faculty of Veterinary Medicine.

AUT, in this project, established working groups, nominated an officer for LL, and expert for career guidance. Institution prepared presentation on LL activities. AUT conducted surveying, prepared reports on LL potentials at institutional and national level, as well as a case study. Institution also participated in the workshop in Sarajevo. AUT reviewed the draft version of Regional guidelines and developed National strategies. AUT participated in a Round table in Podgorica and organized the final conference in Tirana (Dures). Staff from AUT participated in teacher trainings, designing of pilot activities, courses' curricula as well as their final implementation. Institution distributed and collected student questionnaires.

#### 2.4.4.1. **Decision making process in curriculum development**

The Survey on LL potentials was conducted by 4 WP2 members – Prof. Ferdi Brahusi, PhD., Prof. Lumturi Sena, PhD., Stela Ruci, PhD., and Prof. Shpendi Shahini, PhD.

All departments of Faculty of Agriculture and Environment (FAE) have been included in the survey. From the results of the survey conducted with the heads of departments at FAE it can be concluded that FAE has the potentials (number of staff, motivation and workload) to organise and deliver specific education, qualification and training (TNA).

Based on the interviews, FAE is able to deliver intensive courses at 40%, lectures 30%, workshops 20% and specialised postgraduate studies (SSPP) 15%.



The main target groups for conducting the above programs depend on the program. Referring to the data, it can be noticed that the most interested are, in order of importance:

- Interested in the recognition of previously acquired knowledge and experience;
- Interested in acquiring new knowledge within a profession and
- Interested in acquiring another profession.

Referring to the results of interviews, it can be stated that, in order to conduct lifelong learning, FAE requires collaboration not only between departments but also with other faculties and institutions.

Reasons for cooperation are mainly related to the specificity of the program, workload of the academic staff of the department and in some case, inability to organise the program by own resources only.

Interviews show that the head of FAE's departments are aware about the procedures for establishing and evaluating the educational programs.

In order to conduct lifelong educational programs, assistance is required by the administrative services of the Faculty and University both for drafting, promotion and organisation.

In order to determine the needs of the Albanian market with regard to lifelong learning in the field of agriculture, a survey was conducted on three groups of respondents: agricultural secondary school teachers, local, regional and state administration and the producers.

This survey was sought to find out challenges in teaching and learning of practical agriculture in Albania. For this study was design the population, sample and sampling procedure, the instrument used for data collection and how data was analyzed.

The study was a descriptive survey. Descriptive survey offers the chance of gathering data from relatively large numbers of cases at a particular time so as to make inferences and generalizations from the study of the sample. It is essentially cross-sectional. This design was chosen because it has the advantage of producing a good amount of responses from wide range of people. It also provide a clear picture of events and people's behavior on the basis of data gathered at a point in time.

We believed that this descriptive survey was the appropriate for this study because:

- It helped us to make direct contact with producers, tutors, high school teachers and students, whose views could be relevant for investigating perceptions about leadership behaviors of training colleges,
- It helped us to draw useful and meaningful conclusions from the study.

The random sampling technique was used in almost all situations, in all respondents. In this approach all respondents were selected using simple random method. The name of merchants were written on pieces of paper which the respondents were randomly selected. A questionnaire was designed for all respondents grouped: producers [87 respondents all together], high schools teachers and students [96 respondents all together] and people employed in administration [55 respondents all together].

They were asked to choose the answer appropriately, representing their perceptions. Since the study was purely descriptive, descriptive analysis of the data was simple percentages and frequencies. The percentages were used to analyze all responses. Frequency and percentage tables were used to describe the data that were collected from respondent using Statistical Package for Social Sciences. The frequency and percentage tables enabled us to have an overall view of the findings, to identify trends and to display the relationship between parts of the findings.

### Assessment and the need for specialization

The respondents were asked if they are informed with the concept of lifelong learning LL. Most informed with the concept of lifelong learning LL are employees of the administration with 95%, followed by 78% manufacturers. Data showed that there is the same situation in secondary schools. For a more qualitative commitment regarding to additional training in order to remain at the current positions, respondents perceived that 65% of employees in the administration are required for additional training and 60% in secondary schools. For a more qualitative commitment in relation to agriculture, the perception for additional training of private producers resulted necessary, 52% as indispensable, 33% as desirable and 15% do not perceive any need for additional training.

Current programs for additional education and training in the field of agriculture were perceived as insufficient by 49% of employees in administration, 47% of secondary schools and 37% of producers. It is obvious the fact that 35% of employees in the administration perceive additional education and training as sufficient, followed by producers with 28% and high schools by 21%. This indicates that future policies and strategies should be developed to increase the level of training and lifelong education.

By the analysis of respondents in relation to lacking knowledge, and concrete knowledge that were lost over time and can be regained with the necessary and additional training resulted that producers perceived lack of the knowledge and additional knowledge for agro-tourism, agriculture land evaluation, genetics and breeding, Fruticulture, orchards, phytopharmacy, beekeeping, and plant protection. From the producers it was perceived as necessary the completion and updating of knowledge in almost all areas. From analysis of the survey data regarding training needs according to specifications, the knowledge of foreign languages is perceived as necessary where more important were perceived by administration employees with 33%, followed by producers 16% and by high schools with 15%. The most favorite foreign languages were English, followed by Italian and German language.

Indicators of perception regarding additional training in this survey were obtained by this structure of economic activity: Agriculture 11%, animal products 24%, 29% fruit growing, processing 8%, commerce 14% and mixed farming economy 14%.

### Why did we choose this topic?

According to the results of the analysis, AUT designed Summer school which corresponds to the needs mentioned in the report. Summer school covers additional education on Evaluation of agricultural land, forests, pastures and fruitless land. During the summer school program participants will also have the chance to practice their public speaking and presentation skills. Since there is a possibility of conducting programme both on Albanian and English participants can also improve their foreign language knowledge. Upon finishing the programme Certificate of completion, 10 ECTS credits are awarded, depending on the needs.



## 2.4.4.2.

### International summer school "Evaluation of immovable property for agriculture land, forest land, pasture and unproductive lands"

This programme aims the Evaluation of agricultural land, forests, pastures and fruitless land, to provide an effective framework, the rules, so that land owners can trust to an assessment provided by a professional valuation, in accordance with international standards including those set by the International Standards Board Evaluation (IVSC). These standards define the rules, procedures and guidelines for assessors in the performance evaluation process.

#### Summer school description

Host institution	Agricultural University of Tirana, Faculty of Agriculture and Environment, Kodër Kamëz, SH1, Tirana 1000, Albania
Learning outcomes	<ol style="list-style-type: none"> <li>1. Proper qualification of evaluators for the task, clear criteria</li> <li>2. Independence and objectivity in the assessors approach</li> <li>3. Clarity about the terms of engagement, including the issues to be addressed and disclosures to be made</li> <li>4. Clarity about the basis of value, including any assumption or material consideration, to be taken into consideration</li> <li>5. Minimum standards with regard to the content of evaluation reports</li> <li>6. Proper detection and appropriate assessments of the relevant issues that can be supported by a third party</li> </ol>
Language	English or Albanian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion or 10 ECTS credits are awarded upon finishing the programme.
Duration	21 days
Minimum number of participants	5
Maximum number of participants	20
Programme coordinator	Prof. Perparim Laze, Ph.D. E-mail: perparimlaze@yahoo.com Phone: +355672578321
LL expert	Prof. Ferdi Brahushi, Ph.D., E-mail: brahushi@hotmail.com
LL officer	Denis Cela, M.Sc., E-mail: cela.denis@gmail.com

**LL Programme "Evaluation of immovable property for agriculture land, forest land, pasture and unproductive lands"**

**Module I: Soil and it's fertility  
PART 1 Soils and it's properties**

Day	Time	Lecture	Lecturer
DAY 1 6.6.2016.	08:30-09:00	Dean's welcome speech	Fatbardh Sallaku
	09:00-09:00	Summer school coordinator's speech	Perparim Laze
	09:00-10:00	Soils and its properties. Definition and functions of the soil; relationships between soil properties and soil evaluation process	Iilir Kristo
	10:00-11:00	Constituent components of soil and their relationship; Layers of soil profile; spatial distribution of the soils	Iilir Kristo
	11:00-12:00	Soil physical properties	Iilir Kristo
	12:00-13:30	Soil properties and natural factors like soil erosion, flooding, salinization	Iilir Kristo
	14:30-15:30	Erosion and soil productive properties; Interventions on the relief parameters and their impact on soil fertility	Iilir Kristo

**PART 2 The role of soil fertility in its evaluation process**

DAY 2 7.6.2016.	08:00-11:00	Soil chemical and biological properties	Ardian Maci
	11:00-12:00	Factors limiting soil fertility and productivity; acidity, salinisation, groundwater levels	Ardian Maci
	13:30-14:30	The influence of limiting factors in soil properties and their impact in soil fertility; Reclamation of acide, sodic and saline soils	Ardian Maci

**PART 3 The topography and it's role in soil fertility**

DAY 3 8.6.2016.	08:00-09:00	Soil fertility and productivity; Actual and potential fertility	Ardian Maci
	09:00-10:00	Indicators of fertility evaluation	Ardian Maci
	10:00-14:30	Measurement of soil fertility indicators (Lab. Data)	Ardian Maci

**PART 4 Land evaluation process in soils with limited fertility. Soil fertility classifications**

DAY 4 9.6.2016.	08:00-10:00	Evaluation "in situ" of texture, structure, salinity, pH, slope	Iilir Kristo
	10:00-11:00	Evaluation systems for soil fertility and productivity	Iilir Kristo
	11:00-12:00	Soil capability system	Iilir Kristo
	13:00-14:30	Albanian system of soil fertility classification	Iilir Kristo

**Module II:  
PART 1**
**The Legal and environmental aspects of land in Albania  
The natural functions of the land**

Day	Time	Lecture	Lecturer
DAY 5 10.6.2016.	08:00-09:00	The concept of the land as environmental component; The natural functions of the land on the border between the atmosphere and groundwater	Seit Shallari
	09:00-10:00	The flora and fauna of the the land, environmental pressures and changes that affect biodiversity	Seit Shallari
	10:00-11:00	The effects of projects to change the terms of the terrestrial system	Seit Shallari
	11:00-12:00	The Environmental problems related to the land at local and global levels. General overview on land resources in Albania	Seit Shallari
	13:30-14:30	Activities and the projects that affect the quality of soil; The effects of sectorial policies on the form of of the land use and the quality	Seit Shallari

**PART 2**
**The economic and social development of Albania and the effects on land resources. The development of the tourism sector and the effects on the land. The strategic environmental evaluation and land protection policies**

DAY 6 13.6.2016.	08:00-09:00	The physical and chemical changes that are caused by atmospheric the discharges and the perceptions of toxic substacave over land; The changes and the effects on flora and fauna of the land; The effects of contaminated soils over the food chain;The concept of improving effects	Seit Shallari
	09:00-10:00	The agricultural land in Albania, strengths and weaknesses; The factors that determine the economic value of agricultural the land in a specific area; The specific issues related to the agricultural land in Albania	Seit Shallari
	10:00-11:00	The territory management policies at local and national level; Effects of policies for the management of the territory and area over the land (cases from Albania);. The interaction of the effects that are caused by activities in different sectors of the economy	Seit Shallari
	11:00-12:00	The effects on the land and protective measures; The analysis of the activities effects over the land, The interaction of the effects originating from various sectors. The Compendious evaluation of the effects of the various sectors	Seit Shallari
	13:30-14:30	The policies, programs and plans of medium and long term sector development in Albania; The analysis of the environmental effects evaluation; The effects on the land and protective measures, The interaction of effects caused by various sectors	Seit Shallari
DAY 7 14.6.2016	08:00-09:00	The legal concepts for land in different historical periods	Jolia Korita
	09:00-10:00	The Civil Code of the Kingdom of Zogu in relating to land and property, the reform of 1945 and abolishment of private ownership	Jolia Korita
	10:00-11:00	The legal regime of the the land after the 1991 referred 7501 dated 07.19.1991 Law (as amended)	Jolia Korita
	11:00-12:00	The right of ownership over agricultural land, inheritance, use or renting	Jolia Korita
	13:30-14:30	The parameters that characterize the agrarian reform. The land registration as a phase of particular legal importance. The parameters of the agrarian reform after 90 years	Jolia Korita

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DAY 8 15.6.2016	08:00-09:00	The agricultural land cadastre, the cadastral functions and the changes of destination of farmland	Jolia Korita
	09:00-10:00	The criteria for determining the level of the lease of land	Jolia Korita
	10:00-11:00	The forms of the land compensation	Jolia Korita
	11:00-12:00	The administration of land protection process .The structures defined in the law nr.8752 dated 26.3.2001	Jolia Korita
	13:30-14:30	The meaning of the rights of liabilities.The contracts. The fulfillment of the obligation. The principles.Types of contract	Jolia Korita

### Module III: PART 1 **Assessment of forest lands, pastures, meadows and unproductive lands** **Forest soils**

DAY 9 16.6.2016.	08:00-09:00	Soil Survey and classification	Fran Gjoka
	09:00-10:00	Soil characteristics and properties as a basis for land evaluation	Fran Gjoka
	10:00-11:00	Analysis and interpretation of soil characteristics	Fran Gjoka
	11:00-14:30	Nature and properties of soils of different ecosystems	Fran Gjoka

### PART 2 **Assessment of forest lands**

DAY 10 17.6.2016.	08:00-09:00	Forest land classification according to FAO, Albanian Laws and CORINE	Elvin Toromani
	09:00-10:00	Legal framework for assessment of forest soil value	Elvin Toromani
	10:00-12:00	Methodological approach for evaluation of forest land value	Elvin Toromani
	12:00-13:30	Methods for assessment of wood and non wood products value	Elvin Toromani
	14:30-15:00	Economic methods for assessment of ecological functions of forest lands	Elvin Toromani

### PART 3 **Assessment of pastures, meadows and unproductive lands**

DAY 11 20.6.2016.	08:00-09:00	Conceptual approach and classification of pastures and meadows	Arben Alla
	09:00-10:00	Estimation of pastures and meadows productivity	Arben Alla
	10:00-11:00	Estimation of pasture productivity based on vegetation and soil characteristics	Arben Alla
	11:00-14:30	Holding capacity of pastures and means for improvement of their productivity	Arben Alla

**Module IV: Principles of the agricultural Land evaluation and management**  
**PART 1 Evaluation standarts. Compliance and ethical requirements**

Day	Time	Lecture	Lecturer
DAY 12 21.6.2016.	08:00-09:00	Participants introduction	Fatbardh Sallaku
	09:00-10:00	Nature of Appraisals, Value and Real Estate Markets	Fatbardh Sallaku
	10:00-11:00	The Nature of Value Foundations of Appraisal	Fatbardh Sallaku
	13:30-14:30	Concepts of Land evaluation	Fatbardh Sallaku

**PART 2 Agreement of terms of engagement**

DAY 13 22.6.2016.	08:00-09:00	Qualifications of the valuer	Fatbardh Sallaku
	09:00-10:00	Knowledge and skills	Fatbardh Sallaku
	10:00-11:00	Independence and objectivity	Fatbardh Sallaku
	11:00-12:00	Additional criteria for independence	Fatbardh Sallaku
	13:30-14:30	Market Values and its Definition. International Definition	Fatbardh Sallaku

**PART 3 The Nature of Value: Foundations of Appraisal**

DAY 14 23.6.2016.	08:00-09:00	Factors of Value	Fatbardh Sallaku
	09:00-10:00	Value, Price and Cost	Fatbardh Sallaku
	10:00-11:00	Agents of Production	Fatbardh Sallaku
	11:00-12:00	Economic Principles	Fatbardh Sallaku
	13:30-14:30	Economic Principles	Fatbardh Sallaku

**PART 4 Basis of value**

DAY 15 24.6.2016.	08:00-09:00	Market Value	Fatbardh Sallaku
	09:00-10:00	Market rent	Fatbardh Sallaku
	10:00-11:00	Worth and investment value	Fatbardh Sallaku
	11:00-12:00	Fair value	Fatbardh Sallaku
	13:30-14:30	Inspections and investigations	Fatbardh Sallaku



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### **PART 5**                      **Methods of Site Valuation**

DAY 16 27.6.2016.	08:00-09:00	Methods of Site Valuation	Fatbardh Sallaku
	09:00-10:00	Sales Comparison	Fatbardh Sallaku
	10:00-11:00	Allocation, Extraction	Fatbardh Sallaku
	11:00-12:00	Land Rent Capitalization	Fatbardh Sallaku
	13:30-14:30	Land Residual, Subdivision Development	Fatbardh Sallaku

### **PART 6**                      **Valuation reports and minimum content of valuation reports**

DAY 17 28.6.2016.	08:00-09:00	Minimum content of valuation reports	Fatbardh Sallaku
	09:00-10:00	Description of a report	Fatbardh Sallaku
	10:00-11:00	Reporting the basis of value	Fatbardh Sallaku
	11:00-12:00	Special assumptions	Fatbardh Sallaku
	13:30-14:30	Depreciated replacement cost in the private and public sector	Fatbardh Sallaku
DAY 18 29.6.2016.	09:00-14:00	Field trip – The first method of property evaluation	Fatbardh Sallaku
DAY 19 30.6.2016.	09:00-14:00	Field trip – The second method of property evaluation	Fatbardh Sallaku
DAY 20 1.7.2016.		Student individual work Short seminar Written exam preparation	—
DAY 21 2.7.2016.	09:00-12:00	Control test	Perparim Laze
	12:00-13:00	Certificate award	Perparim Laze

## LECTURE SUMMARY

### MODULE I:

#### Soil and it's fertility

##### Soils and its properties

**Ilir Kristo**

Soils and its properties. Relationships between soil properties and soil evaluation process. Definition and functions of the soil; Constituent components of soil and their relationship; Layers of soil profile; spatial distribution of the soils. Soil physical properties, soil texture and textural classes, soil structure etc. Soil chemical and biological properties, nutrients, reaction and salt content in the soil, organic matter and biological activity. Soil properties and natural factors like soil erosion, flooding, salinization etc. Evaluation "in situ" of texture, structure, salinity, pH, slope ect.

##### The role of soil fertility in its evaluation process

**Ardian Maci**

Soil fertility and productivity, actual and potential fertility, indicators of fertility evaluation were discussed within this lecture.

##### The topography and its role in soil fertility

**Ardian Maci**

Soil evaluation according to relief characteristics. The influence of relief in soil properties and their impact in soil fertility; Erosion and soil productive properties; Interventions on the relief parameters and their impact on soil fertility

##### Land evaluation process in soils with limited fertility

**Ilir Kristo**

Factors limiting soil fertility and productivity; acidity, salinisation, groundwater levels etc. The influence of limiting factors in soil properties and their impact in soil fertility; Reclamation of acidic, sodic and saline soils.

##### Soil fertility classifications

**Ilir Kristo**

Soil fertility classifications for purposes of soil evaluation. Evaluation systems for soil fertility and productivity: Soil capability system; Albanian system of soil fertility classification.

### MODULE II:

#### The legal and environmental aspects of land in Albania

##### The natural functions of the land

**Seit Shallari**

The concept of the land as environmental component; The natural functions of the land on the border between the atmosphere and groundwater; The flora and fauna

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of the the land, environmental pressures and changes that affect biodiversity. The effects of projects to change the terms of the terrestrial system.

### **The economic and social development of Albania and the effects on land resources**

**Seit Shallari**

The Environmental problems related to the land at local and global levels. General overview on land resources in Albania; Activities and the projects that affect the the quality of soil; The effects of sectorial policies on the form of of the land use and the quality.

### **Identification and analysis of the human activity effects over the land**

**Seit Shallari**

The physical and chemical changes that are caused by atmospheric the discharges and the perceptions of toxic substacave over land; The changes and the effects on flora and fauna of the land; The effects of contaminated soils over the food chain;The concept of improving effects.

### **The land determined for agricultural production (the case of Albania)**

**Seit Shallari**

The agricultural land in Albania, strengths and weaknesses; The factors that determine the economic value of agricultural the land in a specific area; The specific issues related to the agricultural land in Albania.

### **The natural functions of the lands, forests and pastures (the case of Albania)**

**Seit Shallari**

The land fund with the natural functions in Albania; The factors that determine the economic value of the land in a specific area; The specific issues related to the natural the land (forest and pasture) in Albania.

### **The territory development and management of the environmental effects over the land**

**Seit Shallari**

The territory management policies at local and national level; Effects of policies for the management of the territory and area over the land (cases from Albania);. The interaction of the effects that are caused by activities in different sectors of the economy.

### **The development of the tourism sector and the effects on the land**

**Seit Shallari**

The effects on the land and protective measures; The analysis of the activities effects over the land, The interaction of the effects originating from various sectors. The Compendious evaluation of the effects of the various sectors.

### The strategic environmental evaluation and land protection policies

Seit Shallari

The policies, programs and plans of medium and long term sector development in Albania; The analysis of the environmental effects evaluation; The effects on the land and protective measures, The interaction of effects caused by various sectors.

### The legal concepts for land in different historical periods

Jolia Korita

The Civil Code of the Kingdom of Zogu in relating to land and property, the reform of 1945 and abolishment of private ownership. The legal regime of the the land after the 1991 referred 7501 dated 07.19.1991 Law (as amended), The right of ownership over agricultural land, inheritance, use or renting.

### The institutionalization of the agrarian reform

Jolia Korita

The parameters that characterize the agrarian reform. The land registration as a phase of particular legal importance. The parameters of the agrarian reform after 90 years.

### The legal regime for land in Albania and EU countries

Jolia Korita

The agricultural land cadastre, the cadastral functions and the changes of destination of farmland. The legal regime of property in areas with the tourism priority. The international juridical acts for the land and their importance as a part of the internal legislation. The United Nations Convention on the desertification, The EU legislation for the land and the legal terminology.

### The determination of the price of the rent and sale of land and the land compensation

Jolia Korita

The criteria for determining the level of the lease of land. The forms of the land compensation .

### Institutional organization of land protection

Jolia Korita

The administration of land protection process.The structures defined in the law nr.8752 dated 26.3.2001.The Section competencies of administration and protection of the land.The functions of the Office of Management and land protection.

### The international juridical acts and the EU legislation for the land

Jolia Korita

The types of international juridical acts.Their importance. The definitions of the United Nations Convention on the desertification, the legal terminology, The aim of the convention. The ways of implementation of the approximation process of legislation, The European Council Regulation nr.1698 / 2005 "On the European Agricultural Fund for Rural Development".

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### The obligations and contracts

Jolia Korita

The meaning of the rights of liabilities. The contracts. The fulfillment of the obligation. The principles. Types of contract

## MODULE III:

## Principles of the agricultural land evaluation and management

### Evaluation standards. Compliance and ethical requirements

Fatbardh Sallaku

Compliance, regulation and the requirement to disclose departures. RICS national association valuation standards. Terms of engagement. Qualifications of the valuer. Knowledge and skills. Independence and objectivity.

### Agreement of terms of engagement

Fatbardh Sallaku

Confirmation of terms of engagement. Special assumptions. Marketing constraint and forced sales. Restricted information. Revaluation without re-inspection. Critical reviews. Investigations. Inspections and investigations. Verification of information.

### The Nature of Value: Foundations of Appraisal

Fatbardh Sallaku

Concepts: Real Estate, Real Property, Personal Property, Types of Real Property. Limitations on Ownership. The Practice of Appraisal. Purpose and Intended Use. Definition of Market Value. International Definition of Market Value. Factors of Value. Agricultural Land valuations: main principles & common obstacles. Purpose of valuation. Assumptions. Desk research. Inspection site visit. Final report. Two complicated situations. Policy.

### Basis of value

Fatbardh Sallaku

Market Value. Market rent. Worth and investment value. Fair value. Description of a report. Reporting the basis of value. Special assumptions. Depreciated replacement cost in the private sector. Depreciated replacement cost in the public sector. Comparison of depreciated replacement cost. Valuations and alternative Market Values. Negative values. Property in more than one state.

### Methods of Site Valuation

Fatbardh Sallaku

Sales Comparison, Allocation, Extraction, Land Rent Capitalization, Land Residual, Subdivision Development The profits method of valuation. Valuation special assumptions. Valuation approach for a fully equipped operational entity. Valuation approach for a non-trading property. Valuations for investment purposes.

