Teaching Innovations for Organic Farming Systems

2018 Proceedings of ENOAT Teachers' Workshop
European Network of Organic Agriculture & Agroecology Teachers
26-27 September 2018

Organized by: Czech University of Life Sciences Prague, Faculty of Agrobiology, Food and Natural Resources, Department of Crop Production, dr Perla Kuchtova

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2018 ENOAT Annual Workshop, Czech University of Life Sciences

Prague, Czech Republic

Editors' Introduction

The annual workshop of the European Network of Organic Agriculture and Agroecology Teachers [ENOAT] was held at the Czech University of Life Sciences in Prague, on 26-27 September 2018. The first day was dedicated to country reports on new teaching innovations, on four workshops [Animal Welfare, Community Supported Agriculture, Participatory Learning], review of progress and modifications of the web site, and future planning for ENOAT. Radim Kotrba described Free Livestock on the Farm as Part of Agroforestry, providing multiple examples of livestock as components of agroforestry systems in Czech Republic and elsewhere. Phil Brooke of Compassion in World Farming presented interactive exercises and led discussions on specific issues in animal welfare. Jan Valeška of Czech Republic discussed Community Supported Agriculture, with focus on self-sufficiency and the issue of food waste. Charles Francis from the Agroecology Teaching Programme at NMBU, Norway, presented results of a recent survey on participatory learning and moderated a small group discussion on methods people currently use in their universities. The first day concluded with discussions of the web site moderated by Teresa Briz [Spain] and future meetings and activities of ENOAT led by Ewa Rembiałkowska [Poland]. The second day's field excursion was organized by Perla Kuchtova [Czech Republic] and included interactive visits to the Sasov "Bio-Farm" organic swine production farm [https://biofarma.cz/en/organic-farm-sasov] and the Zemanka Organic Bakery [www.biopekarnazemanka.com]. These are both family owned and operated small entrepreneurial business ventures in small communities south of Prague that demonstrate the potential for creative people to add value to natural resources and people, and to foster economic development. The next annual workshop will be held at Warsaw University, to be organized by Ewa Rembiałkowska in the window between late August and early October, 2019.

From the Editors:

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Programme: ENOAT workshop, 26-27 September 2018

Czech University of Life Sciences Prague, Faculty of Agrobiology, Food and Natural Resources, Department of Crop Production, dr Perla Kuchtova

Day 1: Workshops and ENOAT matters Day 2: Excursion

All workshops setup

- Short presentation ("starter" of 5 to max. 10min) to introduce the topic and raise relevant questions for the group work
- Group work (45min)
- Joint discussion of our findings (30min)

Programme

Tuesday, 25 September: Arrival

19:00 common dinner at Creperie Café Girafe, Prague 6 - Suchdol

Wednesday, 26 September ; place of the meeting:

in front of University canteen at 8 a.m., if common breakfast or in a large meeting room at the FAFNR, CULS Prague at 8:45 (https://www.google.com/maps/@50.1326114,14.3727593,712m/data=!3m1!1e3)

9h00	**Short welcome** and overview on the program by dr Perla Kuchtova (organizer) and prof. Ewa Rembiałkowska (chairwoman of ENOAT)
9.15	**Didactic activities at the Department of Crop Production** – Dean of the Faculty and / or Head of Dpt.
9h30	**Current situation of Organic Farming and Agroecology teaching at member universities** *Please prepare a **1-page description** for your university before the meeting, send it to Perla email before the meeting (**kuchtova@af.czu.cz**).* *It should include current challenges and future plans and NOT include lists of courses or other material that is available on your web site).* Short oral presentation (3 minutes, no ppt) of each participant, time for questions and concluding discussion.
10h30	Coffee and tea break with **poster exhibition** (posters of ENOAT members about recent teaching/learning activities)
11h00	**Workshop 1** Moderator: Dzidra Kreismane and Elita Selegovska 1. Animal welfare. Speaker Phil Brooke (CWIF, Compassion in World Farming) 2. Animal welfare – free livestock on the farm as part of the Agroforestry, Radim Kotrba (Faculty of Tropical AgriSciences, CULS (https://www.ftz.czu.cz/en/)
13h00	Lunch break: CULS canteen
14h00	**Workshop 2** Moderator Jan Valeška, Perla Kuchtova **Information on the CSA (Community-supported agriculture) situation in the Czech Republic (self-sufficiency & the issue of food waste)**
15h30	Coffee and tea break with poster exhibition (posters of ENOAT members about recent teaching/learning activities)
16h00	**Workshop 3** Moderator Chuck Francis Transforming Conventional Teaching to Participatory Learning In a series of small and large group discussions, we will share experiences and learning activities/tools that we have each found effective in creating student-focused and outcome-oriented educational environments.

17h30	**Workshop 4** Moderator: Ewa Rembiałkowska **ENOAT website. Aims and design of the website.** Moderator: Teresa Briz: **The purpose and future role of ENOAT in the European educational landscape.**
19h00	Common dinner

Thursday, 27 September (day 2) – excursion

Programme of the excursion:

7h30	Start from CULS – excursion:
9h30	1. Sasov "bio" farm (breeding pigs, cows, own slaughtering and processing, crop production)
12h00	2. Lunch
15h00	3. "Bio" bakery Zemanka
18h00	4. CSA garden near to campus

Note: All times are subject to adjustment in schedule

Friday, 28 September – departure

Czechs have a national holiday - St. Wenceslas, patron of the Czech Republic

Participants List: ENOAT 2018, Prague, Czech Republic

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26 September 2018 Opening Session [summarized by Charles Francis, NMBU]

Welcome to ENOAT meeting, CULS, Prague 26-27 September 2018

[Sixteen people in the introductory session]

Greetings from Dean's representative

Welcome to campus and to university, and here is an overview of organic farming; We have degrees at BSc and MSc levels, also interest from students in food and nutrition. It is useful to provide a small group of teachers who can orient students in the area of organic farming. There are now more than 60 applicants for BSc and 80 applicants for MSc programmes, so there is a high level of interest in this as an emerging area of concentration for the faculty [organic farming, sustainable agriculture] so this will be higher in priority here at the university in Prague. Currently the university is undergoing accreditation, including a new application for food science.

