ENOAT 2017 BUDAPEST

PROCEEDINGS 21-22 SEPTEMBER 2017

TITLE FOR MEETING

Participatory Teaching and Learning in Organic Farming and Agroecology Education

ENOAT Meeting held at K Building, Szent Istvan University Budapest, Hungary; 21-22 September 2017

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Brief Presentations from Each Country

NOTE: Here we will add the one-page descriptions of each program; if you have not submitted an electronic copy, please send this right away to Chuck at his NMBU address: [charf@nmbu.no]

We will also include hot links to the power points that people presented, and if I did not capture a copy during the meeting please send this to me so we can have it on the web site of ENOAT. Chuck

Workshop I: Preparing for Teaching using Participatory Team Activities: the Open-Ended Case Methodology. Moderator: Charles Francis, NMBU, Norway.

Workshop II: Desirable Knowledge and Competences for Students Finishing Organic Agriculture BSc and MSc Study Programme. Moderator: Martina Bavec & Franci Bavec, Univ. of Moribor, Slovenia.

Workshop III: Similarities and differences of the concepts of organic farming and agroecology – with focus on teaching: Moderator: Christian Vogl.

ENOAT Website. Aims and design of the website. Moderator: Teresa Briz

Purpose and Future Role of ENOAT in the European Educational Landscape. Moderator: Ewa Rembialkowska

Editors' Introduction

Welcome to the proceedings of the 2017 ENOAT conference in Budapest. This begins with a warm welcome from the Dean of the Faculty of Horticultural Science, Prof. Dr. Attila Hegedus, who described the university campus in Buda, as well as the beautiful Budai Arboretum that surrounds us when we are here in the buildings. He provided a brief history of the university and this campus, and described the two principal activities which are research and teaching.

We present here the summaries of reports from each participating country that were prepared ahead of the meeting, and also a brief transcript of each person's presentation in the opening session. Some power points are posted on the ENOAT 2017 web site, and their links are provided here in the proceedings.

There were three active workshops in the meeting: 1] Preparing for Teaching using Participatory Team Activities: the Open-Ended Case Methodology (Open-ended group discussion on advantages and difficulties of using participatory methods in our courses, Chuck Francis, moderator), 2] Desirable Knowledge and Competences for Students Finishing Organic Agriculture BSc and MSc Study Programme (Martina Bavec, moderator), and 3] Similarities and differences of the concepts of organic farming and agroecology – with focus on teaching (Christian Vogl, moderator).

The workshop finished with a lively discussion about the rejuvenated web page designed by technical people at the Universidad Politecnica de Madrid, where Teresa Briz has been coordinating this project for the past year. There were several key suggestions for modification which will be incorporated into the web site, and there is interest from some members about looking at other options for the main page.

The excursion on Day 2 included a certified organic large cattle farm that is located within a national park, and a small organic diversified vegetable and livestock farm that markets directly to consumers. Both have active education programs, and there were many questions from our members. We thank the owners of these farms for their kind invitations. We also thank Dr. Perla Kuchtova for the invitation to hold the 2018 ENOAT workshop in Prague, Czech Republic.

From the editors Zita Szalai Corvinus University of Budapest Charles Francis Norwegian University of Life Sciences [NMBU] and University of Nebraska – Lincoln, U.S.A.

NOTE: from Charles Francis: We all sincerely thank Dr. Zita Szalai for the large amount of time and energy she invested in the organization and running of the ENOAT 2017 Workshop in Corvinus University. All of the arrangements including the meeting rooms, transportation, and food events were greatly enjoyed by the members of ENOAT, and we look forward to equally valuable meetings in the future.

Program of ENOAT 2017

ENOAT workshop, 21-22 September 2017 Szent István University, Faculty of Horticultural Science, Department of Ecological and Sustainable Production System, Hungary

Program

<u>Thursday, 21 September (day 1)</u> Place of the meeting:1118 Villányi út 29-43 Buda Campus K building II. floor "Tanácsterem"

9h00	Short welcome and overview on the program by Zita Szalai (organizer) and Ewa Rembiałkowska (Chairwoman of ENOAT)		
9.15	Didactic activities at the Faculty of Horticultural Science at Szent István University – Prof. Dr. Attila Hegedűs Dean of Faculty of Horticultural Sciences		
9h30	Current situation of Organic Farming and Agroecology teaching at member universities Short oral presentation (3 minutes, no ppt) of each participant, time for questions and concluding discussion.		
11h00	Coffee and tea break with poster exhibition (posters of ENOAT members about recent teaching/learning activities)		
11h30	Workshop 1 Preparing for Teaching Using Participatory Team Activities: the Open-Ended Case Methodology. Moderator: Chuck Francis		
12h30	Lunch break: hot meal at High school canteen nearby		
14h00 1500	Workshop 2 Desirable knowledge and competences for students finishing »organic agriculture« B.Sc. and M.Sc. study programme. Moderator: Martina Bavec		
15h30	Coffee and tea break with poster exhibition (posters of ENOAT members about recent teaching/learning activities)		
16h00 1618	Workshop 3 Similarities and differences of the concepts of organic farming and agroecology - with focus on teaching. Moderator: Christian Vogl		
17h30	ENOAT website. Aims and design of the website. Moderator: Teresa Briz: The purpose and future role of ENOAT in the European educational landscape. Moderator: Ewa Rembiałkowska		
19h00	Visit the Campus and Botanical garden		
	Common dinner at Vakvarjú vendéglő 1116 Budapest Érem utca 2. https://buda.vakvarju.com/en		

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Participants in ENOAT 2017 and Photo in the K Building Conference Room

INSERT PHOTOS HERE, PLEASE, anyone?



Budai Campus, Corvinus University of Budapest, Location of K Building for Meetings [Horticulture Faculty Offices are in G Building near the campus entrance]

Thursday, 21 September

Welcome from Ewa and Zita to Budapest and ENOAT Meeting

Prof. Dr. Attila Hegedus, Dean of Faculty of Horticultural Science

Teaching programs at Faculty of Horticultural Science at Szent Istvan University [capture slide show introduction; Ferenc Entz quote about Hungary]; Medical doctor prohibited from practice, so dedicated energies to teaching and founded university in Budapest dedicated to horticulture.

- Buda campus here > 170 years ago
- Faculties are Food Science, Horticulture Science, and _____
- Faculty of Horticultural Sciences has 16 departments
- 100 teachers & researchers; 1371 students, including 90 foreign students, 50 PhD students
- BSc, MSc, and PhD degree programs; several courses in English
- Most important in numbers paris horticultural engineering BSc courses, including specialization in Organic Farming and Nature Conservation
- Part of Assoc. European Life Science Universities
- Double degrees with Germany, Austria, and others
- Budai arboretum has >2000 species, some planted over 150 years ago
- Experimental and research farm 16 km to southeast of Budapest
- Field trips and practical experiences in horticulture
- Education and research are two principal activities; publishing important in international journals
- Warm welcome to university

Hungary: Zita Szalai, Corvinus University of Budapest

- New course introduced in organic agriculture, in process of approval
- Plans are to have a specialization in organic farming as a named degree; currently ten students recruited to launch this program, but is constrained by special fees connected to this program; students need to seek personal or external support
- Students are often part time, and study in block course system
- Difficult to initiate because there is limited funding from university
- So far this is limited to Hungarian students; later this will also be in English for foreign students

Norway: Charles Francis, Norwegian University of Life Sciences [and Univ. Nebraska – Lincoln, U.S.A.]

Summary on handout

Spain: Teresa Briz, Universidad Politecnica de Madrid

- MSc cooperative program with university of Andalucia in Valencia
- Many professors in research projects have interest in organic farming, 15-20 in current projects, and 5-6 professors currently are contributing to courses in organic agriculture

Germany: Holger Mittelstraß, Wizenhausen Campus of Kassel University,

- Coordination of teaching quality in faculty
- Changes often come with retirement of older professors, and over last 10-15 years there are more in plant science, soils, animal science
- 1200 students in Witzenhausen; 700 students in German BSc program, 500 in three masters programs [one in German, one in English with Goettingen, one in collaboration with ______ with focus on production agriculture and food science
- personal work on transformation process, permaculture, communications, more recently event management including excursions to other countries in Europe, conferences in organic farming and other fields; students choose topic, eg. this December will be biodiversity in organic farming
- new project is preparing videos, students do not want to read, so we need to reach them where they are; focus on important topics, and students help to choose these directions for topics.
- Student numbers are declining in Germany, but up to this time there are not declines in Witzenhausen; in general, fewer students are going to university; about 170 are in organic farming
- Organic agriculture, sustainable agriculture, food and consumer science, new program in sustainable food systems; 70% international students from around the world, with fewer from Europe, in these programs. Many come for one semester with Erasmus funding, but are not regular students
- Permaculture has been taught as a special topic, but is not easy to teach in the university because it is multidisciplinary and hard to organize; multicropping, agroforestry, other complex systems are difficult to organize and teach.