### Valuation reports, minimum content of valuation reports

Fatbardh Sallaku

Minimum content of valuation reports. Identification of the client; the purpose of the valuation; the subject of the valuation; the interest to be valued; the type of

property and how it is used, or classified, by the client; the basis, or bases, of value; the date of valuation. assumptions, special assumptions, reservations, special instructions or departures; the extent of the valuer's investigations; the nature and source of information relied on by the valuer. Matters that may affect valuation certainty. Status of the valuer. Inherent uncertainty. Restrictions on enquiries or information provided. Liquidity and market activity. Market instability. Confidentiality, threats to independence and objectivity, and conflicts of interest. Threats to independence and objectivity. Managing a conflict of interest. Settling the terms of engagement.

## MODULE IV:

### Assessment of forest lands, pastures, meadows and unproductive lands

#### Soil survey and land evaluation

Fran Gjoka

The purpose of soil survey, kind of soil survey and methodology, pedological data of soil, soil survey and classification, World Reference Base for Soil Resources (WRB) and major soil groups, evaluation of land based on the characteristics and qualities of soil.

#### Soil analysis and interpretation

Fran Gjoka

Characteristics of soil measured in the laboratory, texture, bulk density, soil moisture parameters, swelling and shrinking, cation exchange capacity, exchangeable cations and exchangeable acidity, pH, percent base saturation, free iron, electrical conductivity of the saturation extract, soil organic matter, and mineralogical composition of the soil.

#### Nature and properties of soils of different ecosystems

Fran Gjoka

Nature and morphological and physico-chemical properties of forest lands, pastures, meadows and unproductive lands.

#### Concepts and definitions for forests, pastures and meadows

Elvin Toromani

General concepts for "forest", forest land, forest stand, pastures and meadows according to FAO and Albanian legislation. Land use forms of territory according to CORINE. Legal framework for value of forest land and pastures.

#### The methods of inventory at forest stand level

Elvin Toromani

Inventory with permanent circular sample plots of forest stands and pastures. Methods of inventory. Instruments for measurement of tree characteristics inside sample plots. Methods for assessment of volume according to assortments.

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### Methods for assessment of pasture and meadows productivity and means for its raising

#### Arben Alla

The methods for inventory of pastures and meadows with sample plots. Methods for biomass assessment.

### Estimation of economic value of forest land, pastures and meadows

#### Fran Gjoka; Elvin Toromani; Arben Alla

The economic and ecologic value of forest ecosystems, pastures and meadows. The methodology for assessment of forest land value, pasture land and meadow.

### List of lecturers with contact

Name and last name	Contact
Prof. Dr. Fatbardh Sallaku	sallaku@albmail.com
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Prof. Dr. Fran Gjoka	fgjoka@gmail.com
Prof. Dr. Elvin Toromani	etoromani@ubt.edu.al
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Dr. Jolia Korita	jolia_korita@hotmail.com
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Some insights and photos from summer school in Tirana:



It was really a great chance to experience new culture and meet new people and we did by study with travelling.

This courses are very useful to inhance knowledge, and in all this is good experience

It was nice experiance to meet new people and study in different environment.

### 2.4.5. **University of Sarajevo, Faculty of Agriculture and Food Science, Bosnia and Herzegovina**

The University of Sarajevo cultivates centuries long tradition of high education in Bosnia and Herzegovina. Institutional beginnings of high education are quite similar to the Western Europe's university tradition. In 1531, Gazi Husrev-bey had founded the Hanikah, a Sufi philosophy high school, which was supplemented in 1537 with the institution for Islamic sciences studying. Modern history of the University of Sarajevo begins with the opening of first secular higher education institutions, in the dusk of and during WWII.

The Faculty of Agriculture and Food Sciences (PPF) in Sarajevo proudly bears the name of the oldest secular institution in the domain of higher education in Bosnia and Herzegovina. On March 21st, 1940, the Ministry of Education of the Kingdom of Yugoslavia issued a legally valid decree to found the Faculty of Agriculture and Forestry in Sarajevo as a separate faculty with two departments, Department of Agriculture and Department of Forestry. Today, the Faculty offers postgraduate programmes in 12 different fields: Agriculture, Fruit Growing, Wine Growing, Plant protection-phytomedicine, Domestic Animals Nutrition, Agricultural and Food Industry Economics, Plant Products Technology, Animal Products Technology, Sustainable Soil Management, Food and Drinks Quality Control, Growing of Vegetables in Protected Area and Production and use of flowers and ornamental plants. As of the academic year 2008/2009, the Faculty introduced Graduate (Master's) programmes, designed to conform to the standards of the Bologna process.

Role of UNSA in this project was to set up working groups, nominate an officer for LL, and expert for career guidance. Institution participated in review of working concept and preparation of presentation on LL activities. UNSA conducted surveying, prepared reports on LL potentials at institutional and national level, as well as a case study. Together with UNIZG the institution was in charge of the organization a workshop in Sarajevo. UNSA reviewed the draft version of Regional guidelines and develop National strategies. UNSA participated on the Round table in Podgorica and on the final conference in Tirana. Staff from UNSA also participated in teacher trainings, designing of pilot activities, courses' curricula, and their conduct. Institution distributed and collected student questionnaires. UNSA participated in project management and procurement of equipment.

#### 2.4.5.1. **Decision making process in curriculum development**

Two project partner institutions are responsible for the realization of Work Package 2 for Bosnia and Herzegovina (B&H): Faculty of Agriculture and Food Sciences, University of Sarajevo and Faculty of Agriculture and Food Technology, University of Mostar. All activities within this working package were equally divided between the two Universities on a territorial basis.

Survey/ interviews for UNSA were conducted by two WP 2 members at each department – Associate professor Melisa Ljuša, PhD and Assistant Sabrija Čadro, Mr. All 8 departments were included in the survey for assessment of lifelong learning potentials at the Faculty level.

According to the results, the Faculty has sufficient and highly motivated human resources / teachers, since members of each institute have shown a significant motivation for development and participation in lifelong learning. The results also showed a wide range of potential educational programmes depending on the topics and types. The eight institutes operating under the Faculty proposed preparation of total 42

educational programs related to lifelong learning in sustainable agriculture. The most common type of educational programme was a course (16), followed by workshop (13) and lectures (11). The analysis showed also that the institutes have the ability and potential to create and implement specific programs of education, training and specialization.

In order to determine the needs of BH's market regarding lifelong learning in the field of agriculture, a survey was conducted among the three identified target groups. Online surveys for producers and processors, high school teachers and public and state administration were sent from the official e-mail address of both faculties for all the target groups, together with a cover letter in which the goal of the survey was explained. The online survey was open from 1 October 2014 until 20 January 2015.

### **Sample description**

The survey was completely filled out by 110 respondents. Regarding the results of the producers (and processors) survey, response has been received from 53 out of 165 producers, which is 32.1% of the total number of sent surveys. Only 16 high schools (17 responses) out of 172 answered the survey, representing just 9.3% of the surveys sent. From 253 institutions of public and state administration, the answer is submitted by 41 institutions (45 of answers), representing 16.2% of the surveys sent.

The largest proportion of respondents in the first target group (producers/processors), or 41.5% belongs in the age group under 35 years, and the least of those who have 55 or more years (3.8%). 35.8% of respondents belong to the age group of 45 to 55 years, and 18.9% in the group of 35 to 45 years. Whereas the largest number of respondents among high school teachers belongs to age group from 45 to 55 years, followed by a group with less than 35 years, with a total of five respondents.

From the total respondents of producers 66% are men and 34% women. According to the analysed data, men and women are equally represented in the age group under 35 years, but in rest of the age groups, there are more men than women. In the group over 55 years of age, there are no women respondents. From all surveyed employees in the public and state administration, 60% are men and 40% women. In the case of high school teachers, the gender balance was equal.

The majority of all respondents has a university degree. Among the public and state sector, 91, 1 % have a university degree; 50 % of them in the field of agriculture. Among high school teachers 76.5% have a university degree, of which 4 in agriculture. When it comes to the educational level of analysed producers, the majority of the respondents (39, 6%) have a bachelor degree and 17 % a master degree. It is important to notice that only 17 respondents indicated their alma mater. According to the data, 8 out of 17 have a degree in agriculture. The largest group of respondents (30 %) with a secondary education level are in the group of agriculture producers.

Among the producers (N=53), small registered farms are most widely represented (39, 6 %), whereas only 18, 9 % are commercial producers. 75 % of all respondents indicated that they are involved in crop production.

### **Status and training needs assessment**

Results of the survey showed that the majority of respondents are familiar with the term of lifelong learning. It is noticeable that most of them consider that the existing offer of additional educational/training programmes in the field of agriculture is

## Harmonization of LL in ADA Region

insufficient (54, 7 % of producers and 37, 8 % of public employees), whereby 58, 5 % of respondents (target group: high school teachers) indicated that they are not sure whether the offer is sufficient or not. This high percentage is not surprising, since that a high percentage of responses showed that target groups are not well informed about additional educational trainings. Also, it was indicated that there is a lack of accessibility to these kind of information and that it needs more visibility.

The assessment of educational needs clearly indicated a high percentage of interest in the field of organic production, crop production and rural development. Regarding skills, the minority of respondents stated that they have a need for improvement in writing of project proposals, foreign language, and presentation and communication skills as well. All respondents prefer a direct form of teaching in combination with practical work in the form of workshops.

Areas in which the respondents lack knowledge	Number of responses		
	Administration	Producers	High school teachers
Organic agriculture	28	11	23
Crop production	25	2	12
Rural development	24	5	25
Crop protection	21	4	12
Agro-tourism	19	6	18
Fruit growing	18	10	10
Beekeeping	16	2	9

The survey on LL needs and LL potentials were both taken into account during the decision making process for the summer school. Considering all possibilities, human resources, needs of bh's market as well as the potentials for improvement of the Faculty, the decision felt upon the field of beekeeping. The summer school "Beekeeping: preserving our future" covers a wide range of topics, from organic agriculture to agribusiness with special emphasis on practical work at the apiary and therefore suits the needs of previously identified target groups.



Tempus

Funded by the European Union



## 2.4.5.2.

## International Summer School "Beekeeping: preserving our future"

The purpose of the module was to encourage participants in the promotion and improvement of economic competencies for achieving a better position in the value chain of bee products. It is aimed for students of both bachelor and master years, as well as for hobby and/or professional beekeepers who want to improve their beekeeping practices.

## Summer school description

Host institution	University of Sarajevo Faculty of Agriculture and Food Science Zmaja od Bosne 8, 71 000 Sarajevo, Bosnia and Herzegovina
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. are starting your own family apiary</li> <li>2. need additional education from the field of Beekeeping</li> <li>3. want to learn more or improve your skills</li> </ol>
Learning outcomes	<ol style="list-style-type: none"> <li>1. Individually manage smaller number of colonies (hives)</li> <li>2. Demonstrates the ability for independent appearance on the market of bee products</li> <li>3. Uses the basic technology of production, packing, storage and transport of bee products</li> <li>3. Recognize importance of mutual cooperation with other branches of agriculture</li> </ol>
Language	English or Bosnian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion or 6 ECTS credits are awarded upon finishing the programme.
Duration	15 days
Minimum number of participants	5
Maximum number of participants	20
Programme coordinator	Prof.Nedžad Karić, Ph.D. E-mail: karic.nedžad@bih.net.ba Phone: +387 33225727
LL expert	Prof. Milenko Blesić, Ph.D. E-mail: bogumile@gmail.com
LL officer	Arnela Okić, M.Sc. E-mail: aokic.ppf@gmail.com Phone: + 387 33 225 727

**LL PROGRAMME**      **Beekeeping: preserving our future**

Day	Date	Title of the lecture	Lecturer
DAY 1 05.09.2016.	08:30-09:00	Dean's welcome speech Summer school coordinator's speech	Zlatan Sarić Nedžad Karić
	09:00-11:00	How Do Bees Help The Environment? The honey bees and the environment-Why We Need Bees?	Mirsad Kurtović
		Cooperation of fruit growers with beekeepers The interdependence of bees and plants	Fuad Gaši
	11:00-13:00	Biological control The effect of pesticides on bees	Arnela Okić
	14:30-15:30	Colony collapse disorder (CCD)	Sabrija Čadro
DAY 2 06.09.2016.	08:00-10:00	Anatomy of a honey bee	Nedžad Karić Sanel Haseljić
	10:00-12:00	Development of Honeybees - from egg to adult bee	Nedžad Karić Sanel Haseljić
	13:30-14:30	Types of apiaries	Lejla Spiljak
	14:30-15:30	Beekeepers equipment	Mirza Uzunović
DAY 3 07.09.2016.	08:00-10:00	Division of work in Bee societies? Life in a Hive	Nedžad Karić Sanel Haseljić
	10:00-12:00	The practical work on the apiary	Beekeeper practitioner - lecturer (SUPKS)
	13:30-16:30	The practical work on the apiary Monthly Apiary Jobs	Beekeeper practitioner - lecturer (SUPKS)
DAY 4 08.09.2016.	08:00-10:00	The practical work on the apiary Production of honey-based products	Beekeeper practitioner - lecturer (SUPKS) Lejla Spiljak Mirza Uzunović
	10:00-12:00	Honey plants for bees	Teofil Gavric Jasmin Grahić
	13:30-15:30	Organic production of honey plants	Drena Gadžo Mirha Đikić
DAY 5 09.09.2016.	08:00-10:00	Technologies and equipment in honey production	Lejla Spiljak Mirza Uzunović
	10:00-12:00	The physical-chemical parameters of quality of bee products	Josip Jurković Lejla Čengić
	13:30-15:30	Diversification of products based on honey - the development of their own products	Nermina Spaho Lejla Spiljak Mirza Uzunović
DAY 6 12.09.2016.	08:00-10:00	Diseases of the honey bee	Nedžad Karić
	10:00-12:00	Principles of Honeybee Genetics	Fuad Gaši
	13:30-15:30	Ecological factors affecting the quality of bee products	Sabrija Čadro Teofil Gavric



## 2.

## Development of Lifelong learning at HEI

Day	Date	Title of the lecture	Lecturer
DAY 7 13.09.2016.	08:00-12:00	Legislation - the quality standards in beekeeping, labeling of products, requirements related to EU and Bosnia and Herzegovina	Milenko Blesić
	13:30-15:30	Good beekeeping practices and risk management in the production ISO 22000 and HACCP in beekeeping The organic beekeeping Urban or backyard beekeeping	Almir Toroman Lejla Spiljak Mirza Uzunović
DAY 8 14.09.2016.	08:00-10:00	Microbiological parameters quality of bee products	Saud Hamidović
	10:00-12:00	Laboratory work - part one	Josip Jurković Lejla Čengiĉ Lejla Spiljak
	13:30-14:30	Laboratory work - part two	Josip Jurković Lejla Čengiĉ Lejla Spiljak
DAY 9 15.09.2016.	08:00-12:00	Diversification of products based on honey - Development of own product	Nermina Spaho
	13:30-15:30	Diversification of products based on honey	Sanja Oruĉević-Žuljeviĉ
DAY 10 16.09.2016.	08:00-10:00	Diversification of products based on honey	Jasmina Tahmaz Tarik Dizdareviĉ
	10:00-12:00	The packaging and design	Nermina Spaho
	13:30-15:30	The last activities on the development of own product - independent work	LejlaSpiljak
DAY 11 19.09.2016.	08:00-10:00	Business management of beekeeping	Aleksandra Nikoliĉ Mirza Uzunović
	10:00-12:00	Enterpreneurship and beekeeping	Aleksandra Nikoliĉ Mirza Uzunović
	13:30-15:30	How To Build A Successful Market Strategy?	Aleksandra Nikoliĉ Mirza Uzunović
DAY 12 20.09.2016.	07:00-20:00	Excursion Visits the apiary and the honey bottling plant in Trebinje, visit the youth club 'Novi Val' -Eko Center Blagaj, visit Mostar)	Nedžad Karĉ Arnela Okiĉ Mirza Uzunović
DAY 13 21.09.2016.	Free day	Student individual work Short seminar / Oral presentations preparation (PPT) Written exam preparation	
DAY 14 23.09.2016.	08:00-10:00	Written exam	Nedžad Karĉ Arnela Okiĉ Mirza Uzunović
	10:00-12:00	Group I: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	
	13:30-14:30	Group II: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	
	14:30-15:30	Curriculum / teachers evaluation questionnaires Results and Certificate award	Nedžad Karĉ Arnela Okiĉ Mirza Uzunović



### LECTURE SUMMARY

#### General topics on beekeeping

##### Anatomy of honey bees

Nedžad Karić

This lecture represented an introduction to beekeeping husbandry. It is essential for understanding the anatomy, biology, ecology and behavior of bees to be able to handle the work as a beekeeper. During this class, participants gain knowledge about entomology, systematics and bee anatomy. The learning outcomes are represented in the ability of participants to recognize individual parts of the bee and to distinguish between different types of bees (queen, worker, etc.).

##### Development of honeybees – from egg to adult bee

Sanel Haseljić

Insects represent a diverse group of organisms where the number of species is estimated to count about approximately 80 % of the world's species. More than 900 thousand different kind of insects are known, according to available data from conducted researches. Since they represent such a diverse group, they have specific life cycles among certain systematic groups. The term "life cycle" refers to the stages of development which the insects undergo, from egg to adult insect. Honeybees have a specific life and organization within they hive, so that it is crucial to understand the same in order to settle up a good beekeeping husbandry. This lecture covers the topics of introductory entomology in order to provide the participants with essential information about different kind of phases of insects, but also focuses on the specific case of honey bees.

##### Principles of Honeybee Genetics

Fuad Gaši

The lecture provided to participants an introduction to the basics of bee genetics by covering topics on the inheritance of chromosomes in female and male members of a beehive. A special attention was given to the meiosis and the recombination of the homologous chromosomes, as well as the implication of this process on genetic diversity of honey bees. Additional segments included bee mating and sex determination in this species. Finally theoretical and practical aspects of bee breeding, with the special focus on breeding for resistance, were presented.

##### Division of work in Bee societies? Life in a Hive

Sanel Haseljić

Participants were introduced with types of hives. It is not possible to keep all types of bees for farming. Although more than a thousand types of bees are known, only four types are mentioned here as they are well known and popular, while the actual species of bees have been estimated at twenty thousand. Beehive is a habitation for bees designed for easier manipulation of bees and honey where man places bee colonies. In order easily manipulate the bees and reap the fruits of their labor, the beekeeper must properly accommodate them in the hive. Beehives must satisfy the following conditions: Protection of bee colonies, enable bee colony development and normal life, they should be simple of constructions and spacious for development of bee colony, easy and manageable, price of production has to be as low as possible and production should be in accordance with standards for easier

management. Hives are constantly improved as the main tool for preserving bee societies with immense impact in honey production and swarm safety.

### The honey bees and the environment

**Fuad Gaši**

The lecture comprehended a role of the honeybee in pollination of agricultural crops and plants in general. Special attention was dedicated to pollination management and its effect on yield quality of the fruit crops. The lecture included topics such as sexual incompatibility among agricultural crops and cross-pollination. The final segment of the lecture covered the relationship between the use of pesticide in fruit production and pollination management.

### Diseases of honey bees

**Nedžad Karić**

This lecture provided t an overview of the most important diseases of honey bees. During the last years, even in Bosnia and Herzegovina, problems with diseases of bees and massive collapses of bee hives were evident. Many beekeepers, especially beginners, are facing huge problems when it comes down to effective management of honey bee diseases. With this lecture, participants gain knowledge about the most common diseases caused by different kind of organisms (mites, bacteria, fungi, viruses), but also about problem solution and methods for pest and disease control.

### The effect of pesticides on bees

**Arnela Okić**

Pesticides are substances meant for attracting, seducing, and then destroying any pest. They are a class of biocide. The most common use of pesticides is as plant protection products (also known as crop protection products), which in general protect plants from damaging influences such as weeds, fungi, or insects. During the last decade there has been an increased use of pesticides in order to avoid great yield reductions due to plant diseases and pests. With the frequent use of fungicides, insecticides and herbicides in agriculture production, their negative effects to the environment have come to the fore. The negative side effects of different kinds of pollution have become too obvious, so that a different approach for pest management was necessary. A widely discussed issue is the harmful effect of pesticides on bees, especially since the appearance of colony collapse disorder for which many blame the overuse of neonicotinoides. This lecture included the topic of pesticides, their purposes, classification and the toxic effects which they can have on bees. Additional, development of a better understanding between producers and beekeepers was presented.

### Colony collapse disorder (CCD)

**Čadro Sabrija**

Colony collapse disorder (CCD) represents a sudden and rapid loss of the colony adult bee population with very few bees found near the dead colonies. University and USDA researchers, who first began collecting and analyzing samples from the affected colonies, named the condition “Colony Collapse Disorder” (CCD). Human activity has put a large pressure on pollinators by both increasing their demand while at the same time removing their habitat. Horticulture has rapidly expanded over the last decades, while the landscape has become more uniform due to intensive agriculture. The absence of an appropriate habitat for bees and other

pollinators could lead to a continuous decline in pollination. Pollination is responsible for providing us with a wide variety of food, mainly horticultural crops. Participants of this lecture were informed about the importance of pollination and bees in general. Furthermore, participants gain information about CCD, possible causes of CCD and ways to protect bees and reduce CCD occurrence.

## Beekeeping

### Urban Beekeeping

**Čadro Sabrija**

Urban beekeeping is the practice of beekeeping in an urban environment. It may also be referred to as hobby beekeeping or backyard beekeeping. It has become popular in cities such as New York and London, which saw a 220% increase in beekeepers between 1999 and 2012. During this lecture, the pros and cons of urban beekeeping was explained and examples why urban beekeeping is good for the environment and the urban area wereshown. Also, the events and the possible problems that the urban beekeepers may experience during their activities (legality, swarming, neighbors, etc.) were explained.

### Honey plants for bees

**Drena Gadžo, Teofil Gavrić**

The goal of this lecture was to give participants basic knowledge about types of food for bees, factors that influence the process of bee food production, as well as factors that affect the collection of food for bees. Participants were introduced to practical types of food for bees, they will get a basic understanding of those types of food and characteristics of bee pastures.

### Organic production of honey plants

**Mirha Đikić, Jasmin Grahić**

Organic production represents a one of the most discussed topics these days. For many experts, it is the most valuable way of crop production, since that it ensures sustainability of the agroecosystem. Additional, it is less harmful to the environment. For beekeepers it is essential to have good honey plants for the bees. This lecture focuses on some honey plants which can be easily grown under the system of organic production, such like buckwheat and herbs. The lecture introduced the participants with the term of organic production, seeds and the benefits of having an organic crop production along the beekeeping husbandry. The main learning outcomes were represented in the form of recognition of different kind of honey plants, rules and obligations of organic production of the same and a better insight into the financial aspects of a combined beekeeping husbandry.

### Beekeepers equipment

**Emir Memišević, (SUPKS – Beekeeper association of Sarajevo Canton)**

This lecture consisted of both theoretical lessons and practical work. The lecture focused on all types of beekeepers equipment, their use and proper storage. Participants were introduced to different kind of basic equipment and supplies for beekeepers and afterwards they had the opportunity to work with certain equipment at the apiary of the Faculty. The main learning outcome was identification of the beekeeper equipment, their purpose, proper storage and handling.

### Types of Apiaries (Bee Yard)

Lejla Spiljak

The place where bees are cultivated is called an apiary. Bees are major pollinators of flowering plants and are an essential part of agriculture. Without bees, agriculture would collapse. When it comes to pollination, apiaries are rarely set up; the bees are only present during the bloom period of the crop. But in a few cases, such as for organic farms, long term apiaries are established, with the rule of thumb being one hive per acre (4,046 m<sup>2</sup>) of the crop that needs pollination. Depending on the nectar and pollen sources in a given area, the maximum number of hives that can be placed in one apiary can vary. In Bosnia and Herzegovina, three types of apiaries are present; Stationary apiary - apiary where the hive's in one place during the whole year; Migratory apiary - apiary where hives are transferred to areas, depending on the time of year honey plants blossom; Eco Apiary - beehive in which bees are bred in a special (ecological) way with control of government institutions.

### Monthly work on the apiary & Practical work on the apiary

Lejla Spiljak, Emir Memišević

This lecture included practical work on the apiary. Participants were introduced with an overview of all necessary activities which have to be done at the apiary during one year. Afterwards, the participants had practical lessons at the apiary. The lecture covered the following topics: Guidelines on safety at the apiary, Modern techniques of beekeeping, transporting, protection from disease bee brood and colonies, getting the final product (extracting honey).