Workshop logistics
Today's Lunch in university canteen.
Tonight's dinner is in a typical Czech restaurant; we take Bus #107 and tram to the site
Excursion on Day 2, leave in three cars at 0730

Welcome from dr. Perla Kuchtova and prof. Ewa Rembiałkowska

Czech University of Life Sciences, Prague [dr. Perla Kuchtova]:
Sixty-six students in organic agriculture programme at present; there have been several reorganizations lately, and the programme is getting more popular in terms of people who are applying for the BSc and the MSc programmes. [see summary on p. ___]

Novisad University Serbia [dr. Maja Manojlovic]
Bachelor and Master programmes in organic agriculture; also BSc in agroecology and natural resource management. About 30 students in BSc and 20 students in MSc programmes. These are part of the rural development strategy in Serbia, and organic systems are featured as part of this national programme. Students are finding good opportunities to find jobs with companies and other groups in the country. [see summary on p. 17]

Slovakian University of Agriculture, Nitra [dr. Magdalena Lacko-Barsova]
Several study programs have agroecology and organic farming as compulsory or elective courses; 50-55 students in organic agriculture. Two compulsory courses, organic crop production and organic animal production, agroecology is taught at bachelor level. Students in other programmes such as rural tourism also take these courses. There are also PhD students who take these courses; some also come from human nutrition programme. Overall, student numbers in these courses are declining from over 300 to about 55 at present; this may be due to changes in the economy. Quality of students is also a question now with declining level of preparation before coming to university. Funding from Ministry of Education is based on number of students in second year, not first year. This has resulted in fewer teacher positions because of reduced student enrolment. A number of younger students are now going to Czech Republic, especially those who live near the border with Czechia; some of the secondary teachers are actually encouraging students to cross the border to study in Czechia. There are about 23,000 students from Slovakia studying in Czechia. Some are also moving to other neighbor countries. [need one-page summary]

Warsaw University [dr. Ewa Rembiałkowska and dr. Katarzyna [Kasha] Kucińska]

[Ewa] There are courses taught in Faculty of Human Nutrition about organic food systems and in Faculty of Agriculture about organic farming. There are seven tracks in Human Nutrition, with about 100 students in these programmes, probably as a result of growing interest in organic foods. Erasmus students [about 25] come with interest in organic food and also in environmental aspects of the food system. Small group in PhD studies, 6 courses taught each two years, and there currently are five research scientists and four teaching assistants. [Kasha] Programme established for English speakers currently with 30 students, including Pakistan, India, Turkey, Ukraine. Several other faculties are sending students to these courses. One semester has 5-10 students in a module on organic agriculture and crop production that also come from other major study areas. There are 60 students who choose their specialties in courses that are elective in their majors. Some 'private students' also attend these courses, paying their own costs for studies. More details on the courses are found in the summary. Also they are opening a new study area in English to attract more foreign students, beginning at the bachelor level for three years, and this will be mostly Erasmus exchange; the entire programme is made as practical as possible. The new programme has 29 students, and there were about 80 applicants; English language competence limited the number for this first group and requirements may be relaxed a bit to allow more students to attend. [see summary on p. 11]

Szant István University, Budapest [dr. Zita Szalai]
There has been good student demand, with focus on non-traditional students who find it convenient to study in the winter block so it does not interfere with job responsibilities. A new programme for graduate students involves more practice and a special degree. This is a new initiative in organic agriculture in response to student interest and demand. There is also demand for organic agriculture courses from students in other study areas, such as plant protection, natural resources, and animal science. A new programme in organic farming in English is being established with practical focus. [need one-page summary]

Kassel University, Witzenhausen [dr. Holger Mittelstrasse]
About 700-800 students in BSc programme, 200 in German MSc programme, and 250 in three English Msc programmes. There are about 170 new BSc students each year, and about 140 new graduate students. Students like staying longer for their studies because they like the town of Witzenhausen with inexpensive housing and good cultural environment. Content changes now include animal welfare, practice as part of the academic programme while working with farmers, many research projects in both crops and animal science areas, now an interest in soil quality, regenerative agriculture, mulching and no-tillage systems in organic farming. There is growing interest in market gardening. Also important is how to begin in organic farming, with business planning, ideas about scale, how to generate income in the short term to meet long-term goals. Lack of compulsory attendance presents problems for education, and how we can adapt to this new reality of the computer age. How do we address these new challenges? What we confront is an entirely new student and information environment, and need to have serious discussion on how to deal with this emerging reality. Perhaps this can be a part of the discussion and workshop on participatory learning? [need one-page summary].