Serbia: Maja Manojlovic, Novi Sad University

- Organic farming at three levels, BSc started in 2009 with few students but now has about 50 students/year with half staying for entire program
- MSc program has _____ students, mostly in agronomy and economics, with about half of them working in collaboration with companies
- Still developing curricula for the program
- No organic certified fields for research, but work with farmers and other groups for practical learning
- Students like to go to Moribor, Slovenia for one semester

Czech Republic: Helena Procházková, University of South Bohemia in České Budějovice [new member of faculty, PhD student of Jan Moudry, after two years working in Brussels with organic group of IFOAM, and other non-profit organizations]

- Organic farming has grown from research and now included in teaching programs; agroecology is an organizing theme that is related to organic farming
- Significant progress in multifunctional agriculture, broader than organic farming, and social farming is a new focus with participation in multiple international projects; current collaboration with outside groups, IFOAM, Czech organizations, others
- Not many people come to Czech Republic because of language barrier, sustainable development, landscape level issues are important in BSc programs, multifunctional agriculture becoming more important

- Teachers becoming more coordinators of discussions rather than only lecturing to students; today's students are looking for excitement in education, and get bored with lectures; trying to improve cooperation with local restaurants to get more organic and local food into the menus; Czech people still negative toward organic and skeptical about quality of organic food for many it is impossible to buy organic food, mostly with concerns about costs and availability
- Need to change mentality of consumers, but this is a long process

Germany: Sabina Zikeli, Univ. Hohenheim in Stuttgart

- Many professors interested in research and teaching in organic farming, and Sabina is coordinator to connect these people internally as well as with organizations outside the university; one problem is that people do not know each other
- Coordination office in small university, 10,000 students with 2,500 in agriculture, and largest program is in economics
- Three BSc programs with two elective modules and 70 students in this organic activity; formerly 300 students, and now declining to 200 students interested in this topic; all is in German
- MSc level in German and in English [organic farming and food systems], double degree in Eur-organic with BOKU, Aarhus Univ.
- Limited to 30 students including double degree students, high participation in English with students from outside Europe; relatively good success with this MSc
- Currently restructuring the BSc program due to changing demand from industry and government, with more emphasis on practical approach including internships that are integrated with classes; there is a need to be more active in organic ag, and the question is how much energy to dedicate to BSc and how much to MSc.
- State government has dictated that there will be Euro500 per year fees for study, which may limit student numbers; pushing policy makers to re-think this challenge if the costs are going to reduce numbers; green government in charge, but did not think about the importance of this program.
- Double degree program has 28 students this year

Austria: Christian Vogl, BOKU, Vienna [took over from Susanne Kummer who is now with FiBL in Vienna]

- Program in organic goes back to early 1980s
- MSc in organic agricultural systems & agroecology together with Hohenheim and Aarhus Universities;
- BSc program with 300 students with obligatory course in organic farming and another in agroecology; choices for students among options, and many now like to create their own profiles of courses; this is in progress, and strong pressure to create personal set of courses to meet their own individual interests
- MSc in organic agriculture is developing well in international arena, about 100 students currently enrolled in this program. Emphasis on agroecology as *agroecological sciences*, not political dimension, with focus on sciences of soils and plant science. Avoid topics such as multifunctional, food sovereignty, permaculture, deep ecology, because this dilutes the topic of organic farming and reduces its credibility in BOKU

- Multidisciplinary need within the sciences, and students from botany, environmental science, genetics, narrow studies, but this is an ongoing discussion within the faculty
- General opinion that organic agriculture needs to be based on science and not on other dimensions such as practices and movement as discussed in the initiatives of Wezel, Gliessman, Altieri and others

Bulgaria: Ivan Manolov, Agricultural University—Plovdiv

- BSc and MSc programs with specialization in organic farming include courses in OF
- Details of program are found in one-page summary of programs
- Numbers of students are declining in all specialties
- MSc students in course of organic agriculture include 7 in mineral nutrition of plants and 8 in agribusiness
- The international Erasmus+ project "Building Key Competences and Folkhighschool Pedagogy in XXI Europe" was finished successfully on 31.08.2017.
- Partnercs in Erasmus+ project "Developing OER and Blended Modules for Agriculture and Rural Development"; partners are universities, farmers, and NGOs in Macedonia and Greece

Czech Republic: Perla Kuchtova, Czech University of Life Sciences, Prague

- Organic farming teaching started in early 1990s after revolution
- BSc program started in 2007, 30 students
- Started with MSc program in 2010, 3-5 students currently with more credits in ecological agriculture, also open to students from all six faculties; 10-15 students from animal science; also students from Russia, Bulgaria, USA; most literature is in English: sustainable agriculture and alternative agriculture.
- Practice included in program, with two teachers in Czech and four in English language; one large challenge is language compatibility among students from different countries
- Research in cereals, potatoes, oilseed crops initiated but may be stopped due to lack of land and support for program

Slovenia: Martina Bavec and Franci Bavec, University of Maribor

- Program started in 2001 due to collaboration with other universities and ENOAT; process continues
- In 2016 celebrated ten years of organic farming studies, and this is mostly concentrated in U. Moribor, while other universities have small initiatives in OF but these are minimal so far
- Possible to study for MSc and PhD levels, and cooperative programs with FALS for practical work for one week on organic farms and one week in certification agency for experience
- OF courses are popular with students from other study areas, but in university discussions there is continuing pressure against OF from many members of faculty
- Erasmus students coming to Moribor each year, eg. double degree program with Witzenhausen

Italy: Roberto Mancinelli, University of Viterbo

- Specialist in agroecology, history of courses in organic farming in university, but changes in government and emphasis with different areas, now organized by departments but there is pressure to have wider focus, for example agriculture and forestry: groups now in biotechnology, ______, and agricultural production
- Students are pushing for change, and they are asking for organic ag courses; offering courses in Italian and in English provides additional credit for teaching; students are very interested in ecological agriculture and come from other specializations to this class; there is a real quandary between teacher interest and student demand. Cannot teach more than two courses as a professor, thus there are administrative challenges.
- There is confusion about sustainable agriculture and organic agriculture, and the situation is often in limbo and subject to changes from administration and political pressure, both within university and outside.
- Current more than one million organic farms in Italy, largest number in Europe, mostly in small farms; what is the reason for lack of political support? For example, organic courses were eliminated in Univ. Torino and other places.

Slovakia: Magdalena Lacko-Bartosova, Slovak University of Agriculture, Nitra

- Teaching in ecological farming [name is politically assigned] since early 1990s
- Now at BSc and MSc levels in sustainable agriculture, divided into several different specializations; previously 500+ students, but now is less.
- 28 new students in organic agriculture, where previously there were >100 students; decline due to some degree to regulations against part-time students
- Compulsory courses in ecological plant production and ecological animal production; focus in plants is primarily on cereal courses, and it is optional for other study areas, thus about 60+ students who come in plus those with focus in ecological ag degree
- International students are coming in, but appear to be more lazy than students from Slovakia; easy cooperation with Czech republic due to similarities in language.
- Now have agroecology MSc, with compulsory classes in ecological farming, but this is a separate study course; may be important to focus on larger issues such as food systems
- Many Slovak students are currently studying in Brno and other universities outside the country

Macedonia: Rukie Agic, University of Skopje [Ss. Cyril and Methodius University]

- Teaching in horticulture, agroecology, eco-agriculture, with about 20 students per year; organic agriculture not a specialty, but topics are infused into the present horticultural crops courses
- Declining number of students in general, and people are moving away from agriculture toward more attractive subjects
- MSc level course in organic vegetable production, but do not have specialized programs with organic farms; proposal is to integrate agroecology into the organic program according to the certification rules.
- Many professors are interested in organic agriculture, so there is promise for more focus in the future if this can be mobilized into courses

Poland: Ewa Rembialkowska, Warsaw University

- Faculty of nutrition and human sciences, 30 hours in organic agriculture and foods, half in lectures and half in practicum; obligatory course with about 150 students, and previously >200 students. Not considered a 'real subject' by many faculty members, and this is part of the challenge.
- Changes in courses as overall department is changed; organic courses are taught every two years; administrative changes and decisions disrupt these programs and make it difficult to sustain education in organic agriculture
- International students come from many countries, including from Europe and from third world even Bhutan;
- Program continues to be in flux due to administrative changes as well as pressures from other influential people in the faculties
- Program of Kasha in Agriculture and Environmental Engineering at both BSc and MSc levels; organic agriculture has four courses in the third year of BSc and higher level studies
- Current program is for six semesters, with innovation in teaching methods, and highly cooperative with students; this is a change for many teachers
- Cooperation with other Polish universities? There appears to be no other teaching program in organic agriculture, although there are topics in other courses that deal with this type of system. OA is highly important in Poland due to many farms producing using these practices, but is not really recognized as a comprehensive program in these other places so far.

Workshop I: Preparing for Teaching using Participatory Team Activities: the Open-Ended Case Methodology. Moderator: Charles Francis, NMBU, Norway.