## Bee products and honey based products

### Technologies and equipment in honey production

Lejla Spiljak

All beekeepers start beekeeping by wanting to produce honey, and this is probably the best way to begin. Being a natural product, honey varies in composition enormously but, essentially, it is a fluid, viscose or crystallized substance, produced by bees from the nectar of blossoms that bees collect, transformed or combined with substances of their own, which they then store and leave to mature. The preparation of good quality honey starts at the bee yard. The bee product should be produced and separated in honey super, and not in combs used for brood rearing, which is also filtered. It darkens the honey. Moisture content is the major factor which determines the storing quality of honey. Honey should be stored in dry places as it readily absorbs moisture. Uncapping is the first real step of honey processing. It consists of the removal of the thin wax layer that seals the honey cells. The wax caps can be sliced off with a sharp, thin, long knife or special knives heated by steam or electricity. The extraction temperature should not exceed 30°C. Extracted, cleaned or purified honey is ready to be consumed directly or to be included into other products. Processing technology and other techniques are employed to prepare a product of uniform, constant and agreeable appearance, or to prevent the only possible storage problem, which is fermentation.

### Production of honey-based products (Honey in confectionery and baking products)

Sanja Oručević Žuljević

The main role of honey as sugar substitute in confectionery and baking will be discussed. Honey can replace sucrose in numerous products and presents an

## Harmonization of LL in ADA Region

excellent choice regarding extending the shelf life of baked food; reducing caloric value in product, as honey is sweeter than sucrose; and improving nutritive and sensory quality of products.

### The physical-chemical parameters of quality of bee products

Josip Jurković, Lejla Čengić

This lecture included an overview of physical-chemical parameters of quality of bee products. The lecture consisted of theoretical lessons which focused on physical-chemical parameters of quality, as well as on specific regulations on quality regarding bee products. The second part of the lecture was focused on practical work in the laboratory, where participants will be able to assess the quality of certain bee products.

### Diversification of products based on honey - Development of own product

Nermina Spaho

This lecture provided necessary information about the cycle of new product development. It consisted of theoretical lessons, practical work and student individual work. The lecture covered different topics, such as the production alcoholic beverages and vinegar made from honey. Introduction to the products based on honey that are made through alcoholic and acetic fermentation was given. During the practical work, participants developed and produced their own new products.

### The packaging and design

Nermina Spaho

In this chapter guidelines on packaging and design development for honey bee products are given. Some of them are: the principal roles of food packaging; general requirements of food packaging; a range of materials can be used for packaging; the Food Labeling Regulations

## Agroeconomics and marketing strategy

### Legislation – the quality standards in beekeeping, labelling of products, requirements related to EU and Bosnia and Herzegovina

Milenko Blesić

Honey and other bee keeping products are not consistently regulated at the international and national levels. For now, the lack of regulations is not a big problem in trade due to the relatively high demand for these products on the international market. Introduction to the leading international standard for honey (Codex Alimentarius Standard 12-1981), the main provisions of the EU legislation on honey (Council Directive 2001/110/EC and 2014/63/EU), and the regulation of Bosnia and Herzegovina on honey and other bee products (Regulation related to honey and other bee products, OJ BiH 37/2009) were presented. These acts are mutually compared, with pointing out the current ambiguities or problems (especially those related to labelling) which should be more precisely regulated by future standards and regulative acts.

### Good beekeeping practices and risk management in the production ISO 22000 and HACCP in beekeeping

**Almir Toroman**

During this lecture rules and regulations on standardization in beekeeping were presented. Following topics were included: the technology of production and processing of honey; honey: honeys, the parameters of quality, standardization and quality control and adulteration of honey; microflora and biological properties of honey; use of honey: medicine, pharmacy, cosmetics, food industry; pollen: the origin, the collection and the importance of pollen for bee colony; chemical composition and biological properties; Technology of production and processing; application; standardization and quality control; propolis: origin, physical, biological properties and chemical composition; processing and application; standardization and quality control; Royal Jelly: the origin and significance of royal jelly to bees; physical, biological properties and chemical composition; obtaining, preservation and use; standardization and quality control; beeswax: the origin and significance of bees wax; chemical composition and physical properties; technology of preparation and use; quality control and purity of wax; bee venom: obtaining, physical properties and chemical composition; use (medicine, pharmacy) and conservation; determining basic physico-chemical parameters of honey quality (laboratory work); practical work with bee products - base of bee products and their storage, packaging and transportation. The lectures are theoretical and practical. Participants were encouraged to work in teams to create a certain case scenario on risk management and good beekeeping practices.

### Business management of beekeeping

**Aleksandra Nikolić, Mirza Uzunović**

The analysis of the agricultural business environment and economics of small apiaries was presented. Participants were introduced to the calculation of the cost of bee products and to identification of bee products market standards.

### Entrepreneurship and beekeeping

**Aleksandra Nikolić, Mirza Uzunović**

Entrepreneurial activity and investment rating in beekeeping were explained. Participants gain new insight in these topics. Additional, exercise on a good risk management.

### How to build a successful market strategy?

**Aleksandra Nikolić, Mirza Uzunović**

This lecture covered following topics: The basic theory of the market as a scientific discipline; term market, the morphology of the market, market structure, market factors: needs, supply; domestic and international market in beekeeping; the impact of advertising on consumer products in beekeeping; preparation and design of the packaging for the product based on honey (in accordance with the Ordinance on general labeling or marking of packed food, "Official Gazette", 87/08). The lecture on agroeconomics and marketing strategy consisted of theoretical lessons, practical work and student individual work. At the end of the summer school, participants combined all new gained knowledge from different fields into a specific individual product presented by their own newly produced product based on honey. Participants produced a new product and created an adequate market strategy for the product. The product presentation was a part of the final exam.

### List of lecturers with contact

Name and last name	Contact
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Prof. Milenko Blesić, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/MilenkoB.jpg">http://www.ppf.unsa.ba/Instituti/MilenkoB.jpg</a>
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Prof. Mirha Đikić, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/MirhaDj.jpg">http://www.ppf.unsa.ba/Instituti/MirhaDj.jpg</a>
Prof. Nermina Spaho, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/NerminaS.jpg">http://www.ppf.unsa.ba/Instituti/NerminaS.jpg</a>
Prof. Aleksandra Nikolić, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/AleksandraN.png">http://www.ppf.unsa.ba/Instituti/AleksandraN.png</a>
Prof. Fuad Gaši, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/FuadG.jpg">http://www.ppf.unsa.ba/Instituti/FuadG.jpg</a>
Prof. Sanja Oručević-Žuljević, Ph.D.	<a href="http://www.ppf.unsa.ba/Instituti/SanjaO.jpg">http://www.ppf.unsa.ba/Instituti/SanjaO.jpg</a>
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Arnela Okić, M.Sc.	<a href="http://www.ppf.unsa.ba/Instituti/ArnelaO.jpg">http://www.ppf.unsa.ba/Instituti/ArnelaO.jpg</a>
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Jasmin Grahić, M.Sc.	<a href="http://www.ppf.unsa.ba/Instituti/JasminG.jpg">http://www.ppf.unsa.ba/Instituti/JasminG.jpg</a>
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### Some insights and photos from summer school in Sarajevo:



## Harmonization of LL in ADA Region



Curriculum is structured excellent. Following, all part of lectures would give great insight into this field.

Well structured. Great response from assistants' s high level of involvement.

It is great chance to expund knowledge as well ass professional skills. Additional point is to meet pople from other culture and share experience.

**2.4.6.****University of Mostar, Faculty of Agriculture and Food Technology, Bosnia and Herzegovina**

Roots of the University date back to 1895 when the Franciscan theological school was established. In 1950 Higher teacher – training school started with its work in Mostar followed by the establishment of higher technical school in 1959, Higher agricultural school in 1960, Departments of the Faculties of Law and Economics. The University was established in Mostar in 1977, so faculties and higher schools function further on as its parts. From 1992 The Croatian language is the official language at the University of Mostar. Today the University has around 16,000 students and 1000 employees. There are 10 faculties, Academy of Fine Art, eight institutes and the student's centre within the University. Implementation of the regulations of the Bologna Declaration at the University of Mostar had started even before Bosnia and Herzegovina signed the Bologna Declaration. The University will direct its activity at the international recognition of quality and for every activity it will apply norms and standards which are applied at Universities in the European countries.

Faculty of Agriculture and Food Technology in Mostar is an institution of higher education, part of the University of Mostar. Since 1994, when it was founded, it has been continuously educating staff for transfer of modern achievements into the agricultural practice of the Mediterranean and mountainous area and further scientific and research work aimed at finding new and better solutions for agricultural production. So far, students of undergraduate studies have attended only the general program. On completion of the study in the period of eight semesters ("the old program"), student obtains a diploma of Bachelor of Science in Agronomy in the general program. On the 63rd regular session of the Faculty Council held on January 21st, 2005, the Faculty of Agriculture and Food Technology adopted restructuring of its university studies according to the 3+2+3 structure:

1. three-year undergraduate studies (Bachelor Degree)
2. two-year graduate studies (Master of Science Degree)
3. three-year postgraduate studies (PhD Degree)

The new educational system puts student in the centre of attention. The curricula are adjusted to their needs, which should result in increased quality of graduated students and in possibilities for better mobility during the study. The teaching process is organized in the form of "one-semester modules" aimed at increasing the quality of teaching and shortening the average time of studying.

In the academic year 2007/08, the Faculty of Agriculture and Food Technology University of Mostar launched a new curriculum of food technology (undergraduate study), established a test field (213 ha), planted an orchard (6.5 ha) and vineyard (3 ha), and moved into the newly constructed faculty building with classrooms, office space and laboratories. Faculty of Agriculture and Food Technology is in the transitional process of joining in European integrations, which imposes the requirements of international competitiveness and adjustment to the European Higher Education Area (EHEA) and European Research Area (ERA).

Role of SVEMO in this project was to set up working groups, nominate an officer for LL and expert for career guidance. Institution prepared presentation on LL activities. SVEMO conducted surveying, prepared reports on LL potentials at institutional and



## Harmonization of LL in ADA Region

national level, as well as a case study. Institution participated in the workshop in Sarajevo. SVEMO, participated in preparation and translation of the draft version of Regional guidelines and National strategies. SVEMO also participated in a Round table in Podgorica and the final conference in Tirana. Staff from SVEMO participated in teacher training, designing of pilot activities, courses' curricula, and their conduct. Institution will distribute and collect student questionnaires.

### 2.4.6.1.

#### Decision making process in curriculum development

Survey which was part of the WP2 was conducted by 3 staff members Predrag Ivanković, Msc, Leona Puljić, teaching assistant and Nikolina Kajić, teaching assistant. The surveys were sent from the official e-mail address of the faculties for all the target groups, together with a cover letter in which the goal of the survey was explained.

#### Sample description

Regarding the results of the producers (and processors) survey, response has been received from 53 out of 165 producers, which is 32.1% of the total number of sent surveys. Only 16 high schools (17 responses) out of 172 answered the survey, representing just 9.3% of the surveys sent. From 253 institutions of public and state administration, the answer is submitted by 41 institutions (45 of answers), representing 16.2% of the surveys sent. Among producers the largest proportion of respondents, or 41.5% belongs in the age group under 35 years, and the least of those who have 55 or more years (3.8%). 35.8% of respondents belong to the age group of 45 to 55 years, and 18.9% in the group of 35 to 45 years. The age of the respondents within the target group for high schools showed that the largest number of respondents belongs to age group from 45 to 55 years, followed by a group with less than 35 years, with a total of five respondents. The lowest numbers of respondents are from group above 55 years, and those between 35 and 45 years.

#### Comparative analysis of target groups (not all results included)

According to the survey results, most respondents (87-100%), of all three target groups are familiar with the term “lifelong learning”. Regarding the necessity of additional specialization for the efficient work performance, the results are quite similar for all three target groups. In fact, a significant percentage of respondents from all three groups believe that the additional specialization is necessary (62-89%). Also, a significant percentage of respondents from the target group of producers or processors believe that additional specialization, however, is not necessary for the better work performance. The majority of respondents from all three target groups do not know whether the offered additional education/training programmes are sufficient. This result is not surprising if one takes into account the fact that the majority of them never sought such information. The big difference between agricultural producers and other target groups can be noticed. 55% of producers/processors believe that the current offer is not sufficient. The majority of the respondents (67-94%) from all three target groups agree that the faculties should conduct sustainable agriculture education.

Throughout survey analysis we noticed that in answering the question “Which skills and knowledge are you lacking the most?”, from 26 skills offered for selection, three skills are most abounded in responses for all target groups. Organic agriculture, rural development and agro-tourism are the most selected skill needed in all three groups of respondents.

Skills needed	Producers/ processors	High school teachers	Public and state admin.
Organic agriculture	9,52%	15,49%	10,74%
Rural development	8,16%	7,04%	11,68%
Agro-tourism	6,46%	8,45%	8,41%
Crop production	8,50%	2,80%	5,60%

Autochthonous dairy products are produced mainly in rural areas. They are often offered in agro-tourism, as an original product of one area, and they are usually organic produced, although often production is not certified us such. We believed that sustainable agriculture must include autochthonous products. Due to these facts we have chosen “Autochthonous dairy products” to be theme of our Summer school.



Funded by the European Union



Faculty of Agriculture and Food Technology Mostar



Učiteljstvo u području poljoprivrede u županiji Dalmatinsko-zadarskoj

### 2.4.6.2.

### International Summer School “Autochthonous dairy products”

The programme is designed to fit the LL needs of specific group of participants – agricultural producers, public administration within field of agriculture, high school teachers or students.

#### Summer school description

Host institution	Faculty of Agriculture and Food Technology, University of Mostar Biskupa Čule b.b., 88 000 Mostar
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. are starting your own family cheese farm</li> <li>2. need additional education from the field of cheese making</li> <li>3. want to learn more or improve your skills</li> </ol>
Learning outcomes	<p>Theoretical knowledge</p> <p>Learning about cheese producing in general. Introduction to autochthonous cheeses from Bosnia and Herzegovina. Types of cheeses in general. Sensory analysis in cheese evaluation. Protection of originality and geographical origin within national systems of protection. Legislation.</p> <p>Practical knowledge on farm managing</p> <p>Visit to nearby cheese farm and collecting experience in organization of small scale cheese production, problems and opportunities.</p>
Language	English or Croatian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion, entry in employment record card / portfolio or 5 ECTS are awarded upon finishing the programme.
Duration	21 days
Minimum number of participants	5
Maximum number of participants	15
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**LL PROGRAMME „Autochthonous (indigenous) dairy products“**

Day	Time	Title of lecture	Lecturer
DAY 1 04.7.2016.	08:30– 09:00	Dean's welcome Summer school coordinator's opening session	Danijela Petrović Zrinka Knezović
	09:00- 11:00	Introduction to history of chese	Marija Jukić-Grbavac
	11:00- 13:00	The development of autochthonous dairy production in BiH	Marija Jukić-Grbavac
	14:30- 16:30	Classification of cheeses	Jozo Grbavac
DAY 2 05.7.2016	10:00- 12:00	Basics of cheese production	Jozo Grbavac
	13:30- 14:30	Different animal's milk for production of cheese	Marija Jukić-Grbavac
	14:30- 15:30	General technological process of cheese	Marija Jukić-Grbavac
DAY 3 06.7.2016	10:00 - 12:00	Autochthonous dairy production in BiH	Jozo Grbavac
	13:30- 15:30	Vlašički-Travnički cheese, Cheese ripening in animal skin – cheese in a sack, Trapist, Livno cheese	Jozo Grbavac Marija Jukić-Grbavac
DAY 4 07.7.2016.	10:00- 12:00	Acid cheese	Jozo Grbavac
	13:30- 15:30	Rennet cheeses	Leona Puljić
DAY 5 08.7.2016.	10:00- 12:00	Cheese made from goat's milk	Marija Jukić-Grbavac
	13:30- 14:30	Other indigenous products	Jozo Grbavac
	14:30- 15:30	Quality of autochthonous dairy products	Jozo Grbavac
DAY 6 09.07.2016	10:00- 12:00	Cheese whey	Leona Puljić
DAY 7 11.7.2016.	10:00- 12:00	Sensory analysis	Marija Jukić-Grbavac Jozo Grbavac
	13:30- 15:30	The protection of originality and geographical origin cheeses	Marija Jukić-Grbavac

## Harmonization of LL in ADA Region

Day	Time	Title of lecture	Lecturer
DAY 8 12.7.2016.	10:00-12:00	The regulation for protection of origin in BIH	Marija Jukić-Grbavac
	13:30-14:30	The current situation with the protection of origin in BiH	Jozo Grbavac
	14:30-15:30	Legislation	Marija Jukić-Grbavac
DAY 9 13.7.2016.	08:00-20:00	Farm excursion discussion with farm manager organization and planning in production	All
DAY 10 14.7.2016.	Free day	Student individual work Short seminar / Oral presentations preparation Written exam preparation	All
DAY 10 15.7.2016.	10:00-12:00	Written exam	All
DAY 11 16.7.2016.	10:00-12:00	Group I: Oral presentations (PPT – Each student has 5 minuts for presentation + 5 minutes for disscusion)	All
	13:30 - 14:30	Group II: Oral presentations (PPT – Each student has 5 minuts for presentation + 5 minutes for disscusion)	
		Cccurriculum / teachers evaluation questionaries	
	14:30-15:30	Results Certificate award	

## LECTURE SUMMARY

### History of cheese

#### Marija Jukić-Grbavac

According to ancient records passed down through the centuries, the making of cheese dates back more than 8,000 years. According to some legends, it was made accidentally. Home of the cheese is considered area of modern Iraq valley between rivers Tigris and Euphrates. There are data on cheese production of ancient Egypt in 4000 years BC and Babylon 2000 years BC. Cheese is mentioned in Greece and Roman times. Great poets and philosophers like Homers, Aristotle, and Hippocrates had written about cheese. Important role in cheese manufacture have had monasteries and churches. Industrial production started in Switzerland in XIV century and later on in France, Italy, England and Netherlands. Historical overview was given to students.



### The development of autochthonous dairy production in B&H

**Marija Jukić-Grbavac**

Autochthonous cheeses in Bosnia and Herzegovina are of various origins produced in different parts of country. Autochthonous dairy products are still mainly both produced and consumed in small rural households. Technologies of these cheeses are simple manufacture, adapted to mountain limitations. Only some of them are industrially produced and marketed. Introduction of Bosnian and Herzegovinian cheese production was presented.

### Classification of cheeses

**Jozo Grbavac**

Cheese is the curd of milk separated from the whey and prepared in many ways and different tastes. Cheese classification can be done by different criteria, like milk coagulation process, milk type, countries of origin, region, method of making and aging, degrees of moisture, fat content and texture. The most important criterion is chemical composition, which means moisture and fat content. Cheese types by those characteristics are: fresh cheese, soft cheese, semi-soft cheese, firm cheese, hard cheese, veined cheese. Basic categories were presented in this lecture.

### Basics of cheese production

**Jozo Grbavac**

Cheese making is an ancient biotechnology that dates back to the domestication of animals. Recipes for cheeses are different but in basic it is lactic acid fermentation and dehydration. During production, the milk is acidified with bacteria cultures, and adding the enzyme rennet causes coagulation. The solids are separated and pressed. Some cheeses ripening in molds on the rind or throughout. Main steps of cheese production such as: acidification, coagulation, dehydration, cut curd and heat, drain whey and press, texture curd, salting, were presented in this lecture.

### Different animal's milk for production of cheese

**Marija Jukić-Grbavac**

Around 40 per cent of animals' milk production is used for processing of cheese. Production starts with milk of good microbiological and chemical composition. Autochthonous cheeses in Bosnia and Herzegovina and neighbouring countries are produced mainly from milk of cows, sheep and goat. Composition of milk depend primary of animal type. Differences are also within the type based on animal feed, breed, geographical area, methods. Specifics of milk based on animal type and within the type were presented in this lecture.

### General technological process of cheese

**Marija Jukić-Grbavac**

Cheese is a milk concentrate, the basic solids of which consist mainly of protein casein, and fat. Residual liquid is called whey. General procedure in cheese production involves milk treatment prior to cheese making, milk collection, heat treatment and mechanical reduction of bacteria, standardisation of milk, adding starter – mesophilic and thermophilic cultures, *Lactobacillus* and *Streptococcus*, rennet and its substitutes, renneting, curd production, first phase (biochemical), second phase (physical and chemical), third phase, fourth phase, cutting coagulant, stirring, washing, heating, final treatment of curd, pressing, salting cheese, dry

## Harmonization of LL in ADA Region

salting or brine, cheese ripening, different methods of ripening. All phases were presented and discussed in this lecture.

## Autochthonous dairy production in BIH

### Jozo Grbavac

Autochthonous dairy production and processing is mostly located in mountainous regions of Bosnia and Herzegovina. Cheese is produced of sheep, cow or goat milk. Different cheeses are produced in different parts of Bosnia and Herzegovina. There are: Travnički cheese, Cheese ripening in animal skin, Masni (fat cheese), Presukača, Sirac, Livanjski cheese, fresh sour milk cheese and dried sour milk cheese, goat's milk cheeses Hard and White, "Zarica" and Urda. With cheeses milk is used for production of other autochthonous dairy products like so called Kajmak (type of cream), soured milk, and rendered butter. In followed lines some of those cheeses will be presented. Vlasicki-Travnicki cheese, Cheese ripening in animal skin – cheese in a sack, Trapist, Livno cheese Cheese *Vlašički* also noun as Travnički is produced on the area of Mount Vlastic. Its exact origin is unknown. It is white soft cheese ripened in brine. Soft, white cheeses in brine are produced all over Balkan Peninsula, but also in Middle East and some countries of Africa, Europe and South America. In Bosnia and Herzegovina it is produced mostly from sheep milk. Simple method of making cheese enables in house manufacture in the mountain rural area. This is one of the best cheeses of its type with mild acid flavour. Cheese ripening in animal skin (cheese in a sack) - this type is produced in several area of the world, Croatia, Bosnia and Herzegovina, Montenegro and Turkey, all with its specification. In Bosnia and Herzegovina it is produced in several mountain regions, in Croatia in the Dinara Mountain, in Turkey in the mountain regions of East and Central Anatolia. Ripening is done in lamb skin which gives the cheese unique sensory attributes: piquant taste and odour. Milk is from sheep and goat, sometimes cow's' or combination sheep and cow's' milk. Trapist is semi hard cheese originated from French cheese Port du Salut. In Bosnia and Herzegovina its production is related with Trappists Order of Cistercians. Trappista cheese is a pale yellowish colour and has 3–5 mm eyes. It has mild flavour and melts easily. Livanjski cheese has medium sized eyes regularly distributed on the cut surface, yellowish coloured body, well cared yellowish rind, pleasant odour, with medium salt content and well expressed taste. It belongs to full fat with hard texture. Originally is produced from raw sheep milk but taste better if the 20% of cow's' milk. Industrially today is produced from cow's' milk only. Origin, traditional and industrial production method and characteristics of each cheese werediscussed in this lecture.

## Acid cheese

### Jozo Grbavac

Mostly is produced in northern Bosnia from skimmed milk. This is secondary product in production of sour cream. Coagulation is done with increasing acidity of milk. It may be fresh or dried. Characteristics and production of acid cheese were presented.

## Cheese made from goat's milk

### Marija Jukić-Grbavac

Cheeses made from goat's milk are traditionally produced in Herzegovina mostly in combination with other milk types like cow or sheep. There is hard cheese consumed as fresh or in oil. There is also cheese from goat's milk produced in animal skin. One more type is white cheese made from goat's milk produced in

brine with technology similar to production of Vlaški cheese. It is produced in villages around Vlasic. It has specific flavour and odour.

### Cheese whey

#### Leona Puljić

Some of the cheeses are produced from whey. Urda is albumin cheese with simple technology of production. Some milk may be added to whey. Due to the low fat content it is light cheese. Other whey cheese is Zarica. Also albumin cheese made from whey and buttermilk. Production and characteristics were given in this lecture.

### Other indigenous products

#### Jozo Grbavac

Kajmak – it is type of cream. It probably originated during butter production in old traditional way. Kajmak is fat layer created on top of the milk after cooking and cooling. It can be made as fresh or ripen. Kajmak is traditional product of Dinarides mountain chain. It is produced from cow's milk or cow and sheep milk mixture. Process of its production was described. *Maslo* - rendered butter is made by melting butter. It is 98 to 99.5% pure milk fats and can be stored for long period. Heating butter water and some soluble fats along with some other components are separated. Butter is then filtrated and purified. Production was described in this lecture.

### Quality of autochthonous dairy products

#### Jozo Grbavac

Autochthonous cheese is traditionally mostly produced from unprocessed raw milk. Food quality represents various characteristics some of them measured visually and with use of different instruments and statistical analysis. Dairy products must meet minimum of authorized quality characteristics. Regulations on food safety and milk and dairy products set the rules for the handling and production. Those rules require certain temperature, pH level, ratio of elements, microbiological contents, chemical and physical characteristics. Along with general elements every products has its on specifics in colour, firmness, odour, flavour and content. Quality control and demands were presented.