Compassion in World Farming, U.K. [dr. Phil Brooke, U.K.; CIWF, see list of available publications and activities, p. 14]

University of Southern Bohemia [dr. Jan Moudry]
University had about 40.000 students, and faculty of agronomy has a small proportion of these. The numbers of students were very high, including in agroecology, and then have declined in the last two years. This year we have opened a new PhD programme with both Czech students and foreign students. The department is now in a transition of generations, with pending retirements and a new group of younger professors starting to take major responsibilities. Agroecology is a new focus, with interest in land use issues, plant protection, and organic agriculture. There is cooperation with educational research with the NextFood project together with Scandinavian programmes and EU funding. [see summary on p. 19]

Plovdiv University [dr. Ivan Manolov, dr. Atanaska Stoeva]
All students who finish the BSc programme are qualified to begin the MSc programme. Two types of MSc programmes are available] This year there are 25 students in the MSc organic farming programme, and courses are available to students in other tracks. Most courses are in Bulgarian, and some courses are available in English for students, mostly from Europe. Many students are seeking information on organic systems, and can enrol in these courses. [need one-page summary]

Skopia University, Macadonia [dr. Rukia Agic]
Organic teaching is focused on sustainability, organic plant production, and integration of horticulture and floriculture into the programmes. [see summary on p. 18]

Latvia University of Life Science and Technologies [LLU] [dr. Elita Aplocina, dr. Dzidra Kreismane]
New name for the university; qualifications in agronomy, horticulture, and zootechnology at BSc programs, also at MSc and PhD levels. Organic agriculture is integrated into both plant and livestock major programmes. Dzidra is involved in board for course design, and Elita is involved in organic certification across Latvia. Student numbers were increasing, and then decreasing, and now is about stable; students in second year are required to take these organic courses. There is demand since 2015 by farmers for additional education for certificate in organic farming, and much enrolment in this programme, and there is interest among many students for these practical courses. Students also have practical internships on farms, and several are doing their final undergraduate projects on organic farms. There are six students from Erasmus programmes in organic courses, and some who come for one semester. [see summary on p. 13]

Norwegian University of Life Sciences [NMBU] [dr. Charles Francis]
The Agroecology MSc programme invites 20-25 students/year to join the two-year study activity, including a 30- or 60-credit thesis. This has been active since its initiation in 2000. The broader outreach and activity-based research in education now includes a leadership role in *NextFood* [EU-funded project in ten countries] and another on local food system development called *Cultivating Human Spaces*, both launched in 2018. Priorities are on the ongoing MSc education programme, the two educational research projects, on expanding collaboration with Kerala University, ongoing planning with Sri Lanka for a future educational mentoring in agroecology, and seeking better understanding of the supporting and hindering forces that will impact growth of participatory learning in agroecology, organic agriculture, and other areas of undergraduate and graduate study. [see summary on p. 20].

Workshop 1

Animal Welfare – Free Livestock on the Farm as Part of Agroforestry [dr. Radim Kotrba, Bohdan Lojka]
Today there is growing interest and dedication to organic farming practices, and in animal welfare, although much is not certified organic. There is similarity of situations in Namibia and in Czech Republic; for example there were large rainfall storms three days ago with major erosion in monoculture grain fields. There are support programmes available for 'ecofarm' practices such as stubble protecting the land, filter strips, and landscape elements; these have limited effectiveness if large fields are still in monoculture. There are major declines in biological agents for insect control over the past two decades. Microclimate changes are obvious with new instrumentation that show surface temperature extremes during the day; forested areas and meadows can influence this microclimate.

Agroforestry has useful solutions. Only 10% of area planted to trees can help mitigate the impacts of climate change at the local landscape scale. They can also increase carbon fixation; it is possible for trees to contribute by 75% to C sequestration. They provide local 'air conditioning' and impact the water cycle, and emitting particles that increase condensation and precipitation. Gradient in biodiversity from monoculture to nature

reserves, and there is mitigation of climate extremes across such gradients. Private game farms and ranches can provide conservation of resources along with pragmatic approach to economic returns. These contribute to biodiversity and also to buffering climate changes at the local landscape levels.

Historical data from RSA and in Kenya show changes in major wildlife species as a result of change from public to private ownership; this is now widely known, and alternative schemes are being tested such as village ownership and prevention of poaching, also controlled hunting that benefits local people

New ideas include 'cow gardens' where there are confined animals and trees grown together [experimental]. There is growing interest in several types of agroforestry in Europe, for example 3.6% of total area and 8.8% of agricultural land are in silvopastoral and silvoarable lands, plus other areas in high valued timber trees. These include arable agroforestry, livestock agroforestry, alley cropping, and other applications of this approach. All agroforestry is estimated at 10 million ha. Extensive orchards also add to this total. Trees have a wide range of ecoservices roles across the landscape [erosion prevention, building fertility, nutrient cycling, mitigating wind, stabilizing microclimate, other]. Many of these practices have EU and national support. Hedges and alleys are historically used in U.K. and some other countries, remnants remain but there are not used for production, and only to get economic support payments.

Animal integration in silvopastoral systems is important, and part of organic farming in Europe. This can be certified organic following appropriate rules and then get payments. Leaf fodder composition can be highly valuable for forage for livestock; these can also be cut and dried for winter forage consumption. Deer production in cherry orchard is shown as an example, pruning trees to keep them productive can provide fodder. Also small rural gardens can provide forage after the vegetable system. Game estates provide another option that includes agroforestry. Payments are available for management of sensitive biotrops. 'Woodland eggs' are available in U.K. with currently 200 producers. Cattle and chickens under trees in Netherlands provide another example. Orchards can mitigate local climate; cattle stay longer under artificial shade, and same in natural systems with trees. New planted trees need protection up to 2.5 m until well established.

New CAP regulations must have 40% of adopted interventions must by linked to mitigation of climate change. There are many practices that are possible at the landscape level. 'Syntropic farming' is a new term used in the EU for these types of practices and systems. Landscape-level slide from National Agroforestry Center shows integration of many AF practices [UNL, Nebraska location]; unfortunately we are 50-100 years behind in U.S. Contacts: kotrba@ftz.czu.cz; maugli46@vony.cz

Workshop 2: Animal Welfare

Phil Brooke from Compassion in World Farming
A valuable exercise was conducted called "Discover your TRUE personality", with ten questions and choices from a to d; different groups of people have different opinions, and are dedicated to a) animal welfare, b) animal welfare, c) environmental, and d) anthropocentric matters. This is a useful exercise that causes people to make decisions of how they relate to and consider animals as a part of the food system and environment.