Introduction

There have been numerous workshops in prior ENOAT conferences on the topic of participatory learning. There continues to be an on-going discussion about growth in interest by our members in using project work, team activities, short-term and long-term group projects, and other social learning strategies to increase involvement and build energy in courses in organic farming and agroecology. The Workshop I this year was introduced with a brief description of historical activities in participatory learning. This comes from the power point:

Participatory learning background

- Teaching ≠ Learning: as teachers we have traditionally focused on teaching, because that is what we have experienced ourselves as students, and the assumption has been that if we teach something the students will learn it. But of course we know from experience, and from grading examinations, that just presenting information in the classroom as a lecture gives no guarantee that students will learn and thus remember the information. This is the primary reason that we have changed almost entirely in the Agroecology MSc program in Norway to participatory *learning*, and to an evaluation strategy that is integral to the course and that is continuous in application.
- Kolb Cycle of Learning: We have paid special attention to the writings of David Kolb [1986] and his learning cycle, summarized as four steps that follow sequentially and loop back to the beginning: *Concrete Experience* → *Active Experimentation* → *Reflective Observation* → *Abstract Conceptualization* → *Concrete Experience* We have further refined this concept and chosen five competences that we consider essential for people to develop, internalize, and practice in the process of *becoming agroecologists*:

Observation Participation Dialogue Reflection Visioning

These have been described in several articles and book chapters, and have been presented in past ENOAT meetings.

<u>Reference</u>: Kolb, David. 1984. Experiential Learning: experience as the source of learning and development. Englewood Cliffs, Prentice Hall Publishing Co.

- Confucius said [or at least this is attributed to him]: "what I hear, I forget; what I see, I remember; what I do, I understand". Although we are not sure if this is really a direct quotation, it is likely that Confucius understood the essence of learning far before people started writing about participatory education.
- Edgar Dale was an educator from the U.S. who famously claimed that from what we read, hear, see, and do we remember different amounts of that new information:

What I read = 10% What I hear = 20% What I see = 30% What I see + hear = 50%

What I say = 70% What I say and do = 90%

Although there is continuing debate about whether Prof. Dale had empirical or experimental evidence to support these data, his work has been widely quoted and what he reported seems to be consistent with our practical experience with students in the classroom and other learning venues. <u>Reference</u>: *Wagner, Robert W. Edgar Dale: Professional. Theory into Practice. Vol. 9, No. 2, Edgar Dale (Apr., 1970), pp. 89-95 -* <u>https://www.jstor.org/pss/1475566</u>

Group discussion questions

We then had five minutes of individual reflection around two questions, writing down our personal opinions, and then small discussions for 45 minutes in groups of four. Everyone continued to add to their own reflections and all the results were collected after a brief plenary discussion. The ideas from two questions are summarized here as written by ten people who handed them in; there has not been any attempt to combine comments or summarize them, and this will be done before the proceedings are completed. [NOTE from Chuck: if you have additional ideas, please add them here as track changes and I will continue to enrich the list]

- 1. What are five advantages of participatory learning?
- Students can perform real work on real-world questions [remember 90% can be learned by what is actually done]
- This promotes exchange of ideas through discussions with other participants
- Practical knowledge can be generated by this type of learning
- Involvement of farmers in the students' learning is important
- Farmers also learn how to teach their knowledge to students
- Opens students' minds to the perspectives of others
- PL involves new ideas and concepts
- This type of learning creates community
- If done well this can incorporate all of the senses
- This type of learning could raise the commitment of participants because decisions are jointly done
- More ideas come out, and there are more angles on solving issues
- This could be a faster process for learning
- There is better/higher motivation for learning and more pressure to work well when in groups
- A higher chance for success will be generated it this is done well
- Students may be more engaged and motivated
- This method can include the knowledge of students
- Promoting dialogue can get students engaged
- PL can intensify the learning process
- More interesting for teachers, and also for students
- Develops better skills in students/graduates
- There are benefits for stakeholders, and also for teachers
- Students develop more understanding of topic and remember better; skills that students develop are higher order when they are more interested

- New methods of teaching are good, but there are not a lot of examples available these days
- Active involvement of students means that according to Kolb cycle they will be learning more than 50%
- This is less boring than other methods, and often more practical
- Team working builds social skills
- Choosing topics from students' own experience
- Students presenting their results is a valuable learning experience
- This builds better understanding of issues
- Exchange of views is valuable
- PL can lead to deep solutions to problems
- Builds higher learning capacity
- There is higher motivation for both students and teachers
- Develops better skills in students
- Students are more engaged with the topics
- PL builds also on students' experiences
- Everyone can learn from others, and not only from teachers
- Close working with clients is beneficial
- This type of learning can empower students
- PL methods are based on solid literature in education
- Students prefer topics that they choose themselves
- In today's information environment, we have limited info to present relative to the vast amount immediately available to students
- •
- 2. <u>What are five difficulties with introducing participatory learning</u>?
- Organization of this type of learning is complicated
- There are language barriers if students come from different countries
- Participation is a vague concept and needs to be defined precisely
- Farmers have no skills in how to present their knowledge to students
- Can be an excuse for laziness by instructors as 'outsourcing unpopular decisions
- Often more time consuming for instructors
- Success depends very much on language use and understanding
- Activities might have a hidden agenda
- How well this works depends entirely on how it is done
- Too many different and personal opinions can come up, and the conversation may be dominated by a few people
- This is a new stereotype of how teaching should be done, but we should not abandon the conventional methods that are best know and proven to be good
- Communication can be complicated in group meetings
- This is more difficult and time consuming to organize
- There may be less of some individual's thinking, and procrastinating by students
- Students [and teachers] are not used to this method
- The method is more time consuming, and we must consider quality vs quantity

- There is no systematic learning
- Teachers become a coach for the students
- One barrier is old-fashioned customs among teaching staff
- There is a lack of time and money in teaching programs
- Fixing time for appointments with practitioners is difficult
- There are inflexible study programs and bureaucratic obstacles
- There is more preparation time needed, also more money for activities
- It is difficult to stimulate students at the BSc level
- These methods are not recognized in my country
- We need better ways to get farmers to receive students on their farms
- Both students and teachers are not prepared for this type of learning
- Teachers need to be confident in themselves and in the topics
- We really need positive students to make this work
- Often students are unwilling to participate
- More time is required for this type of learning
- This can be more expensive
- There needs to be a high level of motivation
- This takes different knowledge about teaching, and new methods
- Traditional role of the teacher is strongly known, and this is a threat to our egos as instructors
- There is a continuing opinion that the best source of information is the teacher
- Expectations of students are that teachers are the experts, and they can sit passively and write down what they think will be on the test
- Students want to know what is the minimum needed for graduation, not to learn how to think and create
- Teachers are not confident enough to give up control in this way
- It is socially difficult in many academic institutions for teachers to perceive the students as equals or peers
- Not enough is known about immediacy in education [ability of teachers to communicate and promote real learning]
- We need more and better methodology to teach this way
- We need to be convinced that teaching is not a popularity contest
- It is easier to teach what we know that to explore together with students what is not known by any of us
- Will this be accepted in academia ... in our local universities; we are evaluated by our peers, and if we do things quite differently it could be seen as a threat to others

Conclusions

These are the 'raw data' from the conversations during the workshop, and as yet they have not been reduced in number to eliminate duplication or edited for clarity of meaning. This will be the next step, to look at frequency of the different ideas and to draw come meaningful conclusions about the ideas from the group. In the final workshop summary, I will attempt to provide an objective summary of the individual contributions and the group discussion, and also add some personal interpretations of the current situation: both advantages and disadvantages as I see them at this point in time. Thank you to everyone for participating, and please add other ideas here so I can included them. [from Chuck, the workshop moderator]

Workshop II: Desirable Knowledge and Competences for Students Finishing Organic Agriculture BSc and MSc Study Programme. Moderator: Martina Bavec & Franci Bavec, Univ. of Moribor, Slovenia.

Martina: description of knowledge and competence, as combination of skills & knowledge.

- Competence levels [Dreyfus & Dreyfus, Feb 1980: WDC: Storming Media
- Novice
- Experienced beginner
- Practitioner
- Knowledgeable practitioner
- Expert
- Starting points for study programmes & individual courses defined by number of contact hours, working load, individual work
- Who are we, and whom do we have as teachers? This includes what type of students we have in class, where do they fall on spectrum of interest, ... of capacities, ... of motivations. Levels of access to university have changed over the decades, and this will influence who comes and how we decide to teach.
- Evaluation of students' knowledge & work how do we do this?
- What are minimal requirements to pass the exam?
- How do we evaluate according to normal distribution? [in current group, in historical performance, in terms of improvement, in terms of minimal criteria, other metrics that could be useful such as preparation for future work?]
- Should this be measured in their capacity for future work with organic farmers?
- What are our goals and how do we achieve them? Example is distinguishing between GMO and normal plants ... can we see the differences? Criteria for grading and passing an exam depends on setting the level of achievement over all the questions on the exam.

Questions:

- what are the expectations, and criteria for evaluation, and how well are they understood by students
- how do we base decisions on grading or pass/fail in a specific course; it depends on context of the course;
- do students really understand the question, do they understand the concepts and have a basis for their decisions/answers, does the answer depend on context [location, system, university specific rules and interpretations of grade levels]
- competence levels may be different from knowledge levels, and are difficult to establish; competence generally means the ability to something, rather than just how much a person knows about the subject
- a useful conversation could be over what do we expect students to be able to do in the real world, rather than just the ability to pass an exam over a given topic
- there appears to be general consensus to establish a basic set of criteria for knowledge/competences so that we evaluate people using the same scale or criteria in all countries ... a type of 'technical certification' for a given degree

■ in essence we already do this for each course, and for each curriculum, as we set up the graded activities as well as the criteria for grading these; is it possible to do this across the European educators community

Recommendation is to have a workshop next year on the topic to develop a standardized exam on which we could all agree. This will require good planning ahead and people's involvement in the process to make any meaningful progress toward agreement.