### Sensory analysis

#### Marija Jukić-Grbavac

International organisation for standardization (ISO) in cooperation with International Dairy Federation FIL-IDF has specified recommended methods for the sensory evaluation of specific milk and milk products. It specifies criteria for the sampling and preparation of samples and the assessment of the samples. Cheeses are assessed for appearance, shape, colour, eyes, consistency, odour and flavour. Basic of sensory analysis were set up in this lecture.

### The protection of Geographical Indications and Designations of Origin

#### Marija Jukić-Grbavac

Protected designation of origin (PDO), protected geographical indication (PGI), and traditional specialities guaranteed (TSG), promote and protect names of quality agricultural products and food. Regulations for protection of origin, geographical indication or recapture are set I most countries. EU has its rules and also some member countries regulated this area with national systems. For all this categories

## Harmonization of LL in ADA Region

there are EU logo and product can only be marketed or produced if meets the standards. Rules and standards of mentioned protected categories were given in this lecture.

### The regulation for protection of origin in BIH

#### Marija Jukić-Grbavac

Bosnia and Herzegovina adopted Rules on Protected designation of origin (PDO), protected geographical indication (PGI) in 2010. Application for protection should be submitted to the Food safety agency of B&H. Rules of protection of origin and geographical indication are under two different legal frames. One is used by Food safety agency and other by Institute for intellectual propriety of B&H. For those reasons protection is complicated and ineffective. There are no accredited certification agencies to assess if the product meets standards and rules.

### List of lecturers with contact

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Some insights and photos from summer school in Mostar:



Everything was great. Highly satisfied with the project.

It was enormous pleasure to attend this programme. We all gained knowledge, mentors and friends.

I recommend this course for all students. I'm completely satisfied with all!

### 2.4.7. **University of Montenegro, Biotechnical faculty, Podgorica, Montenegro**

Biotechnical Faculty (BTF) of the University of Montenegro (UoM) has long tradition in research and scientific work (founded in 1937). It started with teaching and education of students in 2005/2006. Study programs are organized at bachelor and master level, while doctoral studies are foreseen to be organized from 2017/2018. According to the number of implemented scientific research projects, BTF is at the top position within the University of Montenegro. BTF participated in the realization of numerous national (financed by Ministry of Science, Ministry of Agriculture etc.) and international projects (EU FP7, Erasmus +, Tempus, Cost, IPA, SEE-ERA.net, bilateral projects). Since 2014 researchers from BTF have been participating in BIO-ICT Centre of Excellence, the first Centre of Excellence in Montenegro, implemented as a three-year research programme and financed by the Ministry of Science of Montenegro through a World Bank loan. The recent openness of the Montenegrin society and economy has had a positive impact on BTF's activities: young researchers have started to go more intensively abroad, connections with partner institutions in the Balkan region and with EU Member States. The involvement of the BTF in the ERA has thus increased. The BTF performs three types of activities: Research, Higher education and Services. Strategic objectives of BTF are to build up human resources and to improve the quality of the offered educational programs; to increase participation in international programs and projects; to modernize its research and technical capacities and to enhance its competitiveness by transferring knowledge and services contributing the Montenegrin economy.

Role of UoM/BTF was to set up working groups, nominate an officer for LL, and expert for career guidance. Institution reviewed working concept and prepared presentation on LL activities. UoM conducted surveying, prepared reports on LL potentials at institutional and national level, as well as a case study. Institution participated in a workshop in Sarajevo. UoM/BTF reviewed the draft version of Regional guidelines and also developed national strategies. UoM was in charge for the organization of the Round table meeting in Podgorica. Participants from UoM attended the final conference in Tirana. Staff from UoM/BTF participated in teacher trainings, designing of pilot activities, courses' curricula, and their conduct. Institution distributed and collected student questionnaires. UoM/BTF participated in project management, creation of reports, and procurement of equipment.

#### 2.4.7.1. **Decision making process in curriculum development**

Potential for the creation and implementation of specific programs of education, training and development in the field of lifelong learning:

Survey / interview were conducted by Mirko Knežević, PhD, Associate Professor Nedeljko Latinović, Ana Topalović, PhD, and Associate Professor Jelena Latinović. At the Biotechnical Faculty in Podgorica survey was conducted during December 2014 and January 2015 on the potential for the creation and implementation of specific programs of education, training and development in the field of lifelong learning. From a total of 10 departments that are organized at the Biotechnical Faculty, 5 departments have shown interest in these training programs. All departments in the survey stated that they have human resources to implement the programs. In all departments staff generally expressed high motivation for organizing the programs in lifelong learning.



Results of the survey showed that at the Biotechnical Faculty there is an interest for the following types of programs: Postgraduate specialist professional studies, Intensive courses, Lectures and Workshops. Target groups for the acquisition of knowledge in all aspects of the educational programs are mainly: those interested in acquiring the profession in an older age, those interested in their own profession, those interested in acquiring another profession, those interested in recognition of their previously gained skills and experiences and those interested in own personal improving.

Survey conducted to determine need for education/training in the area of sustainable agriculture

Methodology of the conducted survey in Montenegro can be grouped as follows: preparatory phase in which the data were collected as well as the contacts of the target stakeholders, i.e. producers, secondary schools, and public and state administration; conduct a survey for agricultural producers, secondary schools, public and state administration; analysis of the survey results and preparation of reports.

In the preparatory phase the lists of target stakeholders, i.e. the lists of producers (and agricultural associations and cooperatives), secondary schools, and public and state administration, including the addresses, contact telephone numbers and e-mail addresses have been collected. Concerning the agricultural producers, working team made an effort to include farmers throughout the territory of Montenegro in the survey. 76 individual producers were interviewed. In Montenegro, two agricultural schools are active (Bar and Plužine) and one class of food technology within the chemical school in Podgorica.

Institutions within public and state administration were identified by administrative levels (ministries, institutes, administration, municipal administration, etc.).

Online surveys for farmers, teachers in secondary schools, public and state administration were delivered by the University of Zagreb to the leader of the work package on 13<sup>th</sup> October 2014. Online survey was closed on 20<sup>th</sup> January 2015.

The largest number of respondents was in a group of farmers, a total of 76 agricultural producers, the total number of respondents in secondary schools is 9, and in institutions of public and state administration 10 participants have been interviewed. In order to determine the similarities and differences in the needs of target groups for lifelong learning comparative analysis has been used.

## **Gender**

In the group of surveyed agricultural producers 73.7% were male and 26.3% female. In administration (public and state institutions) 90% of respondents were female and 10% male. In the group of the surveyed staff from secondary schools predominates males 77.8% while 22.2% of respondents were female.

## **The form of agricultural vocation**

The majority of farmers surveyed (61.8%) were smaller registered producers, 22.4% are engaged in agriculture as a hobby while 15.8% of respondents owned their own companies.

## Harmonization of LL in ADA Region

### Number of years in the respective profession

When asked how long they are involved in agricultural production, the answers were that most of the agricultural producers (34.2%) have been involved from 11 to 20 years. Similar percentage (28.9%) was among the respondents engaged in agriculture from 5 to 10 and more than 20 years while 7.9% of the surveyed farmers deal with agricultural production less than 5 years. In administration 70% of the respondents were employed less than 5 years and 30% from 5 to 10 years.

In secondary schools, 55.6% of respondents were employed less than 5 years, 22.2% from 11 to 20 years and 11.1% from 5 to 10 years and more than 20 years.

### Status and training needs assessment

Most of the surveyed agricultural producers were familiar with the term lifelong learning - 88.2%. Similar situation was in a survey in secondary schools - 88.9% while 60% in administration.

Regarding the need for more training in quality engagement with the activities related to agriculture, 39.5% of farmers responded that the training is essential, 48.7% that it is preferred, 5.3% responded NO and 6.6% of them do not know.

90% of administration responded positively where the additional training was necessary for promotion at work, 10% said YES because they believe it is useful for them. To the same question 44.4% of respondents in secondary schools believe that it is useful, 22.2% said it is necessary, and 33% gave a negative response. 80% of respondents in the administration and 66.7% in secondary schools need additional education in order to maintain current job position.

Most agricultural producers consider the current offer of additional education / training programs in the field of agriculture is not sufficient (43.4%), 38.2% of them responded that they do not know, and 18.4% believe that the offer is sufficient. Half of the surveyed administrative staff believes that the offer is not sufficient (50%), 30% replied that they do not know, and 20% believe that the offer is sufficient. In secondary schools the ratio is as follows: 44.4% believe that the offer is sufficient, 33.3% believe that the offer is not sufficient, and 22.2% responded that they do not know.



## Development of Lifelong learning at HEI

What knowledge is the most lacking (improvement needed)	Secondary school	Administration	Agricultural producers
Livestock production	33.3	10.0	18.4
Plant production	33.3	30.0	39.5
Organic agriculture	33.3	20.0	21.1
Agrotourism	22.2	10.0	18.4
Agroeconomy	11.1	10.0	10.5
Agrobusiness	11.1	10.0	25.0
Rural development	33.3	10.0	17.1
Agroecology	11.1	10.0	10.5
Microbial biotechnology in agriculture	11.1	0.0	7.9
Genetics and selection in livestock	11.1	0.0	11.8
Cultivation of vegetables	33.3	20.0	13.2
Ornamentals	22.2	40.0	11.8
Viticulture	11.1	30.0	21.1
Wine making	0.0	20.0	10.5
Fruit growing	11.1	40.0	18.4
Animal nutrition and feed	33.3	20.0	9.2
Production and processing of meat	22.2	0.0	13.2
Production and processing of milk	22.2	0.0	10.5
Landscaping	11.1	0.0	7.9
Mechanization in agriculture	11.1	0.0	10.5
Melioration in agriculture	22.2	0.0	7.9
Fishing	0.0	0.0	11.8
Hunting	0.0	0.0	11.8
Beekeeping	11.1	0.0	26.3
Plant protection	44.4	50.0	32.9
Phytomedicine	33.3	50.0	9.2

What skills are the most lacking (specialization needed)	Secondary schools	Administration	Agricultural producers
	Yes	Yes	Yes
Public performance	33.3	70	18.4
Communication skills	11.1	70	14.5
Presentation skills	33.3	70	26.3
Team work	22.2	0	23.7
Training of trainers	55.6	0	11.8
Critical way of thinking	11.1	10	6.6
Writing of project proposals	33.3	40	34.2
Work on computer programs	0.0	10	10.5
Knowledge of foreign languages	44.4	20	40.8
Others	0.0	0	3.9

## Harmonization of LL in ADA Region

Most respondents believe that interactive workshops or short form of education programs would be the most appropriate (farmers 42.1% administration 60% and secondary school staff 55.6%). Next form of education that suits for the respondents the best is intensive course. For this form of education voted 26.3% of the agricultural producers, 10% of administration and 22.2% of secondary school staff. For post-graduate specialization 14.5% of farmers have been interested, 10% of administration and 22.2% of secondary school staff. For lectures 17.1% of agricultural producers was concerned, and 10% of the administration. What kind of education performing would fit you best? Conceivably the most respondents were interested for the education that would be performed in the form of practical work (farmers 64.5%, administration 60% and secondary school staff 55.6%). For direct form of education (face to face) declared 11.8% of the farmers, 40% of administration and 33.33% of secondary school staff. On line seminars are of interest to agricultural producers in the amount of 14.5% and 11.1% for secondary school staff. 7.9% of agricultural producers were interested for distance learning.

The most numerous answers of the respondents regarding who should guide the education in sustainable agriculture, referred to the faculties: 88.9% of secondary school staff declares for faculty, 90% of administrative staff and 68.4% of agricultural producers.

Due to the results of the survey and the available staff at UoM willing to participate in curricula development, it was decided that the subject of the summer school will be "Grapevine Growing".



## 2.4.7.2.

## International Summer School "Grapevine Growing"

The programme is designed to fit the LL needs of specific group of participants: agricultural producers, public administration within field of agriculture, high school teachers or students.

## Summer school description

Host institution	University of Montenegro, Biotechnical Faculty Mihaila Lalića 15, 81000 Podgorica, Montenegro
You can apply for this LL programme if you	1. are starting your own vineyard 2. need additional education 3. want to learn more or improve your skills
Learning outcomes	Knowledge on importance of sustainable agriculture Production of grapevine Effect of irrigation and fertilization on the quality and yield, compost Production and utilization Grapevine protection Production of wine Cost and calculation and marketing of agricultural products.
Language	English or Montenegrin language Content can be modified depending on the specific group interest.
Validation	Certificate of completion is awarded upon finishing the programme.
Duration	10 days
Minimum number of participants	5
Maximum number of participants	15
Programme coordinator	Prof. Nedeljko Latinović, Ph.D. E-mail: nlatin@ac.me
LL expert	Prof. Jelena Latinović, Ph.D. E-mail: jelenalat@ac.me
LL officer	Prof. Aleksandra Despotović, Ph.D. E-mail: alexd@t-com.me

LL programme "Grapevine growing"

Day	Time	Title of the lecture	Lecturer
DAY 1 27.6.2016.	08:30-09:00	Dean's welcome speech Summer school coordinator's speech	Miomir Jovanović Nedeljko Latinović
	09:00-11:00	Importance of sustainable agriculture	Nataša Mirecki
	11:00-13:00	Ampelographic and agrobiological characteristics of <i>Vitis vinifera</i>	Tatjana Popović
	14:30-16:30	Technological characteristics of <i>Vitis vinifera</i>	Tatjana Popović
DAY 2 28.6.2016.	08:00-10:00	Application of methods for ampelographic description of grapevine	Tatjana Popović
	10:00-11:00	Application of methods for studying on vegetation cycle of grapevine	Tatjana Popović
	11:00-12:00	Method for ampelographic identification of grape varieties	Tatjana Popović
	13:30-15:30	Practical work in vineyard	Tatjana Popović
DAY 3 29.6.2016.	08:00-10:00	Soil water balance calculation	Mirko Knežević Ana Topalović
	10:00-12:00	Soil fertility	Mirko Knežević Ana Topalović
	13:30-15:30	Analysis and interpretation of studied data	Mirko Knežević Ana Topalović
DAY 4 30.6.2016.	08:00-10:00	Factors of wine's quality; Chemical parameters of wine quality; Practical work: Analysis of chemical composition of wine	Radmila Pajović
	10:00-12:00	Techniques of sensory evaluation assessment of wines (OIV official method) and Buxbaum method; Spectrophotometric analysis of polyphenol compounds in wine	Radmila Pajović
	13:30-15:30	Quality evaluation of the wines: Sensory evaluation characteristics of wine; Phenolic compounds – Their importance for wine quality	Radmila Pajović
DAY 5 1.7.2016.	08:00-09:00	Analyze the parameters of the chemical composition of wine.	Radmila Pajović
	09:00-10:00	Analyze the sensory properties of wine;	Radmila Pajović
	10:00-12:00	Knowledge of the techniques for degustation of wine Spectrophotometric analysis of polyphenol compounds in wine	Radmila Pajović
	13:30 – 15:30	Compost production and utilization	Nataša Mirecki

## 2.

## Development of Lifelong learning at HEI

Day	Time	Title of the lecture	Lecturer
DAY 6 4.7.2016.	08:00 – 10:00	Field visit experimental station – irrigation system	Mirko Knežević Ana Topalović
	10:00-12:00	Field visit experimental station – agrometeorological station	Mirko Knežević Ana Topalović
	12:00-13:30	Break	
	13:30-15:30	Field visit experimental station – farmers facility	Mirko Knežević Ana Topalović
DAY 7 5.7.2016.	08:00-12:00	Introduction to the most important grapevine diseases	Jelena Latinović
	13:30-14:30	Forecasting of grapevine diseases	Jelena Latinović
	14:30-15:30	Detection of plant pathogens in the laboratory	Jelena Latinović
DAY 8 6.7.2016.	08:00-10:00	Field visit and symptoms recognition of some of the grapevine diseases	Nedeljko Latinović Jelena Latinović
	10:00-11:00	Disease control in conventional production	Nedeljko Latinović
	11:00-12:00	Disease control in organic production	Nedeljko Latinović
	13:30-15:30	Introduction to the other important harmful organisms in grapevine and their control	Igor Pajović Nedeljko Latinović
DAY 9 7.7.2016.	08:00-09:00	Methods of determining the cost calculations and their compiling; Methods for determining indicators of economic results	Aleksandra Despotović Miljan Joksimović
	09:00-10:00	The concept of cost. Difference between various types of costs; Calculation of individual lines of crop production. Calculating the cost of individual plant production	Aleksandra Despotović Miljan Joksimović
	10:00-11:00	Economic feasibility in plant production; Optimal structure of plant production	Aleksandra Despotović Miljan Joksimović
	11:00-12:00	Market and marketing of agri-food products of plant origin; Concept of the market and its functioning	Aleksandra Despotović Miljan Joksimović
	13:30-14:30	Sales channels, their advantages and disadvantages. The role and importance of market institutions	Miomir Jovanović
	14:30-15:30	Marketing concept of business and SWOT analysis	Miomir Jovanović
DAY 10 8.7.2016.	08:00-10:00	Written exam	Nedeljko Latinović Nataša Mirecki
	10:00-12:00	Group I: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	Jelena Latinović
	13:30-14:30	Group II: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	Nedeljko Latinović
	14:30-15:30	Curriculum / teachers evaluation questionnaires Results and Certificate award	Nataša Mirecki Jelena Latinović

### LECTURE SUMMARY

#### Production of grapevine

Tatjana Popović

Ampelographic, agrobiological and technological characteristics of *Vitis vinifera* species. Applied methods for ampelographic description of grapevine. Apply methods for studying vegetation cycle of grapevine. Understanding method for ampelographic identification grape varieties for research and practical work in vineyard.

#### Importance of sustainable agriculture

Nataša Mirecki

Terms and terminology in sustainable agriculture. Benefits of sustainable agriculture to the health and long-term productivity of the environment, the farm family, and society as a whole. Key concepts in natural resource management to agricultural farming systems. Understand and explain key agricultural systems concepts and perspectives at regional, national and global scales. Identify and argue constraints and opportunities for future sustainable agricultural systems.

#### Compost production and utilization

Nataša Mirecki

Role of composting in guaranteeing the organic waste utilisation, minimisation of their possible environmental risk and optimal use of compost products; source materials for composting, their resource, and use according their quality; composting technologies, equipment and processing; safety requirements and monitoring of composting process; use of compost as fertiliser or as soil amendment, application norms and the environmental aspects; indicators of composts physical, chemical and biological parameters and their assessment with organoleptic methods.

#### Effect of irrigation and fertilization on the quality and yield

Ana Topalović and Mirko Knežević

The estimation of the effect of different fertilization level and irrigation regimes on grape quality and yield. Introduction to using of ACLIMAS - program for the calculation of evapotranspiration and statistical data processing. Calculate evapotranspiration on basis of parameters of climate, soil and grapevine. Analyse and interpret the data of study. Guidance farmers and other interested parties about the procedure of sampling land for agro-chemical analysis. Interpret the results of agrochemical soil analysis.

#### Grapevine protection

Jelena Latinović, Nedeljko Latinović and Igor Pajović

To introduce students to the most important harmful organisms of grapevine and their control. Recognition of the most important harmful organisms of grapevine the damages that can occur. Recognition of the life cycle of harmful organisms. Undertaking adequate measures for their control based on the principles of integrated or organic plant protection.

### Production of Wine

**Radmila Pajović-Šćepanović**

Factors of wine's quality; Chemical parameters of wine quality; Quality evaluation of the wines: Sensory evaluation characteristics of wine; Phenolic compounds – Their importance for wine quality. Analyses of chemical composition of wine; Techniques of sensory evaluation assessment of wines (OIV official method) and Buxbaum method; Spectrophotometric analysis of polyphenol compounds in wine.

### Cost and calculation

**Aleksandra Despotović and Miljan Joksimović**

Methods of determining the cost calculations and compiling, as well as methods of determining indicators of economic results. Define the concept of cost. Explain the difference between different types of costs. Use the calculation of individual lines of crop production. Calculating the cost of individual plant production. Assess the economic feasibility of production of certain plant production. Propose the optimal structure of plant production.

### Marketing of agricultural products

**Miomir Jovanović**

Market and marketing of agri-food products of plant origin. Explain the concept of the market and its functioning. Describe the elements, factors, the basic function and mechanism of the market. Describe the sales channels, their advantages and disadvantages. Explain the role and importance of market institutions. Prepare the basic market data. Introduce a simple analysis of the market of agricultural and food products. Describe the marketing concept of business and SWOT analysis. Distinguish instruments of the marketing mix of agrifood products.



## Harmonization of LL in ADA Region

### List of lecturers with contact

Name and last name	Contact
Tatjana Popović, PhD	tatjanapopovic@t-com.me
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### List of participants with contact

First name	Last name	Home Institution	E-mail
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Rijad	Hodžić	(UoM) Podgorica	riad92@t-com.me

Some insights and photos from summer school in Podgorica:



This course was quite good, we received adequate knowledge

I think that was the best course I have done so far!

All professors were very respectable and they provided good knowledge and excellent working atmosphere.

## 2.4.8. University of Prishtina, Faculty of Agriculture and Veterinary, Kosovo

The University of Prishtina was established by the “Law on the Establishment of the University of Prishtina,” which was approved by the Assembly of the Socialist Autonomous Province of Kosova, on November 18, 1969. The Faculty of Agriculture was founded on August 1973 by a decision of the Assembly, as a result of the increasing needs for educated people with superior qualifications, which would result in faster development of agriculture in Kosovo.

The goal, respectively mission of the Faculty of Agriculture and Veterinary (FAV) is education, research and the transfer of knowledge to the economy and public sector. Trends in development and professional advancement of scientific activity of academic staff have always been conditioned by socio-political circumstances. But in relation to the development of modern science and technology, they have continued to try and respond to the needs and requirements of the time. The Faculty of Agriculture and Veterinary has its vision of long-term interest of fulfilling the mission and function, creating a new generation perspective, modernization and reform of the education system in Kosovo, regional and European integration in the field of agriculture and veterinary medicine.

Since the academic year 2001/2002 FAV has started with new study programs harmonized with the Bologna Process; undergraduate, graduate and postgraduate doctoral and specialist studies (3+2+3) (180+120+180 ECTS). The FAV teachers and researchers are involved in implementation of basic, development and applied research projects, and actively participating in professional collaboration.

The Faculty of Agriculture and Veterinary offers following study programs:

- Plant Production (Bsc),
- Business Management in Zootechny (Bsc and Msc),
- Agroecology (Bsc and Msc),
- Plant Protection (Msc),
- Pomology –Viticulture with Horticulture (Msc),
- Field crop and Vegetables (Msc),
- Veterinary Medicine,
- Biotechnology and Food Technology (Bsc).

In coordination with the Tempus Project we have started with studies in the program “PhD in Food and Technology Sciences”.

Role of UP was to set up working groups, nominate an officer for LL, and expert for career guidance. Institution contributed to review of the working concept, prepared presentations on LL activities. UP conducted surveying, prepared reports on LL potentials at institutional and national level, as well as a case study. UP reviewed the draft version of Regional guidelines and participated in development of National strategies. UP also participated in a Round table in Podgorica, additional meeting in Zagreb, and on the final conference in Tirana. UP staff participated on teacher trainings, designing of pilot activities, courses' curricula, and their conduct. Institution distributed and collected student questionnaires.

## 2.4.8.1.

**Decision making process in curriculum development**

Survey / interview were conducted by 3 WP2 members individually at each department – Fadil Musa, Prof. Ass. Dr., Mentor Thaqi, Prof. Asoc. Dr. and Senior Assistant Iliriana Miftari, MSc.

All 7 departments have been included in the survey - 5 responded (2 departments are not included in the results, Veterinary Medicine and Business Management in Zootechny).

After analysis of the questionnaires results were following:

1. There are sufficient and highly motivated human resource / teachers at FAV,
2. Diversity of educational programmes depending on the topic and types,
3. Target groups: the most common identified but not strict,
4. More than 60% is not familiar with evaluation process at all,
5. More that 75% is expecting administrative and technical support at the Faculty level.

**Introduction**

With the aim of assessing and determining the need for lifelong learning (LL) we have distributed the forms to be filled to the three selected groups of actors involved in survey:

1. The first group of 17 producers and processors randomly selected,
2. The second group of 30 officials from agricultural schools (teachers and principals),
3. The third group of 23 officials from the Ministry of Education, Science and Technology, Ministry of Agriculture, Forestry and Rural Development and the Ministry of Social Welfare.