Animal rights: … animals should have the right to life and freedom

Animal welfare: … reduce animal suffering in factory farms

Enviromental/Sustainable Development: … reduce land use, GHG emissions, insecticide use, biodiversity loss

Anthropocentric: … improve food security while retaining rural livelihoods, improve human health, reduce antibiotic resistance.

This is available on the CIWF web site. [see p. 14 for additional references, including web site *url* addresses]

Compassionate Farming: Practical methods for improving the welfare for pigs. Also available on the web in full color copies.

Few changes in behaviour have occurred through selection in most of our domestic animals: foraging behaviour, group and individual dynamics, eg. bar biting represents the same activity as foraging, and pigs spend the same 20% of time doing this when they have all their feed provided; thus you can provide opportunity to chew on something; also 'sham chewing' represents a lack of chance to forage. Forty percent of sows in UK are active outside and piglets are born outdoors; farrowing crates must have been invented by a man. EU requires pigs to be supplied with high fiber food, as well as high energy feed. Aggression during feeding can be avoided by having individual feeding stalls so they are separated during their feeding. Scatter feeding is another approach to separate individuals while they are consuming concentrates.

'*compassioninfoodbusiness.com*' is a useful web site
'*freefarrowing.com*' is another site from CIWF

Another example is 'frustrated nesting behaviour' when they are simulating the nesting behaviour. You can design protection into the system with construction of facilities.

Dr. Brooke used interactive and stimulating learning techniques, though pressed for time. He integrated a quiz on opinions, short video clips, 'slow food' and pig's natural feeding habits, eg. tail biting is due to boredom and changing the environment where pigs live. Catchy examples were shown, including the % of tail docking in a number of EU countries, and how these are related to regulations. Allowing pigs to root and graze greatly reduces tail biting.

What is animal welfare? Physical wellbeing, mental wellbeing, and natural behaviour all lead to quality of life!

Encourage students to move beyond learning specific practices, and to making decisions based on ethical, moral, philosophical discussions in class, and individual opinions on key issues. This is a way to stimulate students to get involved in policy discussions and decisions, in major campaigns for animal welfare, and in other broad issues in agriculture, natural resources, and food. [see p. 14]

Workshop 3: Community Supported Agriculture

Information on the CSA (Community-supported agriculture) situation in the Czech Republic (self-sufficiency & the issue of food waste): Jan Valeška, Perla Kuchtova

Definitions of a CSA were presented, and well-known to most ENOAT members. These are *mutually beneficial partnerships* where both *risks and rewards of farming are shared*. These are now widespread in Japan, Germany, USA, other European countries:

Caring Farming. [biodiversity, landscape, animal welfare]
Solidarity Economy. [mutual support, community and sharing]
Food Sovereignty. [active involvement, localization, right to food]

Workshop 4: Participatory Learning. [workshop moderated by Chuck Francis]

1. Survey results from September, 2018 [n = 19 respondents]
   [summary of results on p. 20] [NMBU survey by Charles Francis and Asmund Steiro]

2. Workshop topics for discussion [summary of outline and guide for conversations on p._____]

- What are the most successful participatory learning methods you have used and why?
- How can we use participatory learning to help students build confidence in knowledge and actions?
- What are the best ways to motivate students in today's learning environment?
- How do we effectively involve stakeholders with student projects to improve learning?
- What specific steps could we take to encourage more participatory learning in our universities?
- What are the most important roles for teachers in today's educational environment?

Final Topic: Future of ENOAT

Website

This has been set up by Teresa Briz in Madrid [enoat.agripa.org]; these are needed additions or updates to the web site that will make it more valuable to members and to others who visit the site.

- Members list needs to be updated to include new people
- Proceedings are available [or will be soon] from 2007 to 2018 [site is currently missing 2016-2018]
- Teresa could send around another questionnaire to be sure they have current information on the web site
- Chuck needs to send Proceedings for 2016, 2017, and 2018 to Teresa to post on the website; could these be organized into a separate folder for workshop proceedings?
- Documents should be identified by topic, and arranged by year under each university folder; can universities have the access to post their own materials, or does this have to go through the web person in Spain?
- Enlarge the logo on the web site and move it to the upper left where there is open space
- Provide a place for potential new members to join and add their appropriate contact information
- Articles and book chapters should be added by each member to their own site under 'members' so that the list comes up under your university

Future of ENOAT

- Mission for next year is to recruit more people into ENOAT
- How do members feel about meetings and how to improve this forum?
    - Is it important to recruit new people? eg. Moldova, Belarus, Portugal, etc
    - Should we try to recruit new people from universities that have been inactive?
    - Could we send a questionnaire to non-attending people about challenges?
    - New people in old universities may need information on ENOAT to become involved?
    - Should we consider changing the timing of meetings to avoid conflicts in September?
    - Timing of meeting in September would avoid conflicts with classes that start in October.
    - Best method is to first choose the location, and then poll members for the best date.

Day 2, Field Excursion, organized by Perla Kuchtova

Excursion to Sasov "Bio-Farm", Organic Swine Production, Josef Sklenar, Jihlava, Czech Republic [south of Prague]:
Tour included free range feeder pigs, sows with young, processing facilities for cattle and swine, biogas production plant from manure, hay drying area with forced air, and on-farm sales shop.
Web site: https://biofarma.cz/en/organic-farm-sasov

Later excursion included a visit to "Bio" bakery Zemanka where the co-owner provided a tour to the larger of two Zemanka bakeries; we observed small-scale modern equipment in a certified organic operation; there are two shifts at this site, and one shift at the other 'conventional' bakery in another small town nearby.
Web site: https://www.biopekarnazemanka.cz/en

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. **BSc full 3 years study "Organic Agriculture and Food Production (OAFP)" in English, we start at 1 X 2018 with 45 students**.