CAF: Other criteria or competences needed, both higher-order/lower-order issues

- critical thinking skills
- levels of basic knowledge of subject
- ability to summarize and transmit knowledge to others
- self-recognition of personal capacities for knowledge, and problem solving
- ability to generalize from information to new situations
- capacity to bring together information from multiple sources
- ability to apply information to real-world challenges, move into responsible action as a result of the education

[We especially invite the critical editing of these notes by Martina and Franci Bavec, since they were the organizers and Martina served as moderator of the workshop]

Workshop III: Similarities and differences of the concepts of organic farming and agroecology – with focus on teaching: Moderator: Christian Vogl.

Rationale for workshop is 1) confusion about whether ENOAT includes both organic agriculture and agroecology, and 2) teaching of topic today by our members includes not only organic agriculture but also permaculture, agroforestry, social agriculture, and a wide range of other topics including food sovereignty, regional agriculture and many wide-ranging topics. Moderator posits the importance that we should return to our roots in organic agriculture, started by farmers, now codified into regulations of IFOAM and all of the certification programs that abound in many countries as national policies. We can agree that organic farming is defined by regulations, and this is set in each country and overseen by the IFOAM. This is what should be the platform for education in OF.

We could also argue that OF is a series of practices that have been developed by farmers, and that has a scientific basis as shown by credible field research. When we discuss AE versus OF there are large differences in definition that need to be considered, and dispel the notion that 'one is better than the other'. There is large confusion when we bring in social issues such as scale of farming, treatment of labor, and distribution of benefits. There are large and small organic farms, and these could both exist if they follow the legal rules in each country.

Definitions are important, since they shape the discussion and the learning process. For example, do the rules for organic production feed into a larger social debate, and such questions as domination of large farms, neocolonial pressures about global food systems, and the roles assumed by large companies in dominating the markets? These are important questions that should be on the table as part of the education process. They can lead to fruitful debates about the rules for organic farming, whether social issues should be included or not, and how important the environmental dimensions are in this whole question?

Sustainable agriculture and development had large currency and some more specific value before the Brundtland Report, when many people and large corporations jumped on this term including the multi-national chemical companies. This almost totally compromised the term, and we started to look for other alternatives. Some went back to organic agriculture as the term of preference, with its specific definitions and regulations. Others migrated to agroecology [ecological agriculture] as a better way to include the production, economic, environmental and social dimensions of the food system. The debate goes on. Ecological farming is 'organic' in some countries in the local language translation, and this further complicates the discussion.

An interesting dimension today is the debate about hydroponic production, such as the current system in Netherlands with glass houses and all nutrients provided by accepted sources – even organic. The whole idea of 'soil-less culture' is subject of huge debate in several countries in Europe and U.S. Purists in organic agriculture argue that this is not a natural system, while others say that it meets all the criteria for certification and should be allowed. This debate also continues, and is not yet resolved.

As organic farming grows in some countries, this becomes an attractive market which quickly gains attention from large farmers and corporations. They then argue that the rules should be

changed to allow their production methods to be used so that they can enter in this lucrative market. The new term 'bioeconomy' enters into the debate, and this seems to be part of the political/economic sector that is pushing to introduce new types of technology into science. How do we deal with this in the educational community? This could be seen as re-labeling of older practices to suit business. We as educators need to open the discussion for our students to make them aware of the major issues and hopefully explore the forces behind each of these.

The terms 'ecological-, bio-, local-, organo- and others' are now under large debate. In organic agriculture, there are questions about environment, about scientific application of principles of agriculture, about use of specific inputs. Agroecology as defined by Prof Vogl is the study of ecology as applied in agriculture, while organic farming is a specific type of system that is certified and codified and has unique but similar rules in each country, but all under the umbrella of IFOAM. There are links of OF to permaculture, to agroforestry, to food sovereignty that includes political dimensions, and it appears that 'bioeconomy' may be contradictory to most of the principles of OF. There is a further confusion because of translations, even in German between Austria and Germany, and use of other terms in the Nordic Region, U.S., and Latin America.

We agree that this is a start on the topic of organic versus ecological versus sustainable, and one that should be a part of the educational process in all of our courses. It is a fascinating topic for debate, and one that will stretch the imaginations of our students and get them engaged with the current thinking from the ENOAT group. [this draft was already provided to Christian Vogl for editing, since he was the workshop moderator]

ENOAT Website. Aims and design of the website. Moderator: Teresa Briz

What has been done so far on the web site: ENOAT [enoat.chil.me] is fully described and all of this is open to discussion and change. This will come from the group. We still need basic information on some of the partners, so this can be added to the Partners 'click site' on the European map. No photos are included for some universities, and we are still missing basic information from seven universities. Activities currently includes agendas for current and upcoming meetings. Documents so far includes all the proceedings since 2007 up to present. Should we include only teaching papers here, or also research papers. Members are the key people who need come in to follow on the network. You must log in and put in your email address and password. Then you put in your personal information that you want to have on the web site. Where do you work, what is your address. Photo gallery has the annual photos from the meetings, we can also have summer course photos, or whatever we decide to include. Uploads can be designated as open, or as only open to members/followers. You can notify whoever you want to include when something is uploaded. Inquiries can be directed to all the followers, for example a student who wants to know about available questions, or a farmer who wants to learn about a specific question. Teresa will have the website ready by December, and everyone needs to register as a member before then.

Discussion:

- we had a website for several years organized by Peter von Fragstein, including a logo designed by the group
- the new proposed logo is spare and designed by the tech people in Univ. Madrid, indicating a network and connections among the players
- this logo could be changed to green, and the agreement is that this should be a medium green shade
- everyone should select a few excellent photos with teachers and students to send to Teresa; send before 11 October
- change term from 'members' to 'teachers'; change 'partners' to 'partner universities'
- suggestion is to include only teaching papers, and not research papers; there are already many platforms for organic research results
- curriculum details should be available, and the links can be put under the partners, since there are offices in each university that keep these up to date
- inquiries will be changed to contacts, the most commonly used term on web sites in English
- four quotes from the publication from Charles University can be put on the 'about us' tab to get a better impression about what ENOAT is all about, goals, and results of the meetings
- all partners need to send the information they want on the web site to Teresa in Spain, so that she can complete the citations and hot links under each country on the 'member universities' tab

Purpose and Future Role of ENOAT in the European Educational Landscape. Moderator: Ewa Rembialkowska

There is a proposal that the meeting be held in Prague in 2018, with a kind invitation of Dr. Perla Kachtova to organize the program schedule and local arrangements; another future opportunity

for a meeting is in Novi Sad in 2019. This will be decided through communication among the members in the near future. Tentative dates are 22-23 September 2018.

Friday, 22 September 2017 Excursion Program

0830-0845 Start from Buda campus in front of the K building Visiting organic farm at Vertes National Park of Hungary Csakvar (Pasture management) <u>http://provertes.hu/</u>

1200 Lunch at the farm 1400 Visiting organic farm at Kiskunsag [Kecschemet] region. Rendek ecofarm http://www.okomuzeum.hu/angol/informaciok/ecofarm introduction/1/1/1/1/1

1830 return to Budapest

The cost of the bus is approximately 25 Euro per person + catering on the excursion; lunch and food tasting on farms: 16 Euro

Saturday, 23 September – departure



Poland

Szkoła Główna Gospodarstwa Wiejskiego w Warszawie Warsaw University of Life Sciences

Teaching Activities in "Organic Farming" at Warsaw University of Life Sciences (WULS) 2017/2018

Faculty of Human Nutrition and Consumer Sciences

Prepared by: Ewa Rembiałkowska (ewa_rembialkowska@sggw.pl)

1. Full Time and Part Time Study Track of Human Nutrition And Food Evaluation

Obligatory course: **Organic food** 130 BSc students per year 4 ECTS language of course: Polish

2. Elective course: Ecological aspects of food and nutrition
- for all foreign students (Erasmus, CEEPUS, Erasmus Mundus) in every semester - 6 ECTS. It is elected every semester by 10-15 students language of course: English.

3. Obligatory course **Quality and safety of food** For the PhD students, 2 ECTS.

Every year 15 students. Polish.

Faculty of Agriculture and Biology

Prepared by: Katarzyna Kucińska (katarzyna kucinska@sggw.pl)

1. Full Time study of Agriculture and Environmental Engineering *

Bachelor and Master Level:

Education path in "Modern Agriculture" one of the module: **Organic Agriculture** consisting of the 4 lecture courses available for students starting at least 3-rd year of Bachelor study and elder:

Winter semester

- 1. Basics of Organic Agriculture 2 ECTS
- 2. Organic Plant Production 2 ECTS

Summer semester

3. Organic animal husbandry – 2 ECTS

4. Production and quality of organic food – 2 ECTS

Module studies take one academic year. It is elected every year by about 100 Full Time students from both levels of Agriculture and several students from Environmental Ecology. Language of all courses: Polish

*Students of Environmental Ecology are not obliged to take all courses of the Organic Module. They can make a choice some of them.