The survey consisted of the following question groups: (1) Status and training needs assessment, (2) Personal motivation for training and (3) Personal questions. The majority of questions were common to all three respondent groups, while a smaller number of questions referred to the particularities of certain respondent groups.

**Methodology of the Work**

Before delivery of the forms to be completed there was held a discussion with each group separately where we have introduced the project LIFEADA and their objectives, the project funded by the EU and with the participation of parties and institutions involved in the project where our country Kosovo is part of this project as well. After that to each group were distributed the forms appropriate for each group and after a 1-hour period completed forms were collected and processed in tabular form, where the questions were explained and compared to each other and between groups.

### Results and their interpretation

#### 1. Assessment and the need for specialization

1.1. The first group of questions respectively point 1.1 regarding the assessment of the situation and the need for training to the point 1.1 whether you have heard of the concept of lifelong learning all respondents from all groups evaluated and emphasizing maximum positive response that they have sufficient knowledge and that most of them have continued in various forms of this type of learning.

1.2. Regarding the question of whether you think you need additional training for your activities and quality commitment on farming, first two groups (producers - processors and high schools) have provided answers Yes that training is desirable and point 1.2 of the group in administration of the question of whether you are obliged, in order to remain in the current job to go to extra training the answer in most cases was Yes.

1.3. The group of producers and high school the majority answered yes while the administration group 1.4 points they answered Yes and that training is necessary for advancement. Point 1.3 of group administration of the majority answer was Yes, training is necessary for the quality of their work, with very small variations with regard to the answers given.

1.4. The group of producers and high schools, while 1.5 points of administration, was given the maximum positive response with the exception of the first group of producers where the response was more heterogeneous giving different answers.

Point 1.5. of the first two groups, respectively, point 1.6 of the administration group regarding that whether you know where to get information about the offer of additional education / training in the field of agriculture answer for the group of schools and the administration was in the most cases yes that they know where to find information while the group of producers in most cases answered No, it is difficult to find such information.

Point 1.6. for producers and secondary schools, respectively point 1.7 for the administration group answer was yes, the information is enough.

Point 1.7. of the group of producers and high schools, while 1.8 points of the administration group has great diversity in terms of fields where they need trainings . Easily can be seen that as a priority fields are plant protection and agribusiness followed with other fields.

Point 1.8. of the group of producers and high schools, and point 1.9 of the administration group as weak point indicated knowledge of English, compilation and writing projects, public presentation and the lack of knowledge also in other areas.

#### 2. Motivation for training

Point 2.1. all respondents from the three groups surveyed expressed willingness to participate in additional training programs / training in the field of agriculture, while the point 1.2 of the administration group stated that the farm management programs in implementation of standards on manufacturing, processing they may contribute to 20% of the total funds needed for the training from their own funds.

Point 2.2. respectively point 2.3 of the administration group, which type of training they support and prefer most have provided answers to learning through various workshops organized for specific fields and some even through short courses. Manufacturers have suggested that they prefer the form of lectures on specific topics that relate to their activities.

Point 2.3. for producers and secondary schools, respectively point 2.4 for the administration, what kind of performance will best fit you there was no differences between the groups. Manufacturers and processors prefer practical work and to some extent the direct contacts with lectures on specific areas with which they deal, while the staff from schools and administration prefer online seminars and distance learning because of their volume of work in the process of learning and administrative affairs.

Point 2.4. for producers and secondary schools, respectively 2.5 for respondents from the administration, if they have the opportunity to get co-financing for further education / training their most responded that yes there are such opportunities where various associations producers and processors, schools and ministries through certain funds are doing such a thing constantly, but most of the respondents declared that they are ready to find and get the funds allocated to co-financing if the area of training is relevant to the their activity and if the questions are narrow areas they are interested in receiving additional training and education.

Point 2.5 for producers and processors, respectively, point 2.6 for the administration, all respondents regardless of the group they represent have expressed travel without certain limit distance to participate in certain programs and training in the field of agriculture.

Point 2.6. for producers and secondary schools, respectively point 2.7 for administrations which institutions should be the leader of education in sustainable agriculture all groups have highlighted they preferred Faculty of Agriculture since there is concentrated a large number of scientists and staff well prepared and who are acquainted with the most recent agricultural science and practice. Even secondary agriculture schools for the training of lower level are preferred by respondents.

Point 2.7. for producers and secondary schools, respectively point 2.8 for the administration, if you need any form of evaluation of education / training and what is it, the options presented most preferred evaluation ECTS points while some other forms of assessment where the results will be recorded in the book of work or other forms.

Point 2.8. for producers and secondary schools, respectively point 2.9 for the administration has not given any response.

### **3. Personal questions**

3.1. At this point about 60% of all the groups mentioned Pristina as permanent residence and 40% from other parts across Kosovo (Ferizaj, Gjilan, Peja, Prizren, Mitrovica, Skenderaj, etc.).

3.2. The average age by groups was: producer-processors 29 years, staff from the schools 42 years and 46 years personnel from administration.

3.3. As regards to the gender the number and proportion was: 14/3 producers (male / female), to schools this ratio was 21/9 (male / female) and the administration 19/4 (male / female).

3.4. To the question in what form they would like to deal with agriculture producers group gave answers that they are more oriented to commercial production as this they have as primary activities while the group of schools have responded to small producers because they are more oriented to work in education and agriculture to most of them is complementary or secondary activity.

3.5. products they prefer to deal with both groups preferred those products with added value (greenhouse vegetables, soft fruit, cattle farms, processing enterprises, etc.).



## Harmonization of LL in ADA Region

3.6. How long do you deal with these products also have been different answer depending from the group of respondents (respondents), so farmers have stated time from 5-35 years, while the high school group 2-28 years.

3.7. The level of education, the greatest number of the three groups surveyed was with the faculty, but there have been cases with masters and doctorate. The producers, a significant number were also high school, mostly agricultural directions.

3.8. All respondents regardless group of respondents were from Kosovo, citizens of the Republic of Kosovo.

To the group of respondents from the administration there were also some questions that have to do just with this group, while the answers were as follows:

Point 3.3. name of the institution where you are employed from 23 as the total number of respondents, from the Ministry of Education, Science and technology were 7 persons, from the Ministry of Agriculture 11 and from the Ministry of Labour and Social Welfare 5 persons.

Point 3.4. which is your position at the institution where you are employed, was: 4 directors, 7 the chief of the departments in the ministries and 12 senior officials from the ministries in charge for different activities in the field of public administration, agriculture sectors and rural development.

Point 3.5. which is your field of work the responses obtained was as follows: Farming with vegetable production, fruit growing, viticulture, plant protection, Agro-economy, public administration (lawyer and economist), etc.

Point 3.6. how many years you are employed at the institution where you work responses of total respondents regardless of the institution were as follows: less than 5 years (three people), 5-10 years (14 people), 11-20 years (4 people) and more than 20 years (none).

## Why did we choose this topic?

According to the results of the analysis, FAV designed Summer school which corresponds to the needs mentioned in the report. Summer school covers additional education from the field Pomology and Viticulture, Mechanization in Pomology and Viticulture, Plant Protection in Pomology and Viticulture, Integrated Pest Management and Agricultural economics. During the summer school program participants had the chance to practice their public speaking and presentation skills. Since there is a possibility of conducting programme both in English and Albanian language participants can also improve their foreign language knowledge. Upon finishing the programme Certificate of completion, the participants will receive 10 ECTS credits and the certificate of attendance.





### 2.4.8.2. International Summer School "Integrated Production of Fruit Trees and Grapevine"

The programme is designed to fit the LL needs of specific group of participants – agricultural producers, public administration within field of agriculture, high school teachers or students.

#### Summer school description

Host institution	University of Prishtina, Faculty of Agriculture and Veterinary Bill Clinton N.N. 10000 Prishtina, Kosovo
You can apply for this LL programme if you	<ol style="list-style-type: none"> <li>1. Interested to improve or develop your knowledge and skills.</li> <li>2. Interested to have additional education regarding Integrated Production of Fruit trees and Grapevine.</li> <li>3. Interested to establish you own orchard or vineyard.</li> </ol>
Learning outcomes	<p>PART I – Pomology and Viticulture</p> <p>Basic aspects of integrated production of fruit trees and grapevine in Kosovo</p> <p>Agro-technical and cultural measures, with perspective varieties of fruit trees, berries and grapevine of particular interest to our country</p> <p>Agricultural mechanization where participants will be informed in detail</p> <p>Wine production in Kosovo is known since the early ages</p> <p>Newest information in the field of enology.</p> <p>PART II – Plant Protection in Integrated Management of Fruit Trees and Grapevine</p> <p>Information for the pests and diseases most common and most dangerous in our country which affect apples, raspberries, strawberry, grapevine</p> <p>Measures for management of these pests and diseases of these crops in the frame of Integrated Pest Management.</p> <p>PART III – Marketing and Management in Pomology and Viticulture</p> <p>Marketing of agricultural products and calculation of gross margin</p> <p>Practical laboratory work and field visits will enrich and complement the program</p>
Language	English or Albanian language Content can be modified depending on the specific group interest.
Validation	Certificate of completion, entry in employment record card / portfolio or 10 ECTS credits are awarded upon finishing the programme.
Duration	15 days
Minimum number of participants	5
Maximum number of participants	20
Programme coordinator	Asoc. Prof. Dr. Bedri Dragusha E-mail: bedri.dragusha@uni-pr.edu ; Phone: ++377 44 124-959
LL expert	Ass. Prof. Dr. Fadil Musa E-mail: fadil.musa@uni-pr.edu; Phone: ++377 44 213-795
LL officer	Asoc. Prof. Dr. Mentor Thaqi E-mail: mentor.thaqi@uni-pr.edu; Phone: +377 44 148-159

**LL PROGRAMME "Integrated Production of Fruit Trees and Grapevine"**

**PART 1 Pomology and Viticulture**

Day	Time	Title of the Lecture	Lecturer
DAY 1 05.09.2016.	08:30 – 09:00	Dean's welcome speech Summer school coordinator's speech	Skender Kaçiu Bedri Dragusha
	09:00-11:30	Introduction of fruit tree production in Kosovo	Sylë Sylanaj
	13:00-16:00	Apple production (cultivars, growing systems, etc.)	
DAY 2 06.09.2016.	08:30-09:00	Soft fruits production (strawberry)	Sylë Sylanaj
	13:00-16:00	Soft fruits production (raspberry, bilberry and blueberry)	
DAY 3 07.09.2016.	08:30-11:30	Grape Vine Production in Kosovo	Bedri Dragusha
	13:00-16:00	Wine production in Kosovo	
DAY 4 08.09.2016	08:30-11:30	Mechanization in Pomology and Viticulture	Mentor Thaqi
	13:00-16:00	Spraying equipment in pomology viticulture	
DAY 5 09.09.2016	08:00-20:00	Field trip Kovraga (Apple Production Association) Rahovec (Winery Stone Castle)	Bedri Dragusha Sylë Sylanaj Fadil Musa

**PART II Plant protection in Integrated Managements of Fruit trees and Graption in Integrated Managements of Fruit trees and Grape vine**

Day	Time	Title of the Lecture	Lecturer
DAY 6 12.09.2016.	08:30-11:30	Main pests of Pome Fruits (Apple, Pear, etc.) in Kosovo	Fadil Musa
	13:00-16:00	Raspberry and strawberry pests in Kosovo	
DAY 7 13.09.2016	08:30-11:30	Main diseases of Pome Fruits (Apple, Pear, etc.) in Kosovo	Fadil Musa
	13:00-16:00	Grape vine, Raspberry and Strawberry diseases in Kosovo	
DAY 8 14.09.2016	08:30-11:30	Integrated weed management in orchard	Arben Mehmeti
	13:00-16:00	Integrated weed management in vineyard	
DAY 9 15.09.2016	08:30-11:30	Selection of proper products for orchard and vineyard protection	Adem Demaj
	13:00-16:00	The importance of experimental design for the rationale use of plant protection products	
DAY 10 16.09.2016	08:00-20:00	Field trip Agroshkelqi, Llugaxhi, Eurofruti	Fadil Musa Mentor Thaqi Bedri Dragusha

**PART III****Marketing and Management in Pomology and Viticulture**

Day	Time	Title of the Lecture	Lecturer
DAY 11 19.09.2016.		a) Integrated Pest Management (IPM)	
	08:30-11:30	IPM (Basics, elements and strategies os IPM)	Fadil Musa
	13:00-16:00	IPM (Apple IPM presentation)	
		b) Agroecconomy	
DAY 12 20.09.2016.	08:30-11:30	Gross margins for apple and grape producers	Iliriana Miftari
	13:00-16:00	Efficiency measure of the apple and grape farm producers- nonparametric approach	
DAY 13 21.09.2016.	08:00-20:00	Excursion / Some cities in Kosovo	Fadil Musa Mentor Thaqi Bedri Dragusha
DAY 14 22.09.2016.	Free day	Student individual work Short seminar / Oral presentations preparation (PPT) Written exam preparation	
DAY 15 23.09.2016.	08:00-10:00	Written exam	Fadil Musa Sylë Sylanaj Mentor Thaqi
	10:00-12:00	Group I: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	
	13:30-14:30	Group II: Oral presentations (PPT – Each student has 5 minutes for presentation + 5 minutes for discussion)	
	14:30-15:30	Curriculum / teachers evaluation questionnaires	
		Results and Certificate award	

### LECTURE SUMMARY

#### PART 1:

#### Pomology and Viticulture

##### Introduction of fruit tree production in Kosovo

###### Sylë Sylanaj

Kosovo is characterized by a temperate continental climate and land structure suitable for the cultivation of fruit trees. In recent years the cultivation of fruit trees in Kosovo has taken a huge burst of development where every year hundreds of hectares of new fruit trees are being cultivated. Regarding pome fruits there are present apples, pears, quince, etc. and stone fruits like plums and peaches. Participants in this course had the opportunity to be informed about the development of orchards sector in Kosovo, the types of trees that are grown the most and areas planted to each crop. Furthermore, the participants were informed about the structure of the variety and forms of rising of the orchards and with basic characteristics of apple cultivars and their rootstocks, etc.

##### Apple production (cultivars, growing systems, etc.)

###### Sylë Sylanaj

The aim of this course was to provide the participants with information about the status, development and prospects of apple cultivation in Kosovo. Among the fruit tree crops planted, regarding the surface, most of them are presented by apple (about 46% of total area). In Kosovo, according to official data from the Ministry of Agriculture, Forestry and Rural Development in Kosovo are planted around 1600 ha with apple, with an average yield of 30 t / ha. The most spread or cultivated varieties are Red Delicious, Golden Deliseus, Idared, Mutsu, Greeny Smith, Topas, Pinova, Starking, Fuji, Jonagold, Red Falstaff, Jonica, etc. Rootstocks used for the cultivation of apples are the vegetative and generative. Mostly by vegetative are present MM106; M26 and M9. Regarding the systems of cultivation the participants will be informed that in Kosovo there is a great diversity ranging from the extensive, semi-intensive to intensive ones. Crown forms of apples are also various like pyramids shapes dominated improved shrub steep and free forms. Participants received information about the yield, quality, development, marketing of apples, forms of exploitation, harvesting, storage and export data of apple fruit.

##### Grape Vine and Wine Production in Kosovo

###### Bedri Dragusha

Viticulture is one of the most important agriculture fields in Kosovo. Relics, artifacts and other findings show that the cultivation of the vine and wine production in Kosovo dates too early even before our era. Many indigenous varieties of these areas have served as base material - genetic creating new varieties - existing. During this lecture participants were informed about cultivation of grapes in Kosovo (in more recent times), on a scientific basis started with regionalization of viticulture of Kosovo according to climatic conditions (1974). Based on the regionalization Kosovo is a region vineyard with two sub regions and some areas of viticulture. Orahovac is best known vineyard area where the largest area of vineyards and several cellars for wine production, among which the basement "stone castle" and "Old cellar - Haxhijaha" are present in this region. Some of this regions and vineries the students will visit and brief introduction will be presented to them. The varietal structure in Kosovo which is dominated by diverse varieties for wine (about 75%) and those for the table (with 25%), while regarding the color red varieties dominates with 65% and the white with 35% were discussed. Apart

from indigenous varieties such as Vranac, Prokupac, etc. there are also those originating from Western European Countries like: Chardonnay, Riesling, Cabernet, Merlot, Muscat Hamburg, Cardinal, etc. The quality of grapes and wines of Kosovo is very high, so Kosovo wines are exported not only in neighboring countries but also in a wider game of other countries of Western Europe, America, Canada, Australia, Japan, etc.

### Mechanization in pomology and viticulture and spraying equipment

#### Mentor Thaqi

Mechanization in pomology and viticulture enhances productivity, besides reducing human labor and cost of cultivation. Mechanization also helps in improving utilization efficiency of other inputs, safety and comfort of the agricultural worker, improvements in the quality and value addition of the produce. The use of agrochemicals for the control of pests and weeds has been seen as another form of mechanized operation that plays major role in the enhancement of sustainable food production. Type of pest controlled, Pesticide chemistry, Mode of action, Pesticide formulation, and pesticide application techniques were presented. The Pesticide Application Equipment's were also presented such as Granular spreaders, Small-capacity sprayers, Hydraulic sprayers and Air blast sprayers. Suggestions for proper spraying were presented and calibration of sprayers to get the right amount of product on the weed, insect, or fungi that are targeted, and to prevent over applying chemical that can escape into the environment. Also was presented the flexibility to configure the volume by being selective of speed, pressure, and nozzle size.

## PART II:

### Plant protection in Integrated Pest Management of Fruit trees and Grapevine

#### Main pests of Pome Fruits (Apple, Pear, etc.) in Kosovo

##### Fadil Musa

Fruit pests have the potential to cause significant economic losses in apple production. Even slightly damaged fruit reduces the yield, quality and market value. The codling moth, *Laspeyresia pomonella*, the oriental fruit moth, *Grapholitha molesta*, aphids, leafrollers of several species may be damaging to apples in Kosovo. Level of pest pressure varies considerably within the region. Some areas within the same region experience control difficulty with some species, like in Istok and Prishtina Municipality. Some of these pests like Codling moths feed on apples, pear, quince, peach, plum, and cherry, but in Kosovo they are primarily apple and pear pests. This lecture provided s theoretical and practical knowledge regarding the biology, spread, damages, forms and ways of wintering pests and their management measures in pome fruits. Through this course participants gained knowledge about crop damaging insects, for morphology, anatomy, physiology, ecology and biology of insect pests in general. In particular, it was explain how knowledge of pest biology will help farmers to protect crops they grow on their fields. Case studies were used to encourage discussion and help participants increase their ability to formulate a program of successful pest management.

#### Grapevine, raspberry and strawberry pests in Kosovo

##### Fadil Musa

During the lecture participants were acquainted with the types of pests that affect grape vines, raspberries and strawberry cultivated in Kosovo. A brief introduction

## Harmonization of LL in ADA Region

regarding the morphology, biology, overwintering and development cycle of major pests which are prevalent in Kosovo agro production conditions was presented. Pests that affect these crops are of different orders, such as Lepidoptera, Coleoptera, Diptera, Hymenoptera, etc. The pest from those groups affects these crops throughout the vegetation period causing considerable damage in terms of the yield and quality as well. Participants were introduced with the manners of suspresing them and maintaining these pests under control through the use of different methods such as agro-mechanical, physical, biological and chemical.

## Main diseases of Pome Fruits (Apple, Pear, etc.) in Kosovo

Fadil Musa

Several infectious disease agents (biotic pathogens such as fungi, bacteria, viruses, nematodes, and mycoplasmas) and non-infectious factors (abiotic factors such as temperature, moisture, nutrients, soil conditions, and chemicals) can cause diseases on apple trees. Disease severity is dependent on the susceptibility of the host, the aggressiveness of the pathogen, and the environment. Cultural management of the host also plays an important role in the severity of disease. Factors influencing the susceptibility of the apple trees include genetic tolerance, tree maturity, vigor (degree of stress), and planting density. Most infectious microorganisms go through a life cycle that includes a period of dormancy. During this period, the organism cannot cause disease. When the pathogen is not dormant, other factors such as its natural state of virulence (aggressiveness) and population density will influence disease severity. Environmental conditions play a key role in disease outbreaks. Disease is most severe when the environment is ideal for infection and disease development. This course aims to provide to participants theoretical and practical knowledge regarding the biology, spread, damages, forms and ways of wintering pathogens and their management measures in pome fruits. Through this lecture participants gained knowledge about crop damaging pathogens and life cycles of pathogens in general. Case studies were used to encourage discussion and help participants increase their ability to formulate a program of successful disease management.

## Grape vine, Raspberry and Strawberry diseases in Kosovo

Fadil Musa

The grape, raspberry and strawberry are being cultivated in large scale in Kosovo. At all of development stages these crops are being affected by various pathogens that cause different forms of substantial damage in productivity and quality. In order to reduce losses from these pathogens there were often used improper means and ways of protection followed with fungicides and their unprofessional application. During this lecture the main plant parasitic pathogens and symptoms of damages of these agriculture crops were presented. Also, acceptable pathogen control measures like Cultural practices (crop rotation, tillage, planting date adjustment and planting resistant and tolerant varieties), Physical and mechanical control measures, Biological measures and last alternative the use of plant protection products (fungicides) were explained. It is important for growers to be able to recognize the major diseases of grapes, raspberry and strawberry. Proper disease identification is critical to making the correct disease management decisions. In addition, growers should develop a basic understanding of pathogen biology and disease cycles for the major bramble diseases.

**Integrated weed management in vineyards and orchards****Arben Mehmeti**

Weeds are one of the main problems in agriculture production. They are widespread and cause losses to agriculture. In some cases farmers alike often underestimate their effects. This lecture focuses specifically on integrated weed management in vineyards and orchards. Integrated weed management (IWM) is the control of weeds through a long-term management approach, using several weed management techniques such as: cultural, physical, biological and chemical. In this lecture the main methods to control the weeds were presented. Moreover, also is included ecologically acceptable weed control measures will be presented as follows: cultural practices: crop rotation, tillage, planting date adjustment and planting resistant and tolerant varieties; physical control measures: soil solarisation, thermal sterilization of the soil, flame (using gases). Biocontrol agents for weeds (animals, insects and disease). Chemical measures for the control will include conventional use of herbicides and the possibility of applying herbicides acceptable from the ecological aspect and importance of weed resistance. Case studies were used to encourage discussion and help participants increase their ability to formulate a program of successful integrated weed management.

**Importance of plant protection products in vineyards and orchards****Adem Demaj**

The aim of course was to recognize the major groups of pesticides according to chemical classification. Attendants of this course were acquainted with the action mechanisms of various groups of pesticides in agro ecosystems. Recognize the main principles and ways of their transformation based on their active substances. This knowledge contributed to a better understanding of the action and the rational use of pesticides in vineyards and orchards. This will enable the synthesis through recognition and knowledge of earlier and recognized principles of metabolism and action of pesticides in air, water, land, plants, animals and the environment impact. Also to be familiar with basic principles of the main groups of pesticides transformation as a basis for their rational use and risk prediction. Case studies were used to encourage discussion and help participants increase their ability to formulate a program of successful pesticide use.

**PART III:****Marketing and Management in Pomology and Viticulture****IPM (Basics, elements and strategies (IPM))****Fadil Musa**

Integrated pest management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment. The aim of this course was to introduce to the students the main components and principles of Integrated Pest management as well as the tools, threshold level and economic injury level.



### IPM (Apple IPM presentation)

Fadil Musa

Farmers who grow apples at home have to combat many insect pests and diseases to produce a good crop. Many apple growers reduce their use of pesticides, while still harvesting quality fruit, through a set of practices known as Integrated Pest Management (IPM). The participants were informed that IPM includes a combination of pest management techniques including monitoring for pest problems, removing diseased or infested plant material from the area, and many other cultural control techniques. Pesticide sprays are used in IPM only when necessary, and gardeners may choose from conventional or organic spray options. In order for IPM to be effective, home apple growers must be able to recognize the common pests of apples and the damage they cause. They need to coordinate their pest management actions with weather, tree growth stages, and pest life cycles. If pesticides are necessary, always use them exactly as labeled. For the participants there was introduced that an IPM approach assumes that good care is being taken of the apple trees. Good cultural practices—including site selection, variety and rootstock selection, proper planting, pruning, training, fruit thinning, irrigation, and harvest timing—all contribute to a satisfying harvest each year. In particular, well pruned trees allow for increased access to the tree canopy, making pest management tasks such as bagging fruit, monitoring diseases, placing traps, and applying pesticides easier and more successful.