Mission of the Study
The Faculty of Agriculture and Biology has the aim to offer the students a holistic and interdisciplinary knowledge in the area of organic agriculture and food production presented by the best specialists from different faculties of Warsaw University of Life Sciences – SGGW and from abroad.
Aim of the Study
The BSc studies OAFP are constructed according to the expectations of the potential employers within the organic food production. The focus is on the innovative teaching methods activating students and preparing them to the future employment. The studies will offer a good possibilities to develop necessary skills and knowledge in desired specialities. The alumni of OAFP can find jobs in the organic food production, processing, trade, also in different companies connected with education, dissemination and advisory services.
Detailed programme of studies
The program is divided into six semesters. It consists of both lectures and practicals /workshops.
The detailed list of subjects is as follows:
First year: Environment protection, Introduction to organic agriculture and husbandry, Chemistry, Basics of botany, Agrometeorology, Global food production, Informatics, Foreign language, Sustainable food production systems, Sustainable development of rural areas, Agroecology, Soil science, Microbiology of soils and plants, Animal physiology

and organic nutrition, Basics of plant biochemistry and physiology, Study trip to organic farms, Food legislation or Agriculture law, Basics of human nutrition.
Second Year: Cropping systems, Plant breeding and seed materials, Control and certification system of organic production, Plant protection management in organic agriculture, Plant nutrition in organic system, Agricultural technologies for organic farming, Food microbiology, Organic raw materials, Study trip to organic farms, Organic grassland farming, Organic crops, Weeds and weed management in organic farming, Methodology of scientific research, Livestock production in organic farming, Organic vegetable and fruit production, Hazards for food safety.
Third year: Diploma seminar, Mathematical statistic, Organization of organic farms or Markets and marketing of organic food, Conversion of the farm into organic system, Processing of organic plant raw materials, Food safety and hygiene, Ecological aspects of food and nutrition, Processing of organic animal raw materials, International agricultural markets, Herbs in organic farming, Entrepreneurship in organic business.
Requirements
Secondary school certificate. Confirmed fluency in English. Duration: six semesters; start: 1st October.
Recruitment: see http://www.sggw.pl/en/for-candidates/recruitment/1st-degree-studies

2. Other full and part time study

1) **Agriculture**
2) **Environmental Engineering ***

Bachelor and Master Level:

Education path in "Modern Agriculture" one of the elective 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. Introduction to 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
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.

3. Elective course: Organic Agriculture

Dedicated for all foreign students (Erasmus, CEEPUS, Erasmus Mundus) in every semester – 4 ECTS.
It is elected every semester by 4-12 students (~ over 10 student per year)
language of course: English

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

Teaching of Organic farming in Latvia University of Life Sciences and Technologies

Elita Aplocina and Dzidra Kreismane, LLU

The only higher agricultural education establishment in Latvia is Latvia University of Life Sciences and Technologies (LLU), which provides education, research, extension and continuing studies in agriculture, food industry and forestry.

Faculty of Agriculture, is realizing undergraduate, graduate and postgraduate study programs, and here is possible to attain higher agricultural education in 3-step studies: Basic studies: 4 years; Master studies: 2 years; Doctor studies: 3 years in agriculture. Upon completion of the professional Bachelor's study program, students receive a bachelor's degree and several professional qualifications: agronomist in arable crops or horticulture, or zootechnical, or business management in agriculture.

For students in the professional bachelor programme Agriculture has opportunity to study optional courses in volume 9 ECTS. Every year, about 1/3 of the 2 year students are selected Biological Crop Production and Horticulture in 6 ECTS and Biologic Livestock Husbandry in 3 ECTS. After completing this courses students are getting knowledge about the nature of organic farming, common and diverse with integrated production method, about transitional period towards organic farming, organic production of arable crops, vegetable and fruits, about seed cultivation and honeybee production in organic bee keeping conditions and livestock management and nutrition aspects in organic farming. Student’s skills: to develop plan of measures for the transitional period to organic farming method, plan for arable crop rotation and cultivation of horticultural plants under organic conditions. To equip, maintain and improve bees in accordance with biological principles and optimization of feed ration of cow, beef cattle, pigs, and poultry in organic farming system. Students are competent to apply and evaluate the conformity of cultivation technologies of the arable and horticultural crops and bee keeping principles of the organic farming system, and they are competent in auditing of organic enterprise. In cooperation with the LLU Lifelong Learning Centre, students have the opportunity to obtain professional full-fledged certificates. Such certificates are a mandatory requirement in Latvia for starting organic farming.

Both mentioned courses

Students who are interested in gaining profound knowledge realizing professional training in organic farming companies as well as develops bachelor's papers in this field. Perspective plans in the Faculty:

- Establishing and development of Bachelor study program in agroecology;
- Study plan development for Master studies in Agroecology;
- Further education in sustainable agriculture; after diploma training, qualifications and short-term courses organization in biological agriculture;

Good possibility for teachers of the Faculty of Agriculture is provision of professional courses in Biological farming in LLU Lifelong Learning Centre, where since 2015–2018 year 160 hour program completed 540 listeners, shorter professional development programmes completed about 200 listeners.

In Latvia is working Latvian Rural Advisory and Training Centre, which cooperates with LLU in realizing education of adults by courses and seminars, and now about 1000 Farmers (from about 3500) completed 180 hours organic farming course.

Dear ENOAT members From Phil Brooke, CWF

Educational links from Compassion in World Farming

It was great to meet you all at the ENOAT meeting in Prague. My thanks to Perla for the excellent organisation, for the most enjoyable trip and the hospitality.

I promised to provide links to the educational materials I demonstrated at the workshop.