2. Part time study of Agriculture

<u>Modern Crop Production</u> – one facultative module consisting of 4 lecture courses:

- 1. Environmental Ecology 2 ECTS (some of the lectures concern AE)
- 2. Organic Agriculture 2 ECTS
- 3. Code of good agricultural practice 2 ECTS (some of the lectures concern AE and OA)
- Modern Technologies of Crop Production 2 ECTS (some of the lectures concern AE and OA)

Module studies take two years

It is elected every two years by 120 Part Time students from both levels.

language of all courses: Polish

3. <u>Elective course: Organic Agriculture</u>

Dedicated for all foreign students (Erasmus, CEEPUS, Erasmus Mundus) in every semester – 3 ECTS.

It is elected every semester by 4-6 students (~10 student per year) language of course: English

Examinations for all courses: tests or oral exams (depends on the teacher)

4. In preparation:

BSC full 3 years study Organic Agriculture and Food Production (OAFP) in English, planned since 1 X 2018.

Bulgaria

Present situation of Agro-ecology and Organic Farming teaching at Agricultural University – Plovdiv, Bulgaria: Ivan Manolov

During the academic year 2016/2017 the education of students in B.Sc. specialities **Agro-ecology** continued. The students could study Agro-ecology on full time basis or part time. The number of students taking classes on full time and part time basses is almost equal (about 15 students). Part time education gives possibilities for students who already have a job or their own business connected with agriculture to study as they need to be present for only three weeks in the university. Speciality Organic farming is offered on full time basis only.

Because of détérioration of the demografic situation in Bulgaria in recent years, the number of young people who potentialy can study decreases. Vacant places for students in Bulgarian universities are more than the number of graduates from secondary schools. This negative trend, which will increase in the comming years, affects our university, too. There is no enough students in our University who wish to study Organic Agriculture in order to cover the minimun number of sudents necessary for opening of specialty. Due to this reason last year the specialty **Organic Agriculture** was closed.

There is students' interest to study organic agriculture. The elective subject "**Introduction in Organic Agriculture**", which I teach, has been chosen by students from four specialties **bachelors degree** – General Agronomy, Horticulture, Ornamental Horticulture and Selection and Seed production. Number of students in each course was:

Horticulture – 21 students (full time students);

Ornamental Horticulture – 7 students (full time students)

General Agronomy – 33 students (part time students)

Selection and seed production -13 students (part time students)

The total number of students who studied this subject in years 2016/2017 was 74.

Additionally **one Erasmus student** from Italy studded this subject last year.

Masters courses: The subject "**Introduction in Organic Agriculture**" was studded by students from two master's specialities:

Mineral nutrition of plants and fertilization – 7 students Agribusiness – 8 students

The international Erasmus+ project "Building Key Competences and Folkhighschool Pedagogy in XXI Europe" finished successfully on 31.08.2017. In the frame of the project curriculum and handbook for Organic Agricultural applicable for Folkhighschools was developed. Two student's courses started to study using these materials in Poland. First course started in 2015, and the second in 2016. Studding period of one course is 2 years including practical work in different organic farms. Project partners of the project were Universities and NGOs from Poland, Germany, Denmark, Switzerland and Bulgaria.

The Agricultural University is partner in another Erasmus+ project with the title "Developing OER and Blended Modules for Agriculture and Rural Development". Project partners are Universities, farmers associations and NGOs from Macedonia and Greece. One of project's outputs is development of Organic Agricultural course in Macedonian and English. The course is ready and peoples from Macedonia were educated.

Macedonia

The Current Situation and Future Plans of Teaching Organic Farming and Agroecology at the Faculty of Agriculture and Food Sciences of the "Ss. Cyril and Methodius" University in Skopje

Prof dr. Rukie Agic

Department for Vegetable Crops and Flowers at the Faculty of Agriculture and Food Sciences of the "Ss. Cyril and Methodius" University in Skopje, Republic of Macedonia.

"I currently teach 'Eco Farming of Vegetable Crops' in the study program Eco Agriculture at graduate studies level; and 'Organic Vegetable Production' within the module Vegetable and Flower Production as part of the study program Plant Biotechnology at postgraduate studies level. The Faculty of Agriculture and Food Sciences is one of the oldest higher education institutions in the Republic of Macedonia. It was one of the founding departments of the University "Ss. Cyril and Methodius" in Skopje. Since then, it regularly covers its main educational, scientific and applicative activities.

The curriculum is organized according to the Bologna principles with 240 ECTS. The studies are divided into eight semesters, where the first three semesters are uniform for each study program, allowing full internal mobility. The courses in the study programmes become specialized and are designed according to the need of each study programme. All of the courses are arranged as one semester courses, and in addition to the obligatory ones, electives are chosen from the list of elective and facultative courses. Lectures apply methods of cathedra teaching and self-studies, laboratory sessions and applicative research work. It is based on interactive collaboration between teachers and students.

The faculty offers ten specialized study programs on a graduate level. Eco Agriculture as one of the study programmes offering education related to ecological and sustainable agriculture and proper management of natural resources and ensuring environmental protection.

The postgraduate studies are organized in two or four semesters, according to the ECTS, the students can acquire 60 or 120 credits. In the postgraduate studies level, the course 'Organic Vegetable Production' is included in the module Vegetable and Flower Production of the Plant Biotechnology programme.

Macedonian organic agriculture has visible development perspectives but in order to fully develop its potential, education will play an integral role for all parties in the organic sector.

Future plans: The Faculty of Agriculture Sciences and Food is closely following the current trends in agriculture by adapting the programmes to the market needs, especially focusing in developing specialists of organic production, which are deficient and attractive at this moment. With the aim of acquiring knowledge and skills in organic farming, the study programme Eco Acgriculture will be renamed Organic Agriculture.

In addition, the Department of Vegetable and Flower Crops recently proposed opening a new module Sustainable systems and organic vegetable farming at the postgraduate studies. Finally, I believe that participation in ENOAT would be a valuable contribution with the aim to handle, address and deal with organic farming education as well as to identify common problems and suggest solutions by offering joint degree programs.

Czech Republic

University of South Bohemia in České Budějovice, Faculty of Agriculture

Organic farming has an extensive tradition in Faculty of Agriculture at University of South Bohemia in České Budějovice. We were one of the first universities who started adopting organic farming at academic level. Following are the subjects we teach in our faculty: **Agroecology** (Bachelor and Master degree, PhD.), **Sustainable development in landscape** (Bachelor degree) and a newly added programme titled **Multifunctional farming** in English (Master degree), which includes organic and social agriculture.

We cooperate with leading institutions to solve and accomplish various projects, including educational one as well. We are member of many national and international organizations dealing with the topics of organic farming and agroecology (for example Czech Technology Platform for Organic Farming, PRO-BIO Consulting, Agroecology Europe and thematic and expert groups at IFOAM EU, TP Organics, EIP-Agri, etc.).

Horizon 2020 – NEXTFOOD: The overall aim of NEXTFOOD is to generate an innovative European science and education road map for sustainable agriculture along the value chain of research via fabrication into application. Hence we aim to educate the upcoming generation of professionals in the agrifood system - cyclical learning system. We are pleased to announce that we have progressed to second stage and we are now one step closer to winning the competition. Furthermore, we have a strong international participation; we are a leader of WP5 - Quality Standards for Education Evaluation. On this project there are also case studies planned that will modify above mentioned subjects.

ERASMUS+: Another ERASMUS+ projects aimed for education and innovation in the fields of social agriculture. From which two projects were obtained (methodological and educational for which materials will be prepared). There is a strong link to organic farming, because the social agriculture is often implemented on organic farms. Further projects are going to be managed are; ecological kits and ecological intensification. Projects from ERASMUS+ that are close to being finalised and the ones that are ongoing we are finalizing materials related to education in the field of sustainable food and we are implementing it in the practice. Furthermore, we are preparing in cooperation with the Ministry of Agriculture to introduce organic food to all schools in Czech Republic.

V4 project – Social Agriculture: This is soon ending project, where the social agriculture has been mapping in V4 countries. We are preparing a new subject for the social agriculture and it also contains many elements from organic agriculture. There is running also a cycle of inviting foreign guests to the subjects related to organic farming - Dr. Thomas Van Elsen from Kassel who visited our faculty in summer and another visit is planned from ISARA-Lyon colleagues and prof. Ewa Rembialkowska from Warsaw in autumn. Members of our Faculty are helping us with improving education and practice for practitioners, by participation in national events or activities in Czech Technology Platform for Organic Agriculture, PRO-BIO consulting, commission for organic agriculture at the Ministry of Agriculture and commission for Social Agriculture at the Ministry of Agriculture.

Our challenges and plans for the future are to get more PhD. students from abroad as this would bring various benefits to our faculty such as improving English language skills of our current students enrolled for Multifunctional Agriculture.

Serbia

Organic Agriculture and Agroecology Teaching at the Faculty of Agriculture, University of Novi Sad

Maja Manojlović Faculty of Agriculture, University of Novi Sad, Serbia

The study programs are organized according to the Bologna system (4 + 1 + 3). The same situation is on all public universities in the country and is dependent on financing by Ministry of education and science.

BSc in Organic Agriculture started in 2009/2010 and it was supported by GIZ, German development agency. Later, the program was improved, passed reaccreditation in 2014 and we expect new reaccreditation in 2018. The numbers of new I year students are around 50 students. Responsible department for organization the study program is D. of Field and Vegetable Crops although teachers from all departments are involved in the teaching process. **BSc in Agroecology and environmental protection** started in 2008. About 50 students enroll the program each year. It is organized by D. of Plant Protection.