### Farm Management-Farm gross margins

Mujë Gjonbalaj & Iliriana Miftari

Students were introduced with Farm Gross Margins as a tool for comparing the performance of farms that have similar requirements for capital and labor. A gross margin refers to the total income derived from a farm less the variable costs incurred in the farm. The examples given should only be used to assist in calculating gross margins for a specific case, with costs, prices and management assumptions being changed accordingly. Generally the gross margins for any agricultural crop are determined by deducting variable costs from the gross farm income of a given crop for a given period of time (usually per year or per cropping season). They are not a measure of farm profit as they do not include capital (land, buildings, machinery, irrigation equipment etc.) or fixed costs (building and machinery depreciation, administration, insurance, rates, taxes etc.). However, they do provide a useful tool in terms of farm management, budgeting and estimating the likely returns or losses of a particular crop. Students were introduced with the methodology of calculating gross margins, determining farm income and expenses, growing expense, harvesting and packaging expenses, how can gross margin be used, case studies of gross margin analysis of tomato, apple and grape producers in Kosovo.

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Some insights and photos from summer school in Prishtina:



Nice structure and time schedule!  
Appropriate amount of lectures and field trips.

Everything was well organized. Professors were really friendly. I liked this international experience, chance to meet people from other countries and cultures.

Excellent job. Keep the good work on and you're gonna have a lot of summer schools to come. I would recommend this school to everyone interested in this area of intrests.

### 3. Curriculum review by EU partners



Funded by the European Union



### 3. Curriculum review by EU partners

#### **Summer school curriculums review and suggestions for possible improvements**

**Marija Klopčič<sup>1</sup>, Maria Gerster-Bentaya<sup>2</sup>, Angelika Thomas<sup>2</sup>,  
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## Harmonization of LL in ADA Region



Lifelong learning for sustainable agriculture in Alps-Danube-Adriatic Region – LifeADA is a TEMPUS IV project funded with the support of the European Union. Project Number – 544595 – TEMPUS – 1 – 2013 – 1 – HR – TEMPUS – JPHES.

Regional LLL strategies and Curricula packages of Summer Schools were analysed for 8 partners of LifeADA :

P1- UNIZG:	University of Zagreb, Faculty of Agriculture, Croatia
P2-UNOS:	Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Croatia
P6-UNKO:	University "Fan S. Noli", Faculty of Agriculture, Korça, Albania
P7-AUT:	University of Tirana, Faculty of Agriculture and Environment, Albania
P8-SVEMO:	University of Mostar, Faculty of Agriculture and Food Technology, Bosnia and Herzegovina
P9-UNSA:	University of Sarajevo, Faculty of Agriculture and Food Science, Bosnia and Herzegovina
P10-UP:	University of Prishtina, Faculty of Agriculture and Veterinary, Kosovo
P11-UOM:	University of Montenegro, Biotechnical Faculty, Podgorica, Montenegro

### Methodology which was used:

- Approach: **competency**-based curriculum
- Definition and application of criteria
  - 3 types of competencies
  - Working approach

When we discussed about competences, we have to know **what is competence** :

- Competence indicates the **ability to apply** learning outcomes adequately in a defined context (education, work, personal or professional development).
- Competence is not limited to cognitive elements (involving the use of theory, concepts or tacit knowledge); it also encompasses functional aspects (involving technical skills) as well as interpersonal attributes (e.g. social or organizational skills) and ethical values. (CEDEFOP 2011).

Competences can be domain-specific, e.g. relating to knowledge, skills and attitudes within one specific subject or discipline, or general/transversal because they have relevance to all domains/subjects. In some contexts the term 'skills' (in a broader sense) is sometimes used as an equivalent of 'competences'.

*Competency*-based curriculum means:

- Emphasize on the complex outcomes of a learning process:
- knowledge, skills and attitudes to be applied by learners
- **Thus:** learner-centred and adaptive to the changing needs of students, teachers and society.

- Learning activities and environments are chosen so that learners can acquire **and apply** the knowledge, skills and attitudes to situations they encounter in everyday life.
- **Competency-based curricula** are usually designed around a set of key competences/competencies that can be cross-curricular and/or subject-bound.

Regarding UNESCO definition, we know **3 types of competences**:

- Knowledge (cognitive elements):
  - use of theory, concepts or tacit knowledge
- Skills / functional aspects (e.g. technical skills)
- Attitudes
  - interpersonal attributes (e.g. social or organizational skills) and
  - ethical values

In the frame of Life Long Learning (LL) programme, we use **key competences (EU)** where the Reference Framework sets out eight key competences:

1. Communication in the mother tongue;
2. Communication in foreign languages;
3. Mathematical competence and basic competences in science and technology;
4. Digital competence / ICT competences;
5. Learning to learn;
6. Social and civic competences;
7. Sense of initiative and entrepreneurship;
8. Cultural awareness and expression.

As part of **working procedure** we use:

1. Determination of criteria
2. Excel-Table, entering respective info of curricula following the structure along the criteria
3. Comparison with competency-based curricula recommendations:
  - Structure /elements of a curriculum → formal aspects, completion (have the criteria / elements been met?)
  - Content: How well have the criteria / elements been met? (emphasis: formulation of learning objectives, learning methods, workload)
4. Deducing / identifying questions, remarks, suggestions

### P1-UNIZG:

### Organic Agriculture: From Field to Fork – ORGANIC F2F

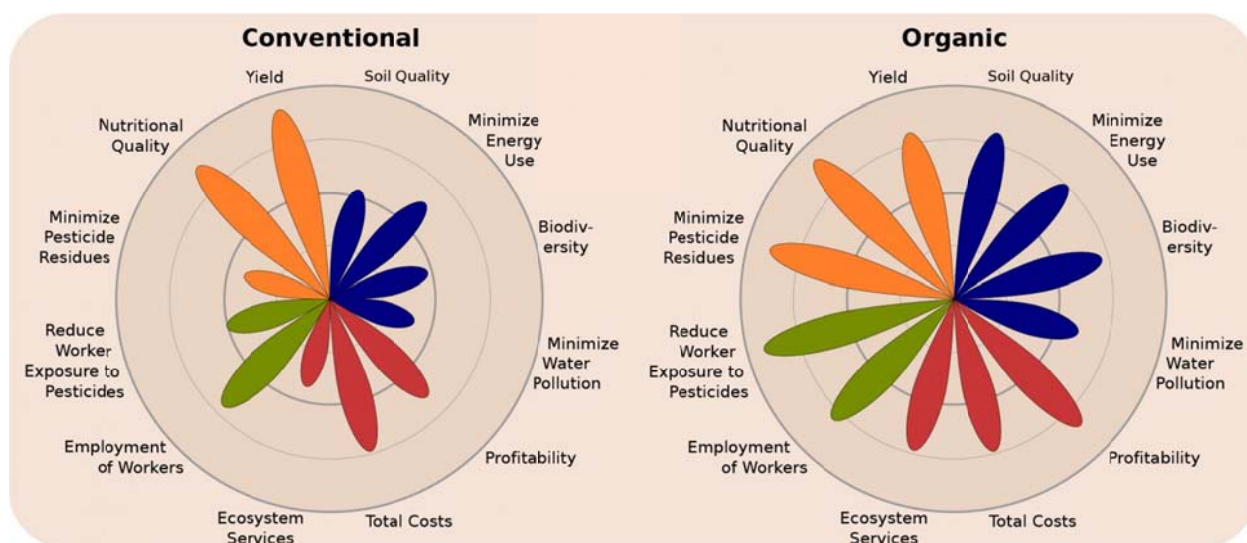
- Location: Zagreb, Croatia
- Date: June 27 – July 15, 2016

#### Curriculum review

- Duration: 15 days
- Number of ECTS credits: 3 ECTS
- Participants: 29 teachers & 17 students
- Realisation: 54 lectures
- **Content** divided in 3 parts:
  - Organic agriculture (4 days)
  - Marketing and Management in Organic agriculture (4 days)
  - Plant Protection Measures in Organic agriculture (4 days)
- Working methods: lectures (mainly), Students' presentation of the state-of-the-art of organic agriculture in their countries (2 hours), field excursions (2 day), Student individual work: short seminar (PPT) + written exam (2 days)
- Some topics very specific / some topics missing (e.g. legislation, animal production, quality of products, perception of consumers...)

#### Suggestion for future

- The content of program has to be adapted to the students / participants basic knowledge / skills and their interest
- To improve the structure of lectures: From Field to Fork
  - State of the art (Organic agriculture)
  - To include legislation part related to organic agriculture
  - To include animal production as part of organic closed cycle
  - To include Quality of products & Consumers part of organic products
- Finding a Balance of Learning Methods





**P2-UNOS:****Management of non-agricultural activities**

- Location: Osijek, Croatia
- Date: June 1 – June 14, 2016

**Curriculum review**

- Duration: 10 days
- Number of ECTS credits: 10 ECTS
- Participants: 13 teachers & 9 participants
- **Content:**
  - Business network & Protection of agr. prod. (1 day)
  - Development of products and services in rural areas (2 days)
  - Quality management and standardization (2 days)
  - Marketing plan & Diversification of rural activities (1 day)
  - Case studies by special guests (1 day)
  - Pricing product and services / Social business in local community (1 day)
  - Field trip (2 days)
- Working methods: lectures (7 days), Case studies by special guest (1 day), field excursion (2 days)
- **Missing topics:** definition and type of non-agricultural activities, legislation, limitations, needs, skills, public perception, Rural Development Programme(s) possibilities to non-agricultural activities

**Suggestion for future**

- Program has to be adapted to the group of students / participants regarding their interest(s) and/or type of non-agricultural activity(ies)
- To improve the content of lectures: **Management of non-agricultural activities**
  - What is „non-agricultural activity“
  - Why these activities are important for rural area(s)?
  - To include legislation part
  - Which skills do you need for successful management of non-agricultural activity?
  - How Rural Development Programme can help? Which measurements?
  - SWOT analysis including Investment and Strategic plan
- Finding a Balance of Learning Methods: theory – case studies – field trips – SWOT analysis of successful and less-successful cases – critical factors (money – labour – knowledge/skills – customers – location – quality.....)



### P6-UNKO:

### Postharvest technology and marketing of fresh fruit

- Location: Korça, Albania
- Date: September 5 – September 16, 2016

#### Curriculum review

- Duration: 10 days ,
- Number of ECTS credits: 4 ECTS
- Participants: 4 teachers & 11 students
- **Content:**
  - Marketing of agricultural products (1 day)
  - The adoption process for agr. products & Branding of local products (2 days)
  - Managing of value chain of agricultural products (1,5 days)
  - Case studies for logistics for post harvest apple productions (0,5 day)
  - Post-harvest technology (1,5 days)
  - Commercial Norms for fresh fruit and vegetables (0,5 day)
  - Cooling commodities (1 day)
  - Preparation of products for market & Consumer demands on product quality
  - Standardization of product-quality
- Working methods: lectures (9 days), Control test & Certificate award (1 day),
- **Missing topics:** practical part / good farming practices / case studies, practice with organic fruits / new ways of marketing of fresh fruit

#### Suggestion for future

- Program has to be more focus on the topic and adapted to the interest of students / participants!
- To improve the content of lectures: **Postharvest technology and marketing of fresh fruit**
  - More clear structure of lectures:
    - Postharvest from field till shop / till table of consumer
    - Marketing and Consumption of fresh fruit
  - It can be divided to two separate lectures
  - To add part related to organic fruits
  - To add consumer opinion related to postharvest technology – question of traceability – what happened with fruits from orchard till consumer table?
  - How can we reduce waste on all fruit chain?
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part



**P7-AUT:****Evaluation of immovable property for agriculture land, forest land, pasture and unproductive lands**

- Location: Tirana, Albania
- Date: June 6 – July 3, 2016

**Curriculum review**

- Duration: 21 days
- Number of ECTS credits: 8 ECTS
- Participants: 8 teachers & 11 students
- **Content:**
  - Soil and its fertility
  - The Legal and environmental aspects of land in (Albania)
  - Assessment of forest lands, pastures, meadows and unproductive lands
  - Principles of the agricultural Land evaluation and management
  - Field trips: 1<sup>st</sup> day: method of property evaluation / 2<sup>nd</sup> day: method of property evaluation
- Working methods: lectures (17 days), field trips (2 days), Control test & Certificate award (1 day),
- **Missing topics:** legal part, not only Albanian case, Land and Property Taxation

**Suggestion for future**

- In the case of International Summer Schools the Program can not be limited only to Albanian case!
- To improve the content of lectures: [Evaluation of immovable property for agriculture land, forest land, pasture and unproductive lands](#)
  - To include legal part of other countries / EU legislation
  - To compare diferent methods of evaluation of immovable property for agriculture land
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part



### P8-SVEMO:

### Autochthonous (indigenous) dairy products

- Location: Mostar, Bosnia and Herzegovina
- Date: July 4<sup>th</sup> – July 15<sup>th</sup>, 2016

### Curriculum review

- Duration: 11 days
- Number of ECTS credits: 5 ECTS
- Participants: 3 teachers & 11 students
- **Content:**
  - The development and quality of autochthonous dairy production in BiH
  - Cheese production (from cow, sheep, goat milk)
  - Presentation of different cheeses from BiH
  - Cheese whey
  - Sensory analysis
  - Quality schemes (PDO/PGI) / National systems of protection of origin in BiH
  - Legislation
- Working methods: lectures (8 days), field trip (1 day), Student individual work: short seminar (PPT) + written exam + Certificate award (2 days)
- **Missing topics:** not only BiH cases, Practical part

### Suggestion for future

- In the case of International Summer Schools the Program can not be limited only to BiH cases!
- To improve the content of lectures: [Autochthonous \(indigenous\) dairy products](#)
  - First to change / adapt title of this lecture to „Dairy products from Autochthonous (indigenous) breeds“ or to „Local (traditional) dairy products“
  - Basic criteria for quality of milk to produce different type of cheese
  - Basic criteria for processing milk on farm level (hygienic / sanitaria conditions related to the place / equipment / HACCP
  - EU Quality Schemes + Certification of PDO / PGI products
  - To add part of marketing and promotion for local / traditional / protected dairy products
  - To add consumers perception related to such type of products
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part (cheese making) – sensory analysis (methods + practical part) – tasting of different cheeses



**P9-UNSA:****Beekeeping: Preserving our future**

- Location: Sarajevo, Bosnia and Herzegovina
- Date: September 4<sup>th</sup> – September 23<sup>th</sup>, 2016

**Curriculum review**

- Duration: 14 days
- Number of ECTS credits: 6 ECTS
- Participants: 22 teachers & 13 students
- **Content:**
  - Anatomy, physiology and development of bee colonies,
  - Use of modern beekeeping techniques,
  - Use the basic technology of production, packing, storage and transport of bee products: – Production of honey-based products
  - Relationship with other agricultural production (fruit, crop production) – Honey plants for bees
  - Organic production of honey plants
  - The physical-chemical parameters of quality of bee products
  - Diseases of honey bees / The principles of Honeybee Genetics
  - Legislation – the quality standards in beekeeping, labeling of products
  - Business management of beekeeping & Market Strategy
- Working methods: Lectures, Exercises, Practical work, field trip (1 day), Student individual work: short seminar (PPT) + written exam + Certificate award (2 days)
- **Missing topics:** more practical work / exchange of good beekeepers practices

**Suggestion for future**

- Too many topics for 14 days
- To improve the content of lectures: [Beekeeping: Preserving our future](#)
  - To focus on the most important topics related to the title of lecture
  - To include more practical work
  - To include sensory analysis / methods to check origin of honey
  - Honey as part of Quality schemes: PDO / Organic / Mountain honey
  - To present innovations in beekeeping – especially related to the products on the base of honey
  - To express added value of beekeeping regarding environment – biodiversity – economy – food production – tourism – health / api-tourism
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part (work in apiary) – sensory analysis of honey (methods + practical part) – tasting of different honey
- 





### P10-UP:

### Integrated Production of Fruit trees and Grapevine

- Location: Pristina, Kosovo
- Date: September 4<sup>th</sup> – September 24<sup>th</sup>, 2016

#### Curriculum review

- Duration: 15 days
- Number of ECTS credits: 10 ECTS
- Participants: 7 teachers & 5 students
- **Content:**
  - Pomology and Viticulture
  - Plant protection in Integrated Managements of Fruit and Grape vine
  - Marketing and Management in Pomology and Viticulture
    - Integrated Pest Management (IPM)
    - Agro-economy
- Working methods: Lectures (10 days), Practical work, field trip (3 days), Student individual work: short seminar (PPT) + written exam + Certificate award (2 days)
- **Missing topics:** practical work in the field / exchange of good farming practices

#### Suggestion for future

- To improve the content of lectures: Integrated Production of Fruit trees and Grapevine
  - To include more practical work
  - To exchange good farming practices
  - Innovation in production of fruit trees and grapevine
  - Genetic resources of fruit trees and grapevine
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part (work on the field)



## P11-UOM

## Grapevine growing

- Location: Podgorica, Montenegro
- When: June 27<sup>th</sup> – July 8<sup>th</sup>, 2016

## Curriculum review

- Duration: 10 days
- Number of ECTS credits: 6 ECTS
- Participants: 12 teachers & 9 students
- Content:
  - Ampelographic, agrobiological and technological characteristics of *Vitis vinifera*
  - Soil water balance calculation & Soil fertility
  - Production of wine / Wine quality parameters
  - Sensory evaluation assessment and characteristics of wines
  - Techniques for degustation of wine
  - Forecasting of grapevine diseases & Disease control in conventional / organic production
  - Cost calculations / Market and marketing / Sales channels / SWOT analysis
- Working methods: Lectures (8 days), Field trip (1 day), Student individual work: PPT + Written exam + Certificate award (1 day)
- **Missing topics:** practical work in the field / exchange of good farming practices

## Suggestion for future

- To improve the content of lectures: [Grapevine growing](#)
  - To include more practical work
  - To exchange good farming practices
  - Innovation in grapevine growing
  - Collaboration and Sensory analysis with oenolog
  - Tasting with professional sommelier
- Finding a Balance of Learning Methods: theory – case studies – field trips – practical part (work on the field)





### Feedback on curricula

During our work and analysis of Summer School curricula some questions, remarks and unclear issues come out:

- Influence / impact of didactic trainings on the courses?
- ECTS / workload:
  - Quite high diversity of ECTS with similar workload
  - workload and its calculation not mentioned
  - (Often) only presence hours are calculated (AUT)
- Involvement of students not always clear (seminar, colloquium, students assignment → in how far is it part of the grading? How much time for this? Individual or in groups?)
- Are students future target groups? Examples from the didactic training also were addressed to farmers / people who exercise a profession already) → additional course descriptions of AUT
- Few information on methods
- Literature / bibliography is given in a few curricula (not all)
- Formulation of module objectives and learning outcomes
  - Rather activities than objectives
  - No / few difference between learning objectives and learning outcomes
  - In general: focus on knowledge, less on skills, non on attitudes/values
- No key competences mentioned
- Inconsistencies
  - Titles of curriculum description and information package are different (ex AUT,
  - Objectives are defined differently for the same program in different documents

### Suggestions for regional guidelines

Points that could be added

- Enlarge part on curriculum elements (2.2.3) and specify different types of learning outcomes and thus learning objectives
- Include also key competences (competences independent from the technical content

### Conclusions among EU partners

- Draft curriculum as template for all partners recommended
- Duration vs. workload vs. ECTS
- Definition of target group(s)
- Admission requirements (Qualification of target group)
- International school → language limitation of target groups and lecturers
- Learning outcomes and assessment of LO (presentation, colloquium: criteria of knowledge examination)
- Didactic aspects of experts in relation to target group
- Practice of different teaching methods
- Teaching material availability
- Quality management of training
- Tuition fees should be discussed

### Conclusions and suggestions for improvement

#### ECTS workload

The summerschools differ a lot in duration versus ECTS. Because of this fact they are not fully comparable for students.

ECTS and workload conversion is defined by the Bologna process. It is the credit system for higher education used in the European Higher Education Area, involving all countries engaged in the Bologna Process.

In the ECTS user Guide (EU), 2009, 1 ECTS is defined with 25 to 30 hours of workload for the student.

For better comparability it is recommended to adjust the ECTS and corresponding workload as recommended in the ECTS user Guide (EU), 2009. This would lead as well to the possibility of transferring ECTS from one programme to another.

#### Duration and implementation of summerschools

When setting starting dates and durations of summerschools it should be kept in mind, that students are very busy for example in June, because at these times most of the final exams take place. Durations from 3 weeks onwards are not easily filled with participants, even in the time between terms (holidays), due to summerjobs or other obligations, such like traineeships.

#### Draft curriculum/similar curricula

Summerschool curricula varied a lot. Although most of the time the important points of the curriculum like

- Qualification profile
- Admission requirements/target group
- Programme structure/workload
- Courses/Modules
- Examination regulation
- Learning Outcomes

## Harmonization of LL in ADA Region

were met, in some cases some of those were missing. It is important for participants to know, what they attend, what they will learn, what the admission requirements are and how long the programme will be.

If programmes must be cost-covering and there is a tuition fee, the participant should easily know how much this fee is.

### Language

The teaching language depends highly on the target group. In this case, as the target groups were international students, all summerschools were held in English. There are some limitations in language skills, on which could be worked. English courses for teachers and students should be offered at universities.

### Didactic aspects

Didactics should rely on the target group. Different teaching methods should be chosen. Theory and practice should complement each other through the learning process. Practice of different teaching methods will show the teachers, which method is best for which target group.

The availability of teaching material before the start of the programme will give students the opportunity to get an overview before. Possible existing weaknesses can be eliminated beforehand.

## 4. Student questionnaires evaluation by Evaluation Board

Evaluation Board (EB) was established at the beginning of the project. It was composed of 11 experts in quality control and monitoring. The experts were staff members from EU and Partner countries, but they must not be involved neither in any other Working Group nor in any other activity of the project.

### Evaluation board coordinator

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UP	Shukri Fetahu	shukri.fetahu@uni-pr.edu
UoM	Slavko Mirecki	slami@t-com.me

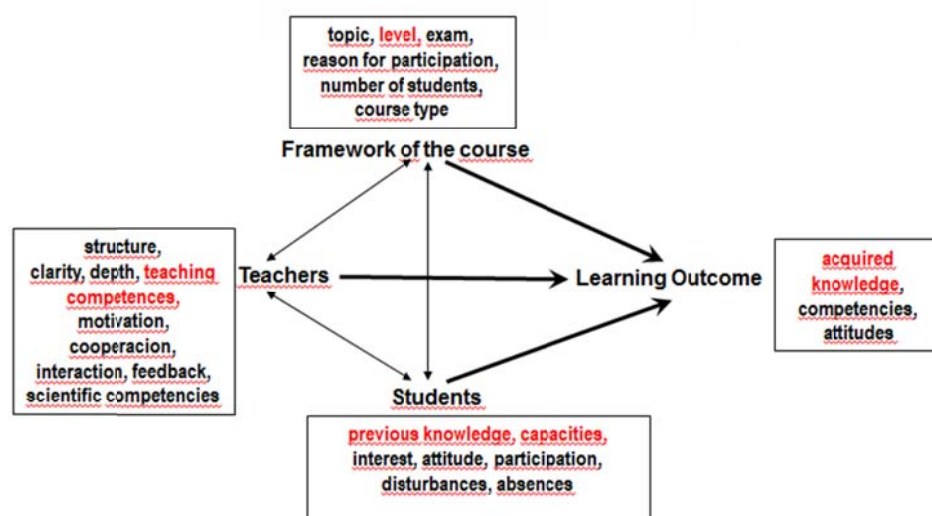
To ensure a routinely quality control and monitoring of the pilot activities, the EB set up methodologies, criteria and specified objectively verifiable performance indicators.

### Main characteristics of University Continuing Education (UCE)

UCE has to be based on needs	These needs have to be defined well in advance before developing a programme.
UCE may respond to immediate, observable needs or problems	E.g. integrated pest management, bee population decrease, precision agriculture → big data, new market regulations, changes in legislation at national or European level.
The target group has to be defined/specified well	Skills, knowledge, experiences, background, competencies etc. UCE for alumni or also for professionals, experts from other fields.
The setting of UCE programmes is often different	Specially designed programmes or Lectures, seminars, workshops or Specifically designed trainings.
The duration and the workload may vary a lot	Different timing is necessary and many participants are working: Classes in the morning, evening, weekends, intensive, extensive.
Formal aspects	Officially recognized trainings with ECTS, diploma/title, probably accreditation required. Trainings with no formal assessment, no ECTS, internal approval, no accreditation, certificate of attendance.
Curriculum/contents	The participants of UCE request practical relevance of the contents. In some UCE programmes there will be more emphasis on skills whereas knowledge is still important. It has to be clarified why theory is important in UCE. Theory shall be considered as far as it is needed in order to understand and to deal with practical problems. In UCE there is the possibility to transfer knowledge from university/research into the practical field/industry/society on the one hand and on the other hand there is also the possibility to generate new ideas for research. UCE shall have a tangible/immediate outcome.
Teaching and learning	It may be necessary to have instruments to balance heterogeneous participant groups (observable problems, selection of appropriate trainers, teaching approach). The traditional role of a teacher may change; teachers become more and more moderators of a learning process with participants who bring in their expertise and experiences. The forms of assessment may differ from traditional academic education, e.g. more group work, more projects. The selection of teachers is crucial Internal teachers: theories, research methods, interdisciplinarity, have to have the “big picture”. It may be recommendable to have a combination of teachers from different departments/faculties. External teachers shall be experts from the field (e.g. industry, public area, NGOs, consultants).