All our educational materials can be accessed at www.ciwf.org.uk/education.

a. The *Personality Test* activity which gets students to consider their philosophical position is at https://www.ciwf.org.uk/education/downloads/personality-test-how-do-you-think-about-animals/.

b. The card activity *How Should we Treat Farm Animals* is at https://www.ciwf.org.uk/education/downloads/how-should-we-treat-farm-animals/.

c. There is also a film discussing different systems of animal production at https://www.ciwf.org.uk/education/films/farm-animals-us-2/.

2. The Pig educational materials are all at www.ciwf.org.uk/gap along with some chicken case studies. For specific pig materials go to https://www.ciwf.org.uk/education/good-agricultural-practice/good-agricultural-practice-pig-production/:

a. The pig book at https://www.ciwf.org.uk/education/downloads/gap-pigs-book/ where you can download individual chapters or case study including the case study of the farm we visited.

b. The pig film at https://www.ciwf.org.uk/education/films/gap-pigs-film/

c. The pig PowerPoint including lots of short video clips at https://www.ciwf.org.uk/education/downloads/gap-pigs-powerpoint/.

d. The lecturers' notes at https://www.ciwf.org.uk/education/downloads/gap-pigs-lecturers-notes/.

All can be viewed as well as downloaded. If you would like hard copies of the book and DVDs posted to you, please email me at phil@ciwf.org.uk.

Transformation to Participatory Learning:
Green Shift at Norwegian University of Life Sciences

Charles Francis, Geir Lieblein, Tor Arvid Breland, Anna Marie Nicolaysen
Agroecology Programme, Department of Plant Sciences, NMBU, Aas, Norway
[Programme Summary for ENOAT Annual Workshop, 26-27 September, Prague, Czech Republic]

Overview of education & research:
The Agroecology MSc programme at NMBU welcomes 20-24 students each year to the two-year curriculum, including a 30- or 60-credit thesis. Outreach continues with mentoring Agroecology Certificate Programmes in University of Calcutta and Kerala University, and exploratory talks with Sri Lanka. The research programme now includes two new initiatives: 1] *Nextfood* is an EU project including educational case studies from ten participating countries; and 2] *Cultivating Human Spaces* explores urban ag in Oslo and other urban cities.

Educational research:
The *Nextfood* project includes in-depth planning and implementation of participatory learning case studies in Greece, Italy, Romania, France, Denmark, India, Czech Republic, Germany, Egypt, Ethiopia, Austria, Chile, Sweden, and Norway. Each case will feature unique approaches to participatory learning, thoughtful planning and implementation, and lastly an evaluation of learning outcomes. A final cross-case evaluation will compare and contrast the approaches and their successes with meeting the learning objectives.

Cultivating Public Spaces: Urban Agriculture as a Basis for Human Flourishing and Sustainability Transition in Norwegian Cities has been launched in 2018. The compact city model, dominant in Norway and elsewhere, creates a strong alliance between climate abatement objectives and urban economic development, often overlooking concerns related to quality of life and social justice. Our project addresses this challenge. We believe that UA can substantially improve quality of life in Norwegian cities. It can empower local communities by giving them an opportunity to directly influence their environments while providing access to green, inclusive public spaces. UA initiatives can be also an arena for health promotion, through increased physical, social and contemplative activity. In addition, UA can enrich urban landscapes with innovative landscape architecture/urban design and functional solutions. Furthermore, it can provide opportunities for educating people about resource use and food production cycles, encourage environmentally-friendly consumption choices, and strengthen urban economies by facilitating innovation and creating inclusive, environmentally-friendly working places.

Future initiatives:
Priority areas for 2019 and following years include:

- Implementation of *Nextfood* project in fifteen cooperating countries
- Implementation of *Cultivating Human Spaces,* a project with cooperating stakeholders in Norway cities
- Continuing evaluation of student learning in PAE302, *Agroecology: Farming and Food Systems*, with analyses of qualitative assessment of student learner documents from the past 19 years
- Expanded collaboration with Kerala University, Center for Agroecology and Food Systems, and transition from their certificate programme to development of a new MSc curriculum
- Continued negotiations for establishing a collaborative Agroecology educational programme in Sri Lanka, potentially bringing together three universities as part of the reconciliation process
- Identification of supportive and constraining forces to introducing more participatory learning in organic farming and agroecology courses in European universities; understanding the challenges and opportunities will build on a mail survey in mid-September 2018 and on results of a workshop at the annual meeting in Prague

Recent publications include journal articles from MSc students and teachers, book chapter on Agroecology Education related to climate change, and two encyclopedia chapters with Oxford University Press in their Encyclopedia of Environmental Science.

Debray, V., A. Wezel, A. Derkimba, K. Roesch, G. Lieblein, and C. Francis. 2018. Agroecological practices mitigating climate change in semi-arid and sub-humid Africa: a Review. Agroecology & Sustain. Food Sys. J. [accepted 3 August 2018] [student thesis project]

Ditzler, L., C.L.M. Decock, D. Singh, F. Eyhorn, J. Groot, T.A. Breland, and C.A. Francis. 2018. Identifying viable nutrient management interventions at the farm level: the case of smallholder organic Basmati rice production in Uttarakhand, India. Agr. Systems. AGSY_2017_84_R1 [accepted 31 December][student thesis project]

Helenius, J., A. Wezel, and C.A. Francis. 2018. Agroecology. Oxford Encyclopedia of Environmental Science, Oxford, UK. [accept 21 Aug 2018].