BSc in Agroturism and rural development started in 2009/2010 under the responsibility of D. of Agroeconomics. **MSc in Organic Agriculture** started in 2006. Numbers of students are around 10 each year. D. of Field and Vegetable Crops is responsible for the program although a few teachers from other departments are involved in teaching process. For the time being, **MSc in Agroecology and Environmental Protection** doesn't exist at the Faculty of Agriculture. Students are directed to other MSc studies.

PhD in Agronomy / Agroeconomy - also accept organic agriculture topics for dissertation.

Current challenges and future plans

Only a small proportion of the BSc students are coming from the secondary schools of Agriculture and the highest numbers of the students coming from the Gymnasiums. Although around 50% of the students are from the villages, the majority of them have not had any experience in farming. The lack of all MSc programs are short time for work on Master thesis experiment as only one semester is dedicated to work on the thesis as the whole program last one year. That means that most of the students can not take degree in planned time. The other challenge is a lack of organic certified experimental fields belonging to the F. of Agriculture. For that reason, practical works of our students are organized: on the conventional experimental fields of the Faculty; on certified fields of the Institutes; and on the private organic farms and companies.

Regarding future plans, the strengthening relationship with companies and private sector is crucial in order that students get insight into real production, challenges and potentials of organic agriculture. On that way, the companies also get possibilities to meet potential employees. Also, the improving of the curricula continuously is very important in order to get comparable programs to similar in Europe.

Hungary

Organic farming education at Szent István University of Budapest

Faculty of Horticultural Sciences, Department of Ecological and Sustainable Farming Systems 2017

Organic farming is educated on BSc and MSc level at the Faculty of Horticultural Sciences and it is also available as further education course for BSc or MSc graduated people as adult education as corresponding course in four semester. Organic Agriculture is educated for foreign students too under Erasmus or other programs. The responsible department is Department of Ecological and Sustainable Farming Systems

Organic Farming education had been developed a lot in recent years, during the past few years our department has launched the MSc course of OA on regular and for corresponding students. From next year (2018) in spring semester we are going to educate the MSc course for corresponding students. We have regular students every year, but their number was under ten. OF is the topic of high priority showing the whole scale information from agriculture to horticulture, for the environment management engineer students, and for horticultural engineer students. We educate OF as A (compulsory) subject on BSc level for them in their 5th semester. They can specialise to OF and can write their thesis about the topics offered by our Department.

On BSc level there is no independent or accredited OF course yet. The Department issues BSc, MSc and PhD topics in organic farming. http://okogazd.kert.szie.hu/

Postgraduate education with admittance of relevant BSc degree is available since 2012, in OF it is four semester, and give a graduation with a specialised engineer degree as Organic Farming engineer, made it accredited and educated by our OF Department, Budapest.

The education of OF on MSc level is not privilege of our department, since we had been joined to Szent István University, Gödöllő. The Faculty of Agricultural Management in Gödöllő has an Institute: Institute for Nature Conservation and Management that involves two departments and one of them is also focusing on OF, but in different aspects are emphasized. The name of the Department is Dept of Organic Farming and Agri-environmental Planning. www.tti.szie.hu

Since we have been joined to Szent István University the syllabus of two OF MSc course has similarities but it is educated separately, with teachers from the different faculties of Gödöllő and Budapest. Sometimes special subject are educated by the same teacher, the same person at both site.

OA education in English available for Hungarian and foreign students on BSc level, since this year in BSc in Horticulture program as compulsory subject.

Germany: Univ. Hohenheim

Status Quo of Organic Farming and Agroecology Teaching at the University of Hohenheim 2017

Bachelor Level

Within the six semester of the Bachelor in Agricultural Sciences (taught in German) two elective modules on organic agriculture exist: "Basics and Socioeconomics of Organic Agriculture" and "Animal Husbandry and Crop Production in Organic Farming". These two modules are offered in sixth semester of the Bachelor programme for all study profiles (Animal Sciences, Plant Sciences, Socioeconomics, Agricultural Engineering, Soil Sciences) in the Bachelor programme. In particular the module "Animal Husbandry and Crop Production in Organic Farming" is frequently chosen by students with about 50 to 60 students attending every year. Moreover, Organic Farming topics are integrated in other modules of the different topics.

Master Level

The University of Hohenheim offers the M.Sc. Programme "Organic Agriculture and Food Systems" (https://www.uni-hohenheim.de/en/organic-agriculture-and-food-systems-masters) as a single degree or as a double degree track (EUR-Organic, www.eur-organic.eu). The Double Degree track is set up in a cooperation with the University of Arhus, Denmark, the École Superiéure ISARA-Lyon, France, the University of Life Sciences Warsaw, Poland and the University of Natural Resources and Life Sciences Vienna Austria.

Within the M.Sc. programme 12 modules on organic farming are offered, addressing different aspects of organic food systems, eight of the modules are compulsory in the M.Sc. programme. All modules on organic farming can be selected as elective modules by students of other M.Sc. programmes of our faculty. The programme has a generalists' approach in the compulsory modules, but the students can create their own study profiles by their choice of elective modules. As our university holds Chair for Landscape Ecology and a Chair for Agroecology on the Tropics and Subtropics, nature science based aspects of Agroecology are integrated in different modules

offered by both Chairs. Our Institute of Social Sciences in Agriculture focuses in addition on sustainable food systems and includes Agroecology in a wider sense as well as Organic Farming in their teaching.

FACULTY OF AGRICULTURE

Coordination for Organic Farming and Consumer Protection

Dr. Sabine Zikeli

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Sabina: I will try to scan your page and paste it in here in place of this pdf. That way it will have the letterhead with logo and all. Chuck

Germany: UniKassel, Witzenhausen

October 2017

University of Kassel, Germany Faculty of Organic Agricultural Sciences Holger Mittelstraß – Studies Coordinator

Current situation of Organic Farming and Agroecology teaching

Resources

Personality:	21 Professor 250 employe	en/innen, 4 Honorary-/extraordinary Professors ees		
Equipment:	2 Campus (in Witzenhausen), 3 Research stations (Witzenhausen, Eichenberg, Frankenhausen)			
Finances: Teaching	nances: state funds 0,5 Mio €, external funds 6,5 Mio € eaching			
1250 student	ts in total (wit	h 55/45% female/male and 20% international students):		
	700 Bachelor	Organic Agriculture (10% in Dual studies), 170 Master Organic		
	Agriculture (both German);		
	170 Master S	ustainable International Agriculture (together with the University of		
	Goettingen),	10 Master Sustainable Food Systems (new, together with five European (both English)		
	Universities	(DOUN ENGINEN)		
Modules (each 6 Credits):		55 for Bachelor Organic Agriculture		
		28 for Master Organic Agriculture		
		33 for Master Sustainable International Agriculture		
		8 for Master Sustainable Food Systems		
Internships:		3 + 4 months in the Bachelor Organic Agriculture		
Project-orien	itated teaching	g:integrated in all study programmes		
Excursions:		1 week interdisciplinary excursion Organic Agriculture in Europe,		
		3 weeks interdisciplinary excursion Sustainable Agriculture overseas,		
		several day excursions in Germany on organic topics		
Conferences:		1 week student conference and several smaller conferences on organic		
		topics,		
		Summer school Sustainable Food Systems		
		1. German Organic Field days on the Research farm Frankenhausen		
		(every two years)		

Slovenia

Teaching Organic Agriculture and Agroecology on University of Maribor Faculty of Agriculture and Life Sciences (FALS)

Martina Bavec and Franc Bavec, ENOAT meeting in Budapest, Hungary, 20-22 September 2017

Introduction - some general thoughts

Based on IFOAM Principle of Ecology »Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them« (IFOAM 2015) teaching organic agriculture means also including agroecology principles. In the last period attention of society and policy from sustainable agriculture (Bavec et. al. 2009) as all agriculture is or should be sustainable or more green – at least in Europe, goes towards circular economy. According to FAO the concept of circular economy it goes beyond production and consumption of goods and services alone: it seeks fair solutions based on local needs, resources and capacities, creating equal and sustainable markets. It seeks to strengthen short food circuits with a decreased number of intermediaries, increasing the incomes of food producers and keeping a fair price for consumers. Circular economies also take into consideration the role of diversity as a characteristic of resilient and productive systems. Our opinion is that organic agriculture could be a model of circular economy and has obvious positive impact on biodiversity (Bavec and Bavec 2015).

Teaching organic agriculture on FALS

Collaboration of professors of Faculty of Agriculture from Maribor in European Network of Organic Agriculture Teachers (ENOAT) established in 2001 was encouragement to start thinking towards B.Sc. study programme Organic Agriculture in Slovenia. With support of members of ENOAT, which is recognized as a "good practice" in Education for Sustainable Development ESD (UE4SD (2015), the first drafts were done and in Maribor also three-times successful summer schools "Alternatives in organic crop production" were organized in years 2003, 2005 and 2007. Need for more knowledge and research in organic sector was written in the National action plan for development organic farming towards 2015. All of these resulted in accredited B.Sc. study programme according "Bologna" rules with 30 study places and in study year 2006/07 the first students started studying.