## 4.

## Student questionnaires evaluation by Evaluation Board



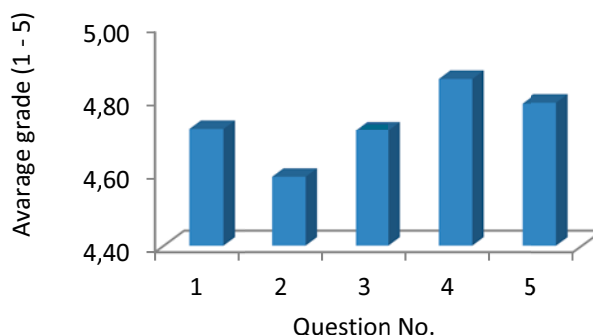
Adapted according to Rindemann (2001), p. 64

EB created a questionnaire for a quality assessment of pilot activities curriculum and analysis of the participants satisfaction related to the results achieved by the pilot activities (supplement 1).

## Results on student questionnaires

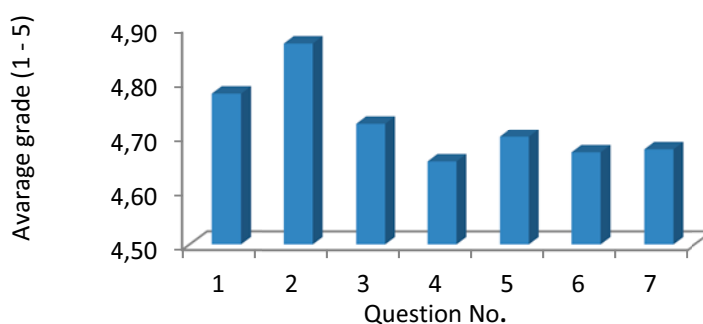
Title of the summer school	Date	Host institution	Place	No. of participants
Management of non-agricultural activities	June 1 – 14, 2016	UNIOS	Osijek, Croatia	9
Evaluation of immovable property for agricultural land, forest land, pastures and unproductive land	June 6 – July 3, 2016	AUT	Tirana, Albania	11
Organic agriculture: From Field to Fork	June 27 – July 15, 2016	UNIZG	Zagreb, Croatia	17
Grapevine growing	June 27 – July 8, 2016	UoM	Podgorica, Montenegro	9
Autochthonous dairy products	July 4 – 15, 2016	SVEMO	Mostar, Bosnia and Herzegovina	11
Beekeeping: Preserving oir future	September 4 – 19, 2016	UNSA	Sarajevo, Bosnia and Herzegovina	13
Integrated Production of Fruit Trees and Grapevine	September 4 – 24, 2016	UP	Prishtina, Kosovo	5
Postharvest technology and marketing of fresh fruits	September 5 – 16, 2016	UNKO	Albania, Korca	11

**Results: Organisation of the Course**



Question No.	Text of the question
1	All <b>relevant information</b> on the course was always available on time and easily understandable (e.g. entry requirements, contents, schedule, fees)
2	The <b>timing</b> of the course (schedule, season, length..) was very well compatible with my job.
3	The <b>infrastructure</b> of this course (location of the training, classrooms, laboratory, and other infrastructure) is very good.
4	The <b>administrative support</b> was very good.
5	The <b>fee is appropriate</b> in respect to the benefit of the course (if applicable).

**Results: Quality I**

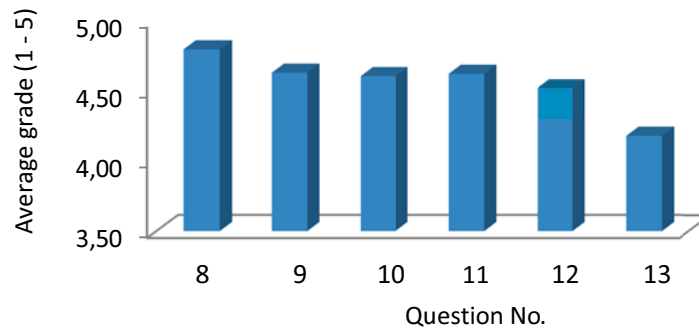


Question No.	Text of the question
1	The expertise and the <b>content-related competence</b> of the teacher was...
2	The teacher´s handling of <b>questions</b> and suggestions of participants was...
3	The teacher fosters the acquisition of competencies through <b>different teaching activities</b> (presentation, group work..)
4	The quality of the <b>learning material</b> was...
5	The course has an <b>interdisciplinary approach</b> .
6	The <b>transmission of the contents</b> through the teachers (clarity of explanations, vivid transmission, structure of the content) was...
7	The description of the requirements in respect to the final <b>thesis/project work</b> was



## Results:

## Quality II



Question No.	Text of the question
8	The <b>assessment</b> of the final thesis/project work (in respect to fairness, justification, traceability) was...
9	The <b>contents</b> of the course meet my expectations.
10	The curriculum is very <b>well structured</b> .
11	The <b>workload</b> is very appropriate.
12	The contents are highly <b>relevant</b> for my needs in the field/for my interests.
13	The <b>level</b> of the course was...

## Results:

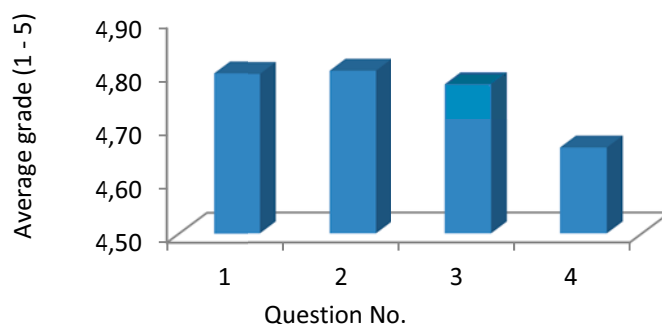
## Quality – general student comments

Positive	Negative
„Quality was high”	“Too many hours of presentations”
“Appropriate amount of lectures and field trips”	“Too many courses”
“Enough time to learn and do side activities”	—
“Mixture of both theoretical and practical approaches combined with excursions in the nearby places”	—



**Results:**

**Commitment of the teachers**



Question No.	Text of the question
1	The <b>preparation</b> of the teachers for the course was...
2	The <b>reaction</b> of teachers to feedback/criticism was...
3	The motivation of the teachers ( <b>enthusiasm</b> ) was...
4	The <b>support</b> concerning the final thesis/project work/individual courses through the teachers was...

**Results:**

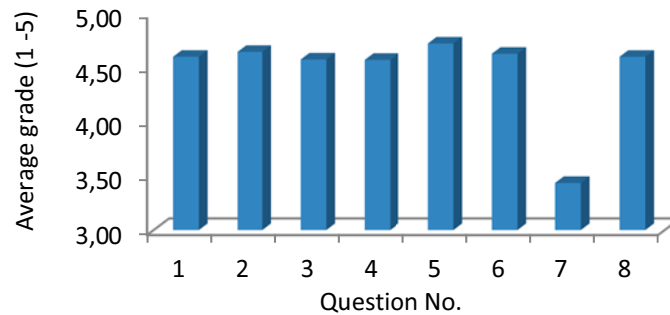
**Commitment of the teachers – general student comments**

Positive	Negative
“Kind, friendly, good preparation”	–
“Amazing teachers”	–
“Professors are willing to anser, help, repeat, show and demonstrate whatever is needed”	–
“The commitment of the teachers was great. Every day I felt so good”	–



## Results:

## Learning Success



Question No.	Text of the question
1	By attending the course I have achieved a profound <b>theoretical</b> knowledge.
2	By attending the course I have learnt <b>methods</b> (e.g. in order to carry out a survey, an experiment in the field or in the lab.)
3	The <b>theories</b> were put in relation to <b>practical problems/issues</b> .
4	A <b>link</b> between the contents of the course and research aspects was made by the teachers.
5	Through the <b>exchange of experiences</b> with other participants I have learnt a lot.
6	The learning outcomes were announced and all of them completely <b>achieved</b> .
7	The acquired knowledge and skills (theoretical and practical) will be very useful for my <b>job/future skills</b> .
8	<b>Learning outcomes</b> (1-4)

## Results:

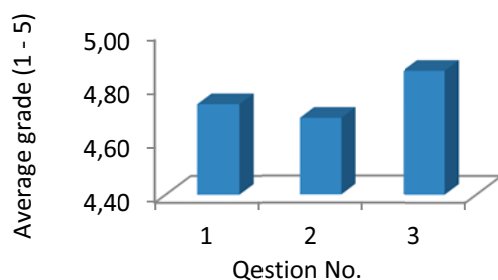
## Learning Success – general student comments

Positive	Negative
“Students have been free to ask questions of concern”	„More field work and more practical work“
“A constructive bridge among teachers and students has been always in place throughout the course”.	“I miss something about animal production”
“The course was very good and I think it will be very useful to all of us”	“Too much information”
	„More group work“.
	„More interaction between students and lecturers“



Results:

Overall Assessment

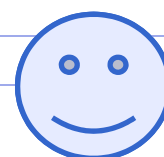


Question No.	Text of the question
1	If I summarize <b>all my impressions</b> of this course.
2	With my personal <b>learning success/learning</b> progress I am very satisfied.
3	I am all together <b>very satisfied</b> .

Results:

I strongly recommend this course – Student comments

Positive	Negative
“It fosters peace and intercultural dialogue among the Balkan countries and beyond”	–
“I learnt that science is not only lectures and work in the laboratory, it is also meeting other cultures and other people”	–
“For me, it is a new experience; I learn something new and meet interesting people”	–
“We all gained knowledge, mentors and friends”	–



5. Contribution and acknowledgements

## 5. Contribution and acknowledgements

Herby we would like to thank the European Union for support of this three year work within TEMPUS project Lifelong Learning for sustainable agriculture in Alps – Danube – Adriatic Region, Agreement number–2013–4592/001–001, Project reference number–544595–TEMPUS–1–2013–1–HR–TEMPUS–JPHEs. Also, we give our great gratitude to all people who contributed to this project in any way.



## Harmonization of LL in ADA Region

### Working group 1. Management

Partner institution	Project level	PI level (additional members)
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BOKU	Marija Zunaboviĉ	Gerhard Schleining
UHOH	Jochem Gieraths	Angelika Thomas
UL	Marija Klopĉiĉ	Silvester Źgur
UNKO	Iilir Niĉko	Irena Kallco Gjergij Mero Ardian Ćerava Kristaq Teneqexhi
AUT	Perparim Laze	Fatos Harizaj Ferdi Brahushi Etleva Jojic Ardian Maci Alban Ibraliu
SVEMO	Zrinka Knezoviĉ	Leona Puljiĉ Ana Sabljo Mirjana Miliĉeviĉ Jurica Primorac
UNSA	Nedžad Kariĉ	Milenko Blesiĉ Melisa Ljuša Mirha Āikiĉ Drena Gadžo Fuad Gaši
UP	Bedri Dragusha	Fadil Musa Mentor Thaqi Salih Salihu Mujë Gjonbalaj Sylë Sylanaj Nazim Merovci
UoM	Nedeljko Latinoviĉ Rada Miniĉ	Mirko Kneževiĉ Jelena Latinoviĉ Nataša Mirecki Aleksandra Despotoviĉ

Working group  
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Partner institution	Project level	PI level (additional members)
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BOKU	Marion Ramusch	Marija Zunabovic Thomas Guggenberger Gerhard Schleining Christina Paulus Andre R. Hackelberg Javier Lizasoain Arteaga
UHOH	Andrea Knierim	Jochem Gieraths Angelika Thomas Maria Gerster Bentaya Silke Grünewald Marisa Schroth Alexandra Fuß
UL	Marko Čepon	Drago Kompan Silvester Žgur Tina Jaklič Uršula Trček Tjaša Gerbic
UNKO	Gjergji Mero	Fehmi Xhemo Ardian Cerava
AUT	Ferdi Brahusi	Perparim Laze Anila Hoda Fatos Harizaj Lumturi Sena Elona Bahiti Ardian Maci
SVEMO	Leona Puljić	Predrag Ivanković Elma Sefo Nikolina Kajić Mladen Zovko Luka Bjeliš
UNSA	Melisa Ljuša	Sabrija Čadro
UP	Fadil Musa	Bedri Dragusha Skender Kaçiu Imer Rusinovci Edona Godeni
UoM	Mirko Knežević	Nedeljko Latinović Miloš Strunjaš Bogoljub Kandić



## Harmonization of LL in ADA Region

### Working group 3. Harmonization

Partner institution	Project level	PI level (additional members)
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UNIOS	Siniša Ozimec	Brigita Popović Boris Ravnjak
BOKU	Gerhard Schleining	Margarita Calderon-Peter Christina Paulus
UHOH	Angelika Thomas	Angelika Thomas
UL	Aleš Kuhar	Aleksandra Vranjek Rok Curhalek Uršula Trček Tjaša Gabrić
UNKO	Irena Kallco	Kristaq Teneqexhi Fehmi Xhemo Fatos Zerelli
AUT	Etleva Jojic	Fatos Harizaj Valdete Vorpsi Denis Cela
SVEMO	Mirjana Miličević	Predrag Ivanković Nikolina Kajić Leona Puljić
UNSA	Mirha Đikić	Sabrija Čadro Jasmin Grahić Teofil Gavrić
UP	Bedri Dragusha	Fadil Musa Sali Aliu Iliriana Miftari
UoM	Jelena Latinović	Miomir Jovanović Slavko Pešović Miljan Joksimović

Working group  
4. Development

Partner institution	Project level	PI level (additional members)
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UNIOS	Karolina Vrandečić	Ivan Plaščak Vlado Margeta Vlatka Rozman Maja Lucijanić Matea Dugandžić Mislav Đidara
BOKU	Marion Ramusch	Gerhard Schleining Margarita Calderon-Peter Christina Paulus Prof Gronauer
UHOH	Maria Gerster-Bentaya	Angelika Thomas
UL	Silvester Žgur	Marko Čepon Betka Čop
UNKO	Ardian Cerava	Ilir Ničko Gjergji Mero
AUT	Ardian Maci	Ferdi Brahushi Juljan Shehu Erta Dodona Najada Kadiasi Denis Cela
SVEMO	Ana Mandić	Mladen Zovko Radica Ćorić Stanko Ivanković Paulina Šaravanja Ivan Spužević
UNSA	Drena Gadžo	Mirza Uzunović Sabrija Čadro Lejla Spiljak Arnela Okić Jasmin Grahić Teofil Gavrić
UP	Mentor Thaqi	Bedri Dragusha Fadil Musa Jehona Shkodra
UoM	Nataša Mirecki	Aleksandra Despotović Jelena Latinović

### Working group 5. Implementation

Partner institution	Project level	PI level (additional members)
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BOKU	Marija Zunabovic	Gerhard Schleining Margarita Calderon-Peter Gospda Paulus Priof Gronauer
UHOH	Angelika Thomas	Maria Gerster-Bentaya
UL	Silvester Žgur	Marija Klopčič Luka Juvančič Rok Curhalek Anne Biermann Anita Ule
UNKO	Fatos Zerelli	Ilir Niçko Irena Kallço Kristaq Teneqexhi Ardian Çërava Aldona Minga
AUT	Alban Ibraliu	Fatbardh Sallaku Ilir Kristo Seit Shallari Ardian Maci Fran Gjoka Elvin Toromani Liri Miho Jolia Korita Denis Cela

**Working group**  
**5. Implementation**

SVEMO	Jurica Primorac	Višnja Vasilj Predrag Ivanković Ivan Spužević Elma Sefo Paulina Šaravanja
UNSA	Fuad Gaši	Drena Gadžo Mirha Đikić Milenko Blesić Mirsad Kurtović Nedžad Karić Sanja Oručević-Žuljević Nermina Spaho Aleksandra Nikolić Josip Jurković Mirza Uzunović Lejla Spiljak Arnela Okić Sabrija Čadro Jasmin Grahić Teofil Gavrić Sanel Haseljić Lejla Čengić
UP	Salih Salihu	Bedri Dragusha Fadil Musa Njazi Bytyqi student
UoM	Aleksandra Despotović	Miomir Jovanović Miljan Joksimović

Harmonization of LL in ADA Region



## 6. Supplements

### Supplement 1

#### Questionnaire for the final evaluation of University Education Courses

within TEMPUS project “Lifelong Learning for Sustainable Agriculture in Alps-Danube-Adriatic Region, LifeADA”, Project Number – 544595 – TEMPUS – 1 – 2013 – 1 – HR – TEMPUS – JPHES.

\*This questionnaire was created by the Evaluation Board in order to ensure quality control and monitoring of the pilot activities in accordance with set up methodologies, criteria and specified objectively verifiable performance indicators for quality assessment of pilot activities curriculum and analysis of the participants satisfaction.

**Host institution:**

**Summer school title:**

**Date:**

#### Organisation of the course

All relevant information on the course was always available on time and easily understandable (e.g. entry requirements, contents, schedule, fees)

5 = Totally agree  4  3  2  1 = Do not agree at all  Not applicable

The timing of the course (schedule, season, length..) was very well compatible with my job.

5 = Totally agree  4  3  2  1 = Do not agree at all

The infrastructure of this course (location of the training, classrooms, laboratory, other infrastructure) is very good.

5 = Totally agree  4  3  2  1 = Do not agree at all

The administrative support was very good.

5 = Totally agree  4  3  2  1 = Do not agree at all

## Harmonization of LL in ADA Region

The fee is appropriate in respect to the benefit of the course.

5 = Totally agree 4 3 2 1 = Do not agree at all

Please make suggestions if you think that the organisation of the course should be improved:

Free text

## Quality of the course

The expertise and the content-related competence of the teacher (Breadth and depth of competence, background knowledge, is the knowledge up to date?) was...

5 = Very good 4 3 2 1 = Not satisfactory

The teacher´s handling of questions and suggestions of the participants was...

5 = Very good 4 3 2 1 = Not satisfactory

The teacher fosters the acquisition of competencies through different teaching activities (presentation, group work..)

5 = Very good 4 3 2 1 = Not satisfactory

The quality of the learning material was...

5 = Very good 4 3 2 1 = Not satisfactory

The course has an interdisciplinary approach.

5 = Totally agree 4 3 2 1 = Do not agree at all

The transmission of the contents through the teachers (clarity of explanations, vivid transmission, structure of the content) was...

5 = Very good 4 3 2 1 = Not satisfactory

The description of the requirements in respect to the final thesis/project work was...

5 = Very good 4 3 2 1 = Not satisfactory



## Supplements

The assessment of the final thesis/project work (in respect to fairness, justification, traceability) was...

5 = Very good 4 3 2 1 = Not satisfactory

The contents of the course meet my expectations.

5 = Totally agree 4 3 2 1 = Do not agree at all

The curriculum is very well structured.

5 = Totally agree 4 3 2 1 = Do not agree at all

The workload is very appropriate.

5 = Totally agree 4 3 2 1 = Do not agree at all

The contents are highly relevant for my needs in the field/for my interests.

5 = Totally agree 4 3 2 1 = Do not agree at all

The level of the course was...

5 = Too high 4 3 2 1 = Too low

General comments in respect to the quality of the course:

Free text

## Commitment of the teachers

The preparation of the teachers for the course was...

5 = Very good 4 3 2 1 = Not satisfactory

The reaction of teachers to feedback/criticism was ...

5 = Very good 4 3 2 1 = Not satisfactory

## Harmonization of LL in ADA Region

The motivation of the teachers (enthusiasm) was...

5 = Very high 4 3 2 1 = Very low

The support concerning the final thesis/project work/individual courses through the teachers was ...

5 = Very good 4 3 2 1 = Not satisfactory

General comments in respect to the commitment of the teachers:

Free text

## Learning success/learning outcome

By attending the course I have achieved a profound theoretical knowledge.

5 = Totally agree 4 3 2 1 = Do not agree at all

By attending the course I have learnt methods (e.g. in order to carry out a survey, an experiment in the field or in the lab.)

5 = Totally agree 4 3 2 1 = Do not agree at all

The theories were put in relation to practical problems/issues.

5 = Totally agree 4 3 2 1 = Do not agree at all

A link between the contents of the course and research aspects was made by the teachers.

5 = Totally agree 4 3 2 1 = Do not agree at all

Through the exchange of experiences with other participants I have learnt a lot.

5 = Totally agree 4 3 2 1 = Do not agree at all

## The learning outcomes were announced and all of them completely achieved.

Learning outcome 1

5 = Totally agree 4 3 2 1 = Do not agree at all

## Supplements

Learning outcome 2

5 = Totally agree 4 3 2 1 = Do not agree at all

Learning outcome 3

5 = Totally agree 4 3 2 1 = Do not agree at all

The acquired knowledge and skills (theoretical and practical) will be very useful for my job.

5 = Totally agree 4 3 2 1 = Do not agree at all

General comments to the learning success in respect to this course:

Free text

## Overall assessment

If I summarize all my impressions of this course, I am all together ...

5 = Very satisfied 4 3 2 1 = Not satisfied at all

With my personal learning success/learning progress I am ...

5 = Very satisfied 4 3 2 1 = Not satisfied at all

I strongly recommend this course.

5 = Totally agree 4 3 2 1 = Do not agree at all

If so, give reason why or why not:

Free text

Overall comments to the whole course/further feedback to the UCE course:

Free text

## Supplement 2

The scientific paper entitled "Students Perceptions of Professors' Nonverbal and Verbal Communication at Agricultural Faculties in Slovenia, Croatia and Albania" was created by group of authors within TEMPUS project Lifelong Learning for sustainable agriculture in Alps – Danube – Adriatic Region, Agreement number–2013–4592/001–001, Project reference number–544595–TEMPUS–1–2013–1–HR–TEMPUS–JPHEs. The results were based on the student survey which was distributed among all partners. Most replies were collected from Slovenia, Croatia and Albania. The paper was published in Journal Didactica Slovenica - Pedagoška obzorja. 31

([http://www.pedagoska-obzorja.si/revija/Vsebine/PDF/DSPO\\_2016\\_31\\_01.pdf](http://www.pedagoska-obzorja.si/revija/Vsebine/PDF/DSPO_2016_31_01.pdf)).

### Title:

## **Students Perceptions of Professors' Nonverbal and Verbal Communication at Agricultural Faculties in Slovenia, Croatia and Albania**

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Izvirni znanstveni članek / Original scientific paper

**Marija Klopčič, Helena Virič Gasparič, Karmen Erjavec**

## **Students Perceptions of Professors' Nonverbal and Verbal Communication at Agricultural Faculties in Slovenia, Croatia and Albania**

### **Abstract**

Communication is a key factor in students' learning in higher education. Nonverbal and verbal immediacy communication is associated positively with the students' perception of effective teaching. This study attempts to extend the work on perceptions of professors' communication by investigating perceptions among students from Slovenia, Croatia and Albania, which have not been studied previously in relation to verbal and nonverbal immediacy communication. The aim is to identify similarities and differences in students' perceptions of how many agricultural professors from these countries use verbal and nonverbal immediacy communication. An online survey was conducted with students of agriculture faculties participating in the LifeADA project from Slovenia, Croatia, and Albania. The result reveals subtle cultural differences in the share of professors of agriculture in Slovenia, Croatia and Albania who are perceived to use nonverbal and verbal immediacy behaviours. Compared to Croatian and Slovenian students, Albanian students perceive that almost all of their professors use nonverbal immediacy communication and less verbal immediacy communication.