Francis, C.A. 2018. Crop Production Resilience through Biodiversity for Adaptation to Climate Change. Oxford Encyclopedia of Environmental Science, Oxford, UK. [accept 21 Aug 2018]

Francis, C.A., T.A. Breland, G.H. Lieblein, and A.M. Nicolaysen. 2018. Agroecology Education to Sustain Resilient Food Production. Chapter 11 in: Climate Change and Crop Production: Foundations for Agroecosystem Resilience Agroecology Education to Sustain Resilient Food Production, Nourre Benkeblia (ed). CRC Press, Taylor/Francis Group, New York. p 173-185.

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

Maja Manojlović, Srđan Šeremešić
University of Novi Sad, Faculty of Agriculture, 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, Science and Technological Development.

BSc in Organic Agriculture started in 2009/2010. Later, the program was changed and passed reaccreditation in 2014. The numbers of new I year students are around 20-30. Responsible department for organization the study program is D. of Field and Vegetable Crops although teachers from all departments are involved in teaching process. **BSc in Agroecology and environmental protection** started in 2008. About 30 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 Agroeconimics.

MSc in Organic Agriculture started in 2006. Number of students is from 6-15. D. of Field and Vegetable Crops is responsible for the program although a few teachers from other departments are involved in teaching process. FAUNS is partner in the International **Joint Degree Master Programme** "Danube AgriFood Master - Sustainability in Agriculture, Food Production and Food Technology in the Danube Region" (DAFM) started in 2015. **PhD in Agronomy** - it is possible that dissertation is with organic agriculture topics.

Current challenges and future plans

All current courses are in Serbian while DAFM courses are offered in English. We have had a few foreign students mostly from the neighboring countries. Number of students is decreasing every year as is evident that some students are going abroad for a study at university. Also, numbers of BSc students are decreasing after the first year of the study as some of the students are at the University as they cannot find job (according to questioner 15-30%), they move to private faculties/universities after they left public university, usually after first year of study. The background and knowledge of the students are very variable, especially on the first year and some of them are not active during semester, they leave almost all tasks for the examination period. However, there are always few excellent students really interested in organic agriculture theory and practice, who have vision about use of gained knowledge. Those students are also interested in different trainings, to spend semester at foreign university, start small research, start own production, work within NGOs and to continue study to get MSC and PhD degree.

Big challenge for MSc students are short time for work on Master thesis experiment and writing as only one semester is dedicated to work on the thesis and whole program last one year, particularly if students are not coming to MSc from our university. Since we already have two generations of graduate students, we are expecting reaccreditation as a chance for improvement of the programs in order that students easier find job.

In April 2018 National association of organic agriculture (SerbiaOrganica) along with GIZ has launched program of *student internship* for conducting the practical work at different organic farms and companies in Serbia. This could help in promotion of student employment. In August 2018 the National strategy of rural development of Serbia was adopted. The organic agriculture plays a key role in achieving the sustainable goals. Among other priorities in this strategy education and research was stressed as important component of organic agriculture development.

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, Republic of Macedonia, 2017-2018

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.

Among the other subjects, I teach Eco Farming of Vegetable Crops in the study program Eco Agriculture at graduate studies level and Organic Vegetable 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 programs 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.

News from 2017 to 2018 in graduate and postgraduate studies

The Faculty of Agricultural Sciences and Food, in coordination with the relevant institutions and the economy, continuously works on the improvement and harmonization of the study programs in accordance with the development programs in the agriculture sector, in order to strengthen the capacities at all levels.

The refinement of the study programs aims at forming highly professional staff capable of successfully acting within the institutions and the real sector in national and global frameworks, and in particular focusing on education and training of staff compatible within the European framework.

Graduate studies: In an active communication with the economic sector, it has been concluded that there is a need for highly educated staff who will have integrated knowledge in the individual areas of **Horticulture** in their profile.Considering that the curriculum offered is in line with the existing horticultural programs at the agricultural faculties in the region and the world, it is possible for future staff to be competitive and compatible with the needs of the wider commercial community. In addition, the Department of Vegetable and Flower Crops recently proposed opening a new study **Horticulture program** at graduate studies. In the last 30 years, the interest of the candidates for enrollment in the previous study program of Vegetable and Flower Crops was permanent and that is why a module was established within the framework of the Horticulture study program which will enable the students specific direction and improvement in the given area.

Postgraduate studies: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. 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. With the aim of acquiring knowledge and skills in organic farming, since this year, we have accredited the new study programme at postgraduate studies **Organic Plant Production.**

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 Southern Bohemia
dr. Jan Moudry

University of Southern Bohemia [dr. Jan Moudry] The University of South Bohemia is a public university located in České Budějovice. It specializes in education and research with a focus on natural, humanist and social sciences. The university has 10,500 students in more than 200 bachelor, masters and doctoral programmes at 8 faculties.

Faculty of agronomy has about 1400 students; In the Academic Year 2017-2018, 60 students of the three-year Bachelor's degree programme and 72 students of two-year Master's degree programme are studying our "Agroecology" study programme. The seemingly paradoxical increase of students enrolled in the Master's programme is caused by the fact that the graduates of Bachelor's degree in program "Sustainable farming systems in the landscape" had decided to proceed in the Master's degree programme in the field of Agroecology. The study program "Sustainable farming systems in the landscape " (only bachelor's degree and focus on the practical implementation of organic farming) is studied by 52 students. Some of them, after completing their three-year studies, continue to study Agroecology, specializing in Organic Farming. The Agroecology program is divided into a Masters degree in two specialisations: Landscape management and Organic Farming. Some year ago the numbers of students were very high, including in agroecology, and then have declined in the last two years (demographic decline, but also less interest in studying agriculture in general).This year we have opened a new PhD programme Agroecology with first 4 Czech students. The department of Agroecosystems is now in a transition of generations, with pending retirements and a new group of younger professors starting to take major responsibilities. In addition to teaching, a small team of staff is active in research projects in consulting and co-operation with practices in the field of organic crop production, distribution of organic food and introduction to school canteens, implementation of social agriculture. There is cooperation with educational research with the NextFood project together with Scandinavian programmes and EU funding.