After 10 years, this is at Faculty of Agriculture and Life Sciences (FALS) University of Maribor still one of the most popular program concerning the number of interested students in the last years. Each year 5-7 Erasmus students takes Organic Agriculture modules. Also other students of 5 out of 6 B.Sc. study programs have 5 or 3 ECTS course "Basics of organic farming". It means that almost all students finishing B.Sc. have at least basic knowledge about organic farming. There is possibility to continue with study of organic agriculture on M.Sc. and Ph.D. level. Students have their practical education on organic part of faculty estate, collaboration in research projects of Institute of organic farming on FALS, one week on certified organic farms, one week in certification body IKC-UM and additionally they can make practical work which could be added in attachment of diploma.

Due to some personal changes and attitudes of people of the leadership of faculty there is an intention to make several changes into a program without any internal discussion on the chair for organic agriculture and there is intention for decreasing number of B.Sc. study programs (2-5 out of 7) and further development is uncertain.

But in contrary, organic sector in Slovenia is developing and sooner or later there will be also on the other faculties or high schools more courses or perhaps even study program on this topic.

Other education and other teaching activities towards sustainability

FALS activities are oriented in organic agriculture also through research and development projects, organizing seminars about different topics in organic agriculture and even educations for farmers or other interested groups – in the year 2017 people from gastronomy with intention to support using organic food in tourism, public kitchens of schools, hospitals,... On several occasions the role of organic food for sensitive groups of people especially children was presented to different groups of people in Slovenia and nearby countries.

Under the project Health-Care: Sustainable food consumption financed by European Territorial Cooperation four modules for lectures with exercises and games for primary schools were prepared:

- *My food our future;*
- I know what I eat;
- Good for me good for the nature;
- Biodiversity instead of uniformity.

Organic, local, seasonal and fresh food, not prepared food, less meat and sugar with healthy life style is means sustainable food consumption.

In addition, a film entitled "Circular economy in organic agriculture" was a part of the project and is available on <u>https://www.youtube.com/watch?v=eMhF5erlx18</u>.

Conclusions

Developing organic agriculture could be a key for sustainable development and realisation of circular economy in agriculture. Teaching about organic agriculture including agroecology and organic gardening (on under university levels ie. primary schools and kindergartens) could be a model for ESD and integral green economy which is idea among a group of researchers and professional public (Osterc et al. 2016). And in the case of Slovenia orientation towards organic is a natural development path.

Literature

- Bavec, M., Grobelnik Mlakar, S., Rozman, Č., Pažek, K., Bavec, F. (2009). Sustainable agriculture based on integrated and organic guidelines: understanding terms : The case of Slovenian development and strategy. *Outlook on Agriculture*, 38, 1, p. 89-95
- Bavec, M., Bavec, F. (2015). Impact of organic farming on biodiversity. In: Yueh-Hsin, L. (ed.). *Biodiversity in ecosystems Linking structure and function*. Rijeka: InTech, chapter 8, p. 185-202.
- Osterc, J., Bavec, M., Rotar, I., Žugelj, E., Erjavec, I., Bizjak, K. R., Gopurn, M., Firm, A., Fekonja, M., Stritih, J., Gole, R., Piciga, D. (2016). Food and energy self-sufficiency : preserving nature and communities and coping with global challenges. In: Piciga, D. (Ed.), Schieffer, A. (Ed.), Lessem, R. (Ed.). *Integral green Slovenia : towards a social knowledge and value based society and economy at the heart of Europe*, (Integral green society and economy series). London [i. e.] Abingdon; New York: Routledge, 2016, p. 45-6

- IFOAM (2005). Principles of organic agriculture. Health, Ecology, Fairness and Care. Website of IFOAM Organics International. Retrieved from <u>http://www.ifoam.bio/en/organic-landmarks/principles-organic-agriculture</u>
- UE4SD (2015) Leading Practice Publication: Professional development of university educators on Education for Sustainable Development in European countries. Editors: Kapitulčinová, D., Dlouhá, J., Ryan, A., Dlouhý, J., Barton, A., Mader, M., Tilbury, D., Mulà, I., Benayas, J., Alba, D., Mader, C., Michelsen, G., Vintar Mally, K. Charles University in Prague, Prague, 136 pp.

Norway

Current situation of Organic Farming and Agroecology: NMBU Norway

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The two-year agroecology MSc programme at NMBU is now in its 18th year since beginning in 2000. We have 21 students from 11 countries, including 9 in the double-degree option with ISARA [France], 11 in the single-degree option in NMBU, and one special student enrolled for the autumn semester. The call for students each year continues to attract quality applicants, and Agroecology currently has over half of all MSc students in the Plant Sciences Department and over one-fourth of the graduate students in the Faculty of Biosciences. We intend to improve promotion to increase number of applicants, and perhaps raise the cap on number of students in the course.

In October 2016 the Agroecology teaching programme received the NOKUT national teaching quality award from the Ministry of Education. This is the *Norwegian* Agency for Quality Assurance in Education, and one award is given each year in the country. The nomination was for our *Action Learning Model*, and the program was chosen from among thirteen applicants.



In October 2017 the teachers in the programme will contribute to in AgroecoWeb II with an online 'Ted-Talk-like' presentation called **From agroecology to the agroecologist: Cultivating five core competences**. We present an overview of key teaching innovations by Geir, then video interviews with all teachers about the competences, several videos of students working on farms and describing their interpretations of the competences, and team projections for the future. The Agroecoweb will be broadcast from Brazil as part of a week-long series on key contemporary topics in agroecology [October 4-10]. Registration is free to everyone, and you can sign up for information and participation, and select your preferred language [English, Spanish, Portuguese] and join over 40,000 people already registered by mid September [http://agroecoweb.com.br/English/].

Norway

Promoting Systems Learning through Agroecology: Role of Publications

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Introduction

In a previous paper we explored several compelling reasons for evaluating, reflecting and writing about our teaching experiences [in ENOAT proceedings from Witzenhausen, Francis et al. 2016], including efforts to:

- Consider evaluation a continuing and integral component of education
- Value serious feedback from students on success of learning activities
- Recognize the contribution to learning of reflection by each student
- Improve learning activities and courses by incorporating student suggestions
- Build credibility in agroecology teaching programs by seeking peer review
- Validate teaching ideas and agroecology focus in a learning organization

We include continuous and imbedded evaluation as one innovative learning activity imbedded in the weekly schedule of a full-semester autumn course. To some degree we also maintain communication with students in their 2nd and 3rd semester courses in Norway or elsewhere, and provide mentoring that contributes to the final thesis research project in the 4th semester. In this final stage of the Agroecology MSc degree programme, we spend more time as students carefully craft their thesis topic, decide on specific research objectives, design methods appropriate to answer these questions, and conduct field research and write the thesis. Up to now, we have been most successful during the first semester intensive course and during the thesis research, and need to improve our continuous mentoring capacities and strategies. Here we present the methods we use for evaluation, the results we observe from the student perspective, and a brief record of publications and submitted manuscripts during 2017.

Methods

Unique to the fall semester agroecology course is structured evaluation, including a quantitative rating and open-ended commentary every second week on each of the class activities. We also conduct a less formal five to ten minute evaluation conversation at the end of every class and field activity, though the team is less rigorous in keeping notes on these sessions. Results of both are shared at weekly teacher team meetings, and used to modify upcoming class sessions on campus or in the field. During class sessions, field exercises, individual conversations with students, and frequent potluck dinners and other less formal events we are observing social interactions and counseling students while at the same time assessing their learning. Periodically we summarize the results of these activities in papers for education conferences, journal articles, or book chapters. This tradition has been imbedded as a key component in our continuing agenda to improve relevance of educational.

<u>Results and discussion</u> We have continued to pursue the objectiv

We have continued to pursue the objective of publishing results of our learning experiences during the current year. Results include ______ journal articles, three book chapters, and ______ presentations in educational meetings [in review, accepted, or published]. These publications primarily focus on the five priority competences that we consider most important for agroecologists who complete the MSc programme: observation, participation, dialogue, reflection, and visioning. They also include several summaries of lessons learned in our teaching activities, as well as papers published by current or former

students active in the agroecology programme. It is important that students carefully evaluate their research, and complete the process by formal publication of the results.

This year we participate in AgroecoWeb from Brazil, a large web-based seminar from 4 to 20 October 2017 that will be available in English, Spanish, and Portuguese. More than 20 presentations will be broadcast on line at no cost for registration. You can register at the web site [http://www.agroecoweb.com.br/?page_id=3304] and indicate your language of choice. By the end of August, there were 31,000 people registered to participate in this major event for Agroecology. The NMBU Agroecology MSc Programme will present *Agroecology: Building on Past, Evolving in Present, Visioning for Future.*

Our educational group continues to evaluate learning through quantitative and qualitative analysis of learner documents submitted by students from 2000 to 2016. The programme now includes four core courses: PAE301 *Introduction to Agroecology* [spring semester on line], PAE302 *Agroecology: Farming and Food Systems* [fall semester on campus at NMBU], PAE304 *Agroecology Qualitative Research Methods* [spring semester on campus], and PAE305 *Agroecology Research Proposal Writing* [spring semester on campus and on line]. We are thoughtfully evaluating each of these, and will share results in the near future.