**Keywords:** verbal communication, nonverbal communication, immediacy, students, professors, agriculture, Slovenia, Croatia, Albania

## **Študentska percepcija neverbalne in verbalne komunikacije profesorjev kmetijskih fakultet iz Slovenije, Hrvaške in Albanije**

### **Povzetek**

Komuniciranje je ključen dejavnik učenja na visokošolski ravni. Neposredno neverbalno in verbalno komuniciranje je pozitivno povezano s študentskim zaznavanjem učinkovitega poučevanja. Ta študija skuša razširiti razumevanje neposrednega verbalnega in neverbalnega komuniciranja profesorjev s proučevanjem percepcije študentov iz Slovenije, Hrvaške in Albanije, ki je bilo v predhodnih študijah zanemarjeno. Cilj študije je ugotoviti podobnosti in razlike v študentskem zaznavanju obsega profesorjev, ki uporabljajo neposredno verbalno in neverbalno komunikacijo. Spletno anketo so izpolnjevali študenti kmetijskih fakultet vključenih v LifeADA projekt iz Slovenije, Hrvaške in Albanije. Rezultat razkriva subtilne kulturne razlike v deležu profesorjev iz teh istih kmetijskih fakultet v Sloveniji, Hrvaški in Albaniji, ki uporabljajo neposredno verbalno in neverbalno komunikacijo. V primerjavi s slovenskimi in hrvaškimi študenti albanski študenti ocenjujejo, da skoraj vsi njihovi profesorji uporabljajo neposredno neverbalno komunikacijo, manj pa neposredno verbalno komunikacijo.

**Ključne besede:** verbalna komunikacija, neverbalna komunikacija, neposrednost, študenti, profesorji, kmetijstvo, Slovenija, Hrvaška, Albanija

### 1. Introduction

Communication in higher education has been and will indeed constitute in the future a topic of interest and of significant contributions (Duta, 2015), since teaching and learning cannot occur without communication (Hurt et al., 1978). A considerable accumulation of evidence points to several types of communication which are associated with the perception of effective teaching (Mehrabian, 1971; Gorham, 1988; Pascarella and Terenzini, 1991; Nussbaum, 1992). Among them, nonverbal and verbal immediacy are the key ones (ibid.). The immediacy concept is based on the assumption that people are drawn toward persons and things they like, evaluate highly, and prefer; they avoid or move away from things they dislike, evaluate negatively, or do not prefer (Mehrabian, 1971). Andersen (1979) extends the immediacy concept to education and emphasizes that immediacy teachers communicate messages of approach and liking by signalling availability for communication, decreasing physical and psychological distance to students, increasing sensory stimulation, and conveying interpersonal warmth (Özmen, 2011). The studies on immediacy over the past 35 years have shown that teacher immediacy communication plays a vital role in enhancing students' affective and cognitive learning and is widely considered to be important to study (e.g. Andersen, 1979; Gorham, 1988; Christophel, 1990; Frymier, 1994; Witt et al., 2004; Allen et al., 2006; Zhang and Oetzel, 2006; Zhang and Zhang, 2006).

While research has predominately been conducted on the question related to effective teaching in post-secondary institutions (e.g. d'Apollonia and Abrami, 1997; Delaney et al., 2010), cross-cultural studies that investigate how students percept professors' nonverbal and verbal immediacy communication are rare (e.g. Sanders and Wiseman, 1990; Georgakopoulos and Guerrero, 2010). No research has been conducted to establish the students' perception of professors' nonverbal and verbal immediacy communication in Eastern and Southern Europe. Therefore, this research attempts to contribute to the understanding of the quality of professors' nonverbal and verbal immediacy and identify similarities and differences in the students' perceptions of how many of agricultural professors from Slovenia, Croatia and Albania use verbal and nonverbal communication. An online survey was conducted among students of agriculture from Slovenia, Croatia, and Albania who were asked to indicate the number of their professors using various forms of communication.

### 2. Literature review

#### 2.1 High- and low-context culture

The anthropologist Edward T. Hall (1976) introduced the concept of high- and low-context culture. In low-context cultures, like the United States, Northern European countries, Germany or Switzerland, there is only a small amount of shared and implicit information carried in the context of an event (Koeszegi et al., 2004). In these countries, the communicator usually uses a more *direct*, confrontational, and explicit communication to ensure that the listener receives the message exactly as it was sent as in high-context cultures (Hofstede, 1980; Würz, 2006). To the contrary, in high-context cultures, like in Latin-America or Southern and Eastern Europe, most information is either contained in the physical context of an event or internalized in the persons. These implicit cultures prefer indirect and circular communications patterns (Koeszegi et al., 2004). For example, in high-context cultures, humour is very contextual and could not be well translated to someone from a different culture, even from another high-context culture.

Low-context cultures tend to emphasize *logic and rationality*, based on the belief that there is always an objective truth that can be reached through *linear processes of discovery*. On the other hand, high-context cultures believe that truth will manifest

itself through non-linear discovery processes and without having to employ rationality (Chen and Starosta, 1998; Würz, 2006).

In high-context cultures, greater confidence is placed in *nonverbal communication* rather than verbal. Interpersonal communication is characterised by the use of nonverbal elements for constructing meanings (Hall, 1976; Würz, 2006). High-context cultures tend to be *collectivistic* and prioritise group welfare over the goals of the individual, while low-context cultures tend to be *individualistic*, where emphasis is put on the goals and accomplishments of the individual rather than the group (Hofstede, 1980; Würz, 2006).

Another characteristic is *power distance*. In high-context cultures, power distance is high and based on many hierarchical levels, autocratic leadership, and the expectation of inequality and power differences. In contrast, low-context cultures such as the Scandinavian countries are ruled by low power-distance characterised by flat organisation structures, consultative or participative management style, and the expectation of egalitarianism.

Taken together, the available evidence suggests that professors from the three countries included in the survey belong to high-context culture, although we could assume that professors from the more northern countries (Slovenia and Croatia) will be characterised by a more individualistic, rational and direct verbal approach than professors from the more southern country (Albania) (Magun, 2011; Hlepas, 2013).

## 2.2 Nonverbal Immediacy

The concept of nonverbal immediacy is based on the idea that teacher nonverbal immediacy behaviours will promote feelings of arousal, liking, pleasure, and dominance (Velez and Cano, 2012). Andersen (1979) found out that the most noticeable teacher nonverbal immediacy behaviours usually include smiling, vocal variety and expressiveness, eye contact, gestures, touching, and relaxed body position. Teachers who use nonverbal immediacy are usually perceived as particularly likable and competent (Gorham and Christophel, 1990; Guerrero and Miller, 1998). Also students' expectations and attitudes toward the teacher, the course, and its content are positively related to the nonverbal immediacy level of the teacher (Pogue and AhYun, 2006). Numerous studies also demonstrated that nonverbal immediacy is positively related to teaching effectiveness, student state motivation, and affective or cognitive learning outcomes (Christophel, 1990; Rodriguez et al., 1996; Zhang and Oetzel, 2006; Özmen, 2011). In particular, the use of vocal variety, eye contact, and smiling produces the highest scores for student learning (Zhang and Zhang, 2006).

Richmond and McCroskey (2004) defined the following teacher nonverbal immediacy behaviours: a) Physical: "Teacher moves closer to students when talking to them."; b) Proximity: "Teacher stands closer to a student when talking to them."; c) Body orientation: "Teachers leans forward when talking with students."; d) Touch: "Teacher touches others on the shoulder or arm while talking to them.", "Teacher patting the shoulder of another when talking to them."; e) Eye contact: "Teacher maintains eye contact with the group of students as a whole when talking to them.", "Teacher maintains eye contact with individual students when talking to them.", "Teacher looks to students when talking to them."; f) Smiling: "Teacher is animated when talking to students.", "Teacher smiles when talking to students."; g) Body movements and gestures: "Teacher nods head when talking with students.", "Teacher uses hands and arms to gesture when talking to students.", "Teacher calmly moves body around when talking with students."; h) Body posture: "Teacher's body posture is relaxed when talking with students."; i) Vocal expressiveness: "Teacher uses a variety of vocal expressions when talking to students.", "Teacher uses relaxed tones when talking to students.".



## Harmonization of LL in ADA Region

Since there is a lack of studies on cross-cultural differences in the share of professors' use of nonverbal immediacy communication perceived by students from Eastern and Southern Europe, the following research question and hypothesis are advanced:

R1: Are there cross-cultural differences in the share of professors' use of nonverbal immediacy communication perceived by students from Slovenia, Croatia, and Albania?

H1: There are cross-cultural differences in the share of professors' use of nonverbal immediacy communication perceived by participating students, such that Albanian students perceive that the majority of their professors use nonverbal immediacy while Slovenian students perceive that the majority of their professors do not use nonverbal immediacy as commonly.

### 2.3 Verbal Immediacy

Verbal immediacy, contrary to nonverbal immediacy, refers to the verbal expressions used by teachers to develop within students a degree of like or dislike toward the teacher (Mehrabian, 1971; Velez and Cano, 2012). According to Gorham (1988, p. 41), verbal immediacy behaviours are verbal messages that convey the use of pro-social as opposed to antisocial messages to alter student behaviour. He added (ibid.) that teachers who verbalise the positive results of on-tasks behaviour are perceived as more immediate than those who verbalise the negative consequences of failing to comply; a particular set of power messages is likely to be related to increased learning. Sanders and Wiseman (1990) found that for different ethnic groups verbal immediacy behaviours were positively associated with cognitive learning: encouraging students to talk, using humour, discussing with students outside class, soliciting alternative viewpoints, and praising students' work. Verbal communication such as encouraging students to talk, soliciting different viewpoints, and providing personal examples is also associated positively with student motivation (Christophel, 1990).

Studies showed that teachers who are perceived by students as accessible outside of class time are positively evaluated (Lampert, 1993), their behaviour is positively related to students' affective learning (Pascarella and Terenzini, 1991) and their better academic performance (Pascarella, 1980; Terenzini et al., 1996).

Gorham (1988) defined the following teacher verbal immediacy behaviours: a) Personal examples: "Teacher uses personal example."; b) Humour: "Teacher uses humour in class."; c) Engaging in conversations with students before, after, or outside of class: "Teacher gets into discussions based on something a student brings up even when this doesn't seem to be part of their lecture plan.", "Teacher gets into conversations with individual students before or after class."; d) Encouraging students to talk: "Teacher asks questions or encourages students to talk.", "Teacher asks how students feel about an assignment, due date or discussion topic."; e) Referring to the class as "we," or "our": "Teacher refers to class as 'our' class or what 'we' are doing."; f) Asking for students' input: "Teacher provides feedback on my individual work through comments on papers, oral discussions, etc."; g) Teachers' self-disclosure: "Teacher talks about experiences they have had outside of class."; h) Addressing students by name: "Teacher addresses students by name."; i) Praising students' work: "Teacher praises students' work, actions or comments."; j) Allowing students to address instructors by their first name: "Teacher is addressed by his/her first name by the students."; k) Being available for students outside of class if they have any questions: "Teacher invites students to e-mail or meet with them outside of class if they have questions or want to discuss something."; l) Soliciting different viewpoints: "Teacher asks questions that solicit viewpoints or opinions."

Since there is a lack of studies on cross-country differences in the amount of professors' use of verbal communication perceived by students from Eastern and Southern Europe, the following research question and hypothesis are advanced:

- R2: Are there cross-cultural differences in the share of professors' use of verbal communication perceived by students from Slovenia, Croatia, and Albania?
- H2: There are cross-cultural differences in the share of professors' use of verbal communication perceived by participating students, such that Slovenian students perceive that the majority of their professors use verbal expressiveness, while Albanian students perceive that the majority of their professors do not use such as commonly.

### 3. Methods

#### 3.1 Participants

The participants were students ( $n= 314$ ) enrolled in agricultural programmes at five universities in the following countries: Slovenia ( $n= 173$ , 59 men, 114 women; average age= 22.4); Croatia ( $n= 75$ ; 31 men, 44 women; average age= 21.9 years); Albania ( $n= 66$ , 45 men, 21 women; average age= 21.8). Students of agriculture and animal science from the Biotechnical Faculty of the University of Ljubljana (Slovenia), the Faculty of Agriculture of the University of Zagreb (Croatia), the Agricultural Faculty of the Josip Juraj Strossmayer University of Osijek (Croatia), the Faculty of Agriculture and Environment of the Agricultural University of Tirana (Albania), and the Agriculture Faculty of the Fan S. Noli University of Korce (Albania) were invited by email to complete the online survey at the end of the academic year in the summer of 2015. They were provided with an internet link and were asked to complete the survey in terms of their perception of profession's verbal and nonverbal immediacy communication.

#### 3.2 Measurement

The measurement of verbal immediacy is based on Gorham's (1988) verbal immediacy behaviours measure including 12 items focused on using personal examples ("Teacher uses personal example or talks about experiences outside of class."), encouraging students to talk ("Teacher asks questions or encourages students to talk."), discussing students' topics ("Teacher gets into discussions based on something a student brings up even when this doesn't seem to be part their lecture plan."), using humour ("Teacher uses humour in class."), addressing students by name ("Teacher addresses students by name."), engaging in conversations with students before, after or outside of class ("Teacher gets into conversations with individual students before or after class."), referring to the class as "we," or "our" ("Teacher refers to class as 'our' class or what 'we' are doing."), provide feedback ("Teacher provides feedback on my individual work through comments on papers, oral discussions, etc."), asking students about assignments ("Teacher asks how students feel about an assignment, due date or discussion topic."), being available for students outside of class if they have any questions ("Teacher invites students to e-mail or meet with them outside of class if they have questions or want to discuss something."), soliciting different viewpoints ("Teacher asks questions that solicit viewpoints or opinions."), praising students' work ("Teacher praises students' work, actions or comments."). Reliability was 0.81.

The measurement of nonverbal immediacy is based on Richmond and McCroskey's (2004) nonverbal immediacy measure including 7 items focused on physical proximity ("Teacher stands close to students while talking to them."), eye contact ("Teacher looks directly at students while talking to them."), smiling ("Teacher smiles when talking to students."), animation ("Teacher is animated when talking to students."), body movements and gestures ("Teacher uses hands and arms to gesture while talking to students."), body posture ("Teacher has a relaxed body position when talking to students."), vocal expressiveness ("Teacher has a lot of vocal varieties when talking to students."). Reliability was 0.86.

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Students rated professors' nonverbal and verbal immediacy with 1 meaning that »all« of their professors use a particular behaviour, 2 meaning »majority«, 3 »quite a number«, 4 »some« and 5 »none« of them. The last part of the questionnaire focused on demographics, including country.

### 3.3 Data Analysis

For hypothesis testing, the analysis of variance, shortly ANOVA, was used. ANOVA is useful to determine whether there are any significant differences between the means of three or more independent (unrelated) groups (Miller, 1997). There are three main assumptions used in ANOVA: 1. the dependent variable is normally distributed in each group that is being compared in the one-way ANOVA; 2. there is homogeneity of variances, meaning that the population variances in each group are equal; 3. independence of observations.

First, indexes of nonverbal and verbal immediacy were calculated. Then, the significance of Levene's test for equality of variance as our criteria for satisfying the ANOVA assumption was used. Levene's test is a diagnostic statistic that tests the null hypothesis that the variance is homogeneous or equal across all cells. The desired outcome, and support for satisfying the assumption, is to fail to reject the null hypothesis. To determine whether there are significant differences between all groups, or just two, post-hoc Bonferroni test was conducted. The Bonferroni correction is usually used to reduce the chances of obtaining false-positive results (type I errors) when multiple pair wise tests are performed on a single set of data (Bland and Altman, 1995). Data were analysed using the SPSS 22.0 statistical software package.

## 4. Results

Students from the three countries assessed how their professors were using verbal and nonverbal immediacy. First, the homogeneity of variances indicated by Levene's Test for Equality of Variance was tested. It showed that statistical significance in both nonverbal and verbal immediacy is more than 0.05, which means that the variances in groups of the dependent variable are equal (see Table 1).

**Table 1:**  
**Test of Homogeneity of Variances**

	Levene Statistic	df1	df2	Sig.
Nonverbal Immediacy	1.152	2	311	.317
Verbal Immediacy	.268	2	311	.764

A one-way between subjects ANOVA was conducted to compare the mean scores of perceived immediacy by students' countries. There was a significant effect of the students' countries on the students' perception of verbal and nonverbal immediacy of their professors at the  $p < 0.001$  for the groups [ $F = (2.311) = 34.193, p = 0.000$ ] [ $F = (2.311) = 56.406, p = 0.000$ ].

To determine whether there are significant differences between all groups of students' countries, the post-hoc test was conducted. The Bonferroni test (see Table 2) indicated that in the scale 1= "all" to 5= "none" the mean score of nonverbal immediacy for Slovenian professors ( $M = 2.95, SD = 0.94$ ) was significantly higher than verbal immediacy for Croatian professors ( $M = 2.53, SD = 0.58$ ) and Albanian professors ( $M = 1.97, SD = 0.68$ ), and the mean score for Croatian professors differed significantly from that of Albanian professors.

**Table 2:**  
Descriptive statistics  
and comparison among  
students' countries and  
verbal and nonverbal  
immediacy perceptions

	Group	N	Mean	SD	Group comparison	Sig.
Nonverbal Immediacy	Croatia	75	2.53	.94	Croatia-Slovenia	.000
	Slovenia	173	2.95	.58	Croatia-Albania	.000
	Albania	66	1.97	.68	Slovenia-Croatia	.000
Verbal Immediacy	Croatia	75	2.79	.41	Croatia-Slovenia	.000
	Slovenia	173	1.97	.44	Croatia-Albania	.000
	Albania	66	3.19	1.03	Slovenia-Croatia	.000

The mean score of verbal immediacy for Slovenian professors ( $M= 1.97$ ,  $SD= 0.44$ ) differed significantly from that of Croatian professors ( $M= 2.79$ ,  $SD= 0.41$ ) and Albanian professors ( $M= 3.19$ ,  $SD= 1.03$ ) and the mean score for Croatian professors also differed significantly from that of Albanian professors. These results showed that students' assessment of professors' immediacy differed by students' countries.

Among the respondents, Albanian students most positively perceived their professors in using nonverbal immediacy communication. According to them, the majority of their professors use nonverbal immediacy ( $M= 1.95$ ). Comparatively, Slovenian professors ( $M= 2.95$ ) are those who do not use nonverbal immediacy as commonly.

According to Slovenian students, the majority of their professors use verbal immediacy ( $M= 1.97$ ). To the contrary, Albanian students assessed that quite a bit of their professors use verbal immediacy ( $M= 3.19$ ).

## 5. Discussion and Conclusion

This study attempts to extend the work on perceptions of effective professors' communication by investigating perceptions of students from three countries which have not been studied previously in relation to verbal in nonverbal immediacy communication (Slovenia, Croatia, and Albania). The present study's results broaden the past work by demonstrating that there are subtle cultural differences in the number of professors that are perceived to use verbal and nonverbal immediacy behaviours by their students.

In general, all participating students perceive that quite a number of professors use verbal and nonverbal immediacy behaviours. The students' perception of their professors' immediacy communication indicates that their verbal and nonverbal communication is not very low in quality, but it is also not of a very high quality. Thus, the professors of agriculture from Slovenia, Croatia, and Albania should not be satisfied with their own communication patterns and should, therefore, try to improve their communication.

The results show that students' assessment of professors' nonverbal and verbal immediacy communication differs by country. The professors' use of nonverbal immediacy communication is most positively perceived by Albanian students, followed by Croatian students. This could be explained by the fact that people in southern European countries are generally more nonverbal expressive in public than people from the more northern countries (Hall, 1976; Würz, 2006).

The comparison of students' perception of professors' verbal immediacy communication by students' countries shows quite an opposite view. Namely, Albanian students perceive their professors most negatively while Slovenian students perceive them most positively. These findings could be explained by the fact that people in the more northern countries may prefer to show immediacy through more explicit verbal articulation than more direct nonverbal expressiveness (Hall, 1976; Würz, 2006).

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Power distance may also help to explain differences in using verbal and nonverbal immediacy communication by country. Of the three countries included in this study, Albania has the highest power distance scores (Hofstede Centre, 2015). Because people in the northern countries have more egalitarian views, they may expect more open discussion and debate in the college classroom than do people in more authoritarian countries who would, in contrast, expect their professors to dominate discussions (Georgakopoulos and Guerrero, 2010).

Research also reveals that there are differences in the immediacy communication among countries (Slovenia, Croatia, and Albania) considered by the existing scientific literature as high-context culture. It is, therefore, necessary in the future to study the differences between these countries and the differences between verbal and nonverbal immediacy communication.

This study, however, has some limitations. First, it is based on perceptions and not on actual behaviour. Since the participating students might not accurately recall the number of their professors who use certain communicative behaviours, future studies should also use additional methods. This study reveals subtle cultural differences as to how many professors of agriculture in Slovenia, Croatia, and Albania are perceived to use nonverbal and verbal immediacy behaviours. However, it does not uncover the reasons behind these differences. Therefore, future studies should examine why these differences exist.

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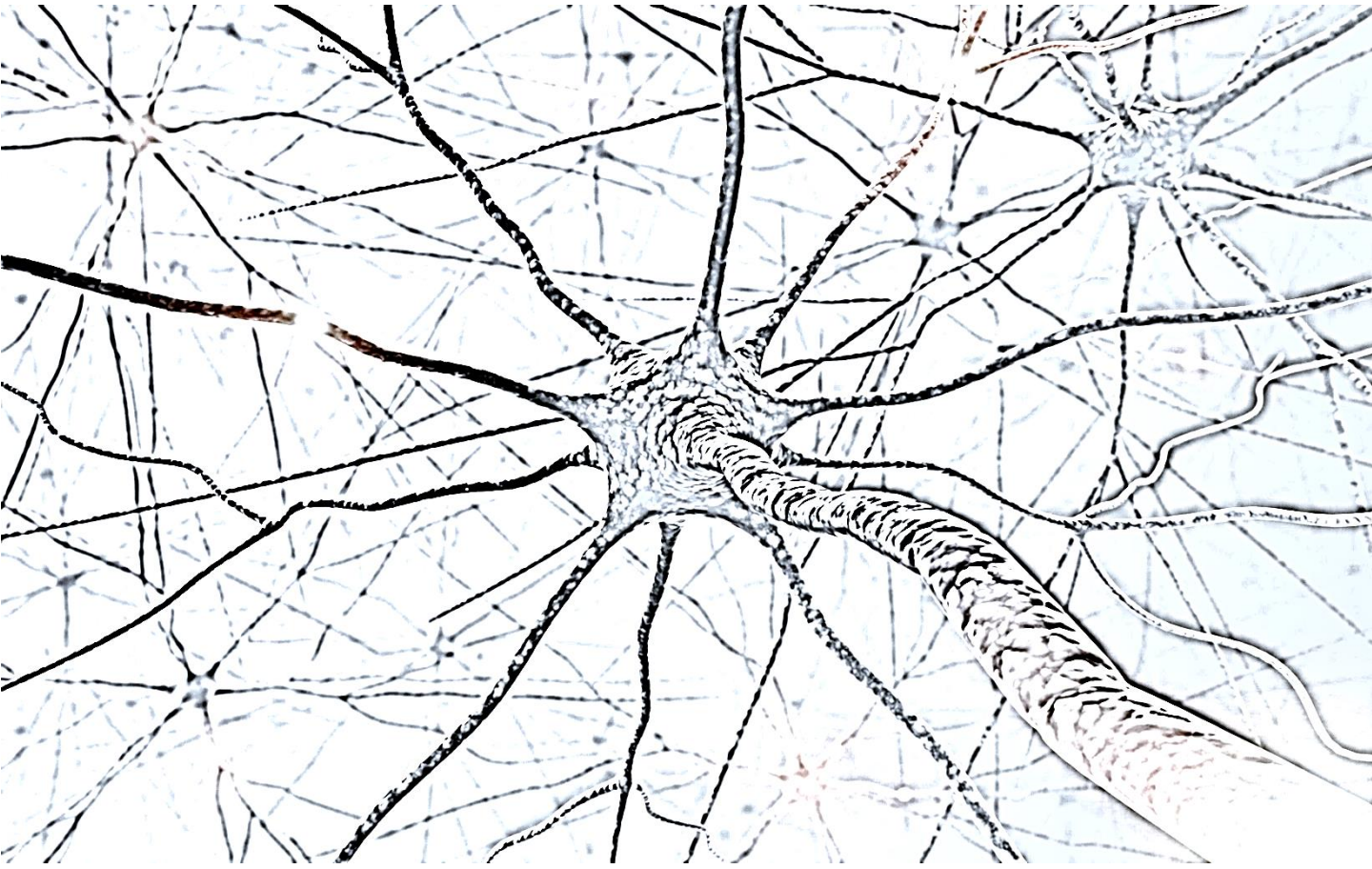
The study was conducted within the project of the Lifelong learning for sustainable agriculture in Alps-Danube-Adriatic Region – LifeADA.

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**“I am still learning.”**  
-Michelangelo, age 87



**Tempus**

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