Faculty Opinions on Participatory Learning ENOAT Workshop September 26, 2018 Prague

Charles Francis and Åsmund Steiro, NMBU, Norway

[survey sent out prior to Prague workshop]

Introduction: We are interesting in learning opinions of teachers who have attended past ENOAT meetings about the practice and outcomes of participatory learning. Many names have been used – action learning, case studies, discover learning, service learning – and they have several things in common [see box]:

What is participatory learning?
-focus on measurable student learning outcomes
-put students at center of learning
-combine practice & theory
-prepare students for responsible action
-involve stakeholders in learning process
-action learning? service learning? case studies?

Please complete the following open-ended survey, with both qualitative questions and quantitative evaluation, about different aspects of why people adopt these methods in teaching organic agriculture and agroecology. We want to explore goals and outcomes, methods that are used in field and classroom, helping and hindering forces, and other ideas you have about participatory learning. We would appreciate your investing 15 minutes of your time now, so that we can have the results in time to summarize them and present your ideas in the ENOAT meeting in Prague in two weeks. All opinions will be summarized and reported anonomously; we will send the results to everyone who responds, and will request your help in clarification and interpretation. By signing the survey, you agree to these terms, and we all look forward to seeing the results. Thank you. Chuck Francis

1] *What is your opinion about participatory learning, and why should we use these methods?*

2] *What methods are most useful for participatory learning in your classes?*

3] *What important forces promote participatory learning in your university?*

4] *What important forces make this difficult in your university?*

5] *What will influence a transformation in learning activities in your university?*

6] *What are your personal ideas or thoughts about using participatory learning*

7] Please rate these teaching and learning outcomes for yourself and your university; to what extent do you disagree or agree with these teaching and learning statements on a scale of 1 (strongly disagree) to 7 (strongly agree)?

Good lectures are the best way to help students learn

It is important to use participatory learning in my classes

Field trips and dialogue with stakeholders help learning

Working on farms and in food systems promotes learning

Students learn more on internships than in lectures

It would be difficult for me to change teaching style

Students think they learn the most in lectures

My university gives incentives for new learning activities

We have no time for learning activities in the field

My colleagues are not interested in using new teaching styles

Participatory learning only works in small classes

I would like more training in participatory learning methods

My university does not encourage participatory learning

It takes more time to plan participatory activities

We don't have budget for learning outside the classroom

My position in the university: _____ My age: 21-30 31-40 41-50 51-60 over 60

My area of specialization: _____ Name:_____Email: _____
[note: names will be coded and not associated with results during analysis or reporting of results]

Signature: _____

Participatory Learning Workshop ENOAT 26 September 2018

Email Survey Results Summarized and Workshop Exercise

Prague, Czech Republic

Charles Francis and Åsmund Steiro, NMBU, Norway

Preliminary Survey results [September, 2018; n=19]

Ratings [top five]:

Field trips and dialogue with stakeholders help learning	[6.97/7]
It is important to use participatory learning in my classes	[6.47/7]
Working on farms and in food systems promotes learning	[6.47/7]
I would like more training in participatory learning methods	[6.00/7]
It takes more time to plan participatory activities	[5.58/7]

Modal responses to key questions:

--Good lectures are the best way to help students [rating 5 = 31.6%]
--It is important to use participatory learning in my classes [rating 7 = 52.6%]
--Field trips and dialogue with stakeholders help learning [rating 7 = 78.9%] only if not 'tourist trips'
--Working on farms and in food systems promote learning [rating 7 = 63.2%] need to be supervised
--Students learn more on internships than in lectures [rating 4 = 47.4%] depends on where they work
--Students think they learn the most in lectures [rating 4 = 31.6%]
--I would like more training in participatory learning methods [rating 7 = 47.4%]
--We don't have budget for learning outside the classroom [rating 6 = 31.6%] transport to fields expensive
--Average age of respondents in ENOAT[41-50 = 15.8%; 51-60 = 42.1%; over 60 = 42.1%]

Evaluation of survey:

- Good to have a short, well-structured survey
- Understandable and simple
- Interested in results and summary of discussion from workshop
- Give survey to more teachers and to students
- What ideas do we have to improve the situation
- Goal of teaching is to improve graduate's readiness for flexible and active response to society needs
- Useful to do this survey more often; can we assess student opinions about 15-week compulsory practice, or about compulsory excursions connected to certain subjects or courses

General comments:

--we need more time for teaching plus more tutors to support us; research and administration have priority
--have seen a positive impact of participatory methods; I do believe this is a right way to transfer knowledge
--we need to make teaching and learning more interesting
--professors also learn from students and also from farmers about real production problems on farms
--this approach improves practical training of students
--we need to respect students as "auxiliary scientists" and support them in projects through scholarships
--there is need to eliminate one-way education, and provide motivation for teachers to change
--convince teachers of the benefits of participatory learning
--we need to take an active role in finding good learning activities, and create more compulsory excursions
--internships may not be better for learning, but they provide different ways of learning
--majority of teachers are interested in new teaching styles; large classes can be divided into small groups
--participatory learning should be obligatory, and connected with theoretical learning

Workshop topics for discussion: [please turn in your written notes to Chuck after the workshop is done]

1. **What are the most successful participatory learning methods you have used, and why?**
2. **How can we use participatory learning to help students build confidence in knowledge and skills?**
3. **What are the best ways to motivate students in today's university learning environment?**
4. **How do we effectively involve stakeholders with student projects to improve learning?**
5. **What specific steps could we take to encourage more participatory learning in our universities?**
6. **What are the most important roles for teachers in today's educational environment?**

NOTE: Survey results and workshop notes from participants to be summarized later [CAF]