In fall of 2016, the Agroecology Programme at NMBU was awarded the Norwegian National Teaching Quality Award by NOKUT [Nasjonalt organ for kvalitet i utdanningen] for the educational project "Action Learning Model for Sustainable Development". This award recognized the sustained success of the agroecology teaching program from 2000 to 2016 that features participatory learning, practical and hands-on education and effective blending of theory with practice in 'developing capacities in future agroecologists'.

Conclusions

We have learned though careful planning and evaluation, observation of our students, reports on their farming and food systems projects, and reflections on their performance in achieving course learning outcomes to use this information in continual improvement of courses and curricula. Through hands-on work in the field, dialogue with farmers and practitioners in the food system, and research on individual thesis projects our students are gaining the competences needed to accomplish responsible action in universities, non-profit organizations, commercial farming, private sector, and government institutions. We continually envision the future of the educational activities and programme, and design this to meet the unpredictable and dynamic challenges of the future.

Reference

Francis, C., G. Lieblein, T.A. Breland, A.M. Nicolaysen, and S. Morse. 2016. Why Evaluate Teaching and Learning and Then Publish Results? Proc. ENOAT Annual Workshop, Univ. Kassel, Witzenhausen, Germany.

Recent Publications by Teachers and Students

Education in Agroecological Learning: Holistic Context for Learning Farming and Food Systems. Charles Francis; Mary Wiedenhoeft; Robert Dehaan; Paul Porter. 2017. Chapter 13, in Agroecological practices for sustainable agriculture: principles, applications, and making the transition, A. Wezel, editor. Imperial College Press, London. pp. 395-418 [in press, Fall, 2017] **Teaching Agroecological Practices as Components of Complex Farming Systems.** Tor Arvid Breland, Geir Lieblein, Anna Marie Nicolaysen, Suzanne Morse, Lennart Salomonsson, Charles Francis. 2017. Chapter 15, in Agroecological practices for sustainable agriculture: principles, applications, and making the transition, A. Wezel, editor. Imperial College Press, London. pp. 445-462 [in press, Fall, 2017]

Agroecological Practices: Potentials and Policies. Alexander Wezel and Charles Francis. 2017. Chapter 16, in Agroecological practices for sustainable agriculture: principles, applications, and making the transition, A. Wezel, editor. Imperial College Press, London. pp. 463-480 [in press, Fall, 2017]

Agroecological practices mitigating climate change in sub-arid and sub-humid Africa: a Review. 2017. V. Debray, A. Wezel, A. Derkimba, K. Roesch, G. Lieblein, and C. Francis Agronomy for Sustainable Development [accepted 31 October, 2016]

Dairy goat keeping in the humid tropics: A case study of small-scale farming systems in Zanzibar. [___] T F Stone, C A Francis, and L O Eik, NMBU [in review, Agroecology & Sust. Food Sys. J.]

Agro-ecological rotation designs reduce dependence on industrial inputs. 2017. Boris Boincean, Charles Francis. Agroecology & Sustainable Food Sys. J. [accepted]

Nutrient management recommendations for smallholder organic Basmati rice production in Northern India. 2017. L. Ditzler, C. Decock, T.A. Breland, J. Groot, Ashish, D. Jayrahul, F. Eyhorn, and C. Francis. 2017. 19th Organic World Congress, New Delhi. November [accepted].

Cultivating biodiversity: a farmers view of the role of diversity in agroecosystems. 2017. Katie Bliss. Biodiversity [in press] doi.org/10;1080/14888386.2017.1361866

Environmental policy implementation in Uganda: extent to which decentralized natural resource management incorporates systems thinking. 2017. Stella Nanji, Charles Francis, and Charles Ssekyewa. Journal of Sustainable Development in Africa. 19(X):__-. [in press]

Agroecology: Building on the Past, Evolving in the Present, Visioning for Future. 2017. Geir Lieblein, Tor Arvid Breland, Anna Marie Nicolaysen, Charles Francis. Webinar to present in AgroecoWeb 2017, 4-10 October. Produced by Milton Padovan, Universidade Federal de Viçosa, Brasil.

Effects of Post Eviction Resettlement on Land-Use and Cover Change in Uganda's Oil Exploration Areas. 2017. Joseph Ssekandi, John Mburu, Oliver Wasonga, Laban Macopiyo, and Charles Francis. Journal of Environmental Protection 8:--__--. [in press]

Building Community Resilience In Land-Displaced Households In Uganda's Oil Explorations Areas. 2017. Joseph Ssekandi, John Mburu, Oliver Wasonga, Laban Macopiyo, and Charles Francis. Open Journal of Applied Sciences 7:443-457. doi: <u>10.4236/ojapps.2017.79033</u>. **Agroøkologi: Handlingsorientert læring i gårds- og matvaresystemer**. 2017 A.M. Nicolaysen, G. Lieblein, T.A. Breland og C.A. Francis. Presentasjon på kveldsseminar om andelslandbruk, økologisk, økonomisk og sosial bærekraft. Vitenparken, Campus Ås, Norway.

Competences for responsible action through interdisciplinary teamwork in agroecology: Norway and India. 2017. Anna Marie Nicolaysen, Charles Francis, Barbara Smith, Geir Hofgaard Lieblein, Parthiba Basu, Tor Arvid Breland, Anshuman Das. Paper to be presented, Scientific Conference "Innovative Research for Organic Agriculture 3.0", 19th Organic World Congress, New Delhi, India, November 9-11, 2017 [Organized by ISOFAR, NCOF and TIPI].

Land Grabs in the Global South: Experience-Based Learning on Global Issues. A. Swoboda, C. Francis, K. Bliss, M. Loisel, A. Gmeiner, J. Allen, C. Prince. NACTA J. [in review]

Managing manure for sustainable organic Basmati rice production. L. Ditzler, T.A. Breland, C. Francis, M. Chakraborty, D.K. Singh, A. Srivastava, F. Eyhorn, J.C.J. Groot, J. Six, C. Decock. World Food Systems Center, ETH, Zurich, Switzerland. [poster]

En modell for handlingsorientert læring for bærekraftig utvikling -MSc Agroecology. 2017. G. Lieblein, T.A. Breland, A.M. Nicolaysen, C.A. Francis og E. Østergaard. Faglig foredrag på Undervisningsseminar, NMBU, Desember 2016.

Agroøkologi: Handlingsorientert læring i gårds- og matvaresystemer. Urbant Landbruk. 2016. A.M. Nicolaysen, G. Lieblein, T.A. Breland og C.A. Francis. Presentasjon på Fagdag for NMBU og Oslo kommune: Urbant Landbruk, Vitenparken, Campus Ås, Desember 2016.

Becoming an agroecologist – MSc Agroecology at NMBU. 2016. G. Lieblein, T.A. Breland, A.M. Nicolaysen and C.A. Francis. Workshop: Food in Action. Vitenparken, Campus Ås, November 2016.

Agroøkologi; hvordan arbeide på tvers av faglige og geografiske grenser? A.M. Nicolaysen, C.A. Francis, G. Lieblein, T.A. Breland, S. Namanji, M. Henriksen Bogstad, M. Bulger, T.A. Ortmann, Å. Steiro, I. Compigne, G. Turpin, M. Surchat, S. Baradia, C. Zambrana, J.A. Farrell, L.L. Gruber, N. Keene og E. Reisman. Bod på Forskningstorget under Forskningsdagene, Oslo, September 2016.

Cooked: A Natural History of Transformation, by Michael Pollan. 2016. Book Review by Skylar Falter and Charles Francis. NACTA J. 60(4):452-453.

Awakening Community Intelligence: CSA Farms as 21st Century Cornerstones. by Steven J. McFadden. 2016. Book Review by Charles Francis. NACTA J. 60(4):453-454.

Agroecology: The Ecology of Sustainable Food Systems, by Stephen R. Gliessman. 2016. Book Review by Charles Francis. NACTA J. 60(4):454-455.

Italy

University of Tuscia, Roberto Mancinelli

The Current Situation and Future Plans of Teaching Organic Farming and Agroecology at the Department of Agricultural and Forestry Sciences (DAFNE) at University of Tuscia

The Department of Agricultural and Forestry Sciences (DAFNE) of the University of Tuscia has inherited a precious part of the Faculty of Agriculture of this University and it is characterized as being the only university department of Lazio Region to offer a full range of higher education (BSc degree courses, MSc degree courses and PhD degree courses) in the fields of agricultural and forestry sciences.

At the beginning of the Bologna system application (early years 2000), the University of Tuscia was one of the first in the offering of specific courses at BSc level concerning organic farming and agroecology. Subsequently, the specific degree course in organic farming has been closed due to the new evolution rules in the Italian school.

Nowday, the topics concerning the organic agriculture are included in the teaching courses taught within the BSc and MSc degree courses in Agriculture and Environmental Sciences. The study pathways have been developed to suit the specific scientific and technical expertise of the department's teaching staff and with a watchful eye on what is happening in the world of work. This latter aspect is the one that enables our graduates to find the best professional employment opportunities in the space of a short time from being granted the degree.

At PhD level, the Course in Plant and Animal Production Sciences is offered in the Dept. DAFNE. The general aim of this PhD course is to train researchers who are able to carry out various aspects of research autonomously, from conceptualising to planning and to the realisation of a project. Specific aims relate to the wide-ranging aspects of agricultural production, using traditional and innovative methodologies, commprensive of also organic agriculture topics.