

ENOAT Workshop, 26-27 September 2019**“Teaching and Innovation in Organic Farming”****Warsaw Univ. Life Sciences, Faculty of Agriculture and Biology, Warsaw, Poland****Organizers: dr Katarzyna Kucińska and prof. Ewa Rembiałkowska, SWWG****Proceedings Eds: Ewa Rembiałkowska, Katarzyna Kucińska, and Charles Francis**

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ENOAT Workshop, 26-27 September 2019
“Teaching and Innovation in Organic Farming”

Editors Introduction to Proceedings

We welcome you to the 2019 ENOAT teachers meeting convened at the Warsaw University of Life Sciences, Faculty of Agriculture and Biology, Warsaw, Poland, organized by your colleagues from the host university. We held one day of workshops at the university, learned from one day in an excursion to the field, and enjoyed several opportunities to meet informally for meals and discussions to share experiences and lessons learned over the past year since our last annual meeting. We hope you found the meetings valuable to your teaching, and the proceedings provide a summary of the presentations so they can be posted on the ENOAT web site. We recognize the support of Dr. Teresa Briz in hosting the website at the Universidad Politecnica in Madrid for posting our proceedings and maintaining the site. Thank you for to everyone for continuing interest and support of the ENOAT teachers' group.

The attendees sincerely thank Dr. Rembialkowska and Dr. Kucińska for their organizing the meeting schedule and the location on campus for meeting, including coffee and tea and snacks for the breaks. We also thank the farmers who hosted us on their farms for tours, and the entrepreneurs at Zdrowa Grządka for their tour of the bakery and description of their marketing strategies, and we apologize for arriving so late to their location.

From the Editors

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Warsaw University
Poland

Dr. Katarzyna Kucińska, SWWG

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Department of Plant Science
Norwegian University of Life Sciences
Norway

Department of Agronomy and Horticulture
University of Nebraska -- Lincoln, U.S.A.

ENOAT Workshop Program, 26-27 September 2019

“Teaching and innovation in organic farming”

Day 1: Workshops and ENOAT matters, + Day 2: Excursion

All workshops will follow a *speed presentation* format with:

- Short presentation (“starter” of 3-5 min. max.) introduce topic and raise relevant questions
- Group work (45 min)
- Joint discussion of our findings (30 min)

Program

Wednesday, 25 September: Arrival

19:00 common dinner in a restaurant Pod Samsonem, Freta Street 3-5, 00-227 Warsaw, old town

http://www.podsamsonem.pl/en_about-us.html

Thursday, 26 September

Meeting location: WULS, Warsaw, Faculty of Agriculture and Biology, building 37, room 3/78, III floor (see map of Campus)

- | | |
|-------|---|
| 9h00 | Short welcome and overview on the program by organizer and chairwoman of ENOAT prof. Ewa Rembiałkowska & Dean of Fac. Agriculture and Biology, prof. Zdzisław Wyszynski |
| 9h15 | Didactic activities, Department of Functional and Organic Food – prof. Ewa Rembiałkowska and Department of Agronomy – dr. Katarzyna Kucińska |
| 9h30 | Current situation of Organic Farming and Agroecology teaching at member universities
<i>Please prepare a 1-page description and send to Ewa email before the meeting (ewa_rembialkowska@sggw.pl). Include current challenges, future plans, NOT including information available on your web site; short 3 min presentation.</i> |
| 11h00 | Coffee and tea break exchange of information among ENOAT members |
| 11h30 | Workshop 1: Entrepreneurship teaching / learning , Moderator Charles Francis
1. Holger Mittelstrass, Kassel University, Witzenhausen, Germany
2. Ewa Rembiałkowska, Warsaw Agricultural University, Poland
3. Charles Francis & David Lambe, USA / Norway, Univ. Nebraska - Lincoln, USA |
| 13h00 | Lunch break: WULS canteen Duet in Old Campus |

- 14h15 **Workshop 2: Organic Agricultural Adaptation to Climate Change**
 Moderator: Martina Bavec
 1. Jan Moudry Jr., Univ. South Bohemia, Ceska Budejovice, Fac. Agriculture, Czech Rep.
 2. Liina Talgre, Estonian University of Life Sciences, Chair of Crop Science, Estonia
 3. Ivan Manalov, Plovdiv Agricultural University, Bulgaria
- 15h45 Coffee and tea break
- 16h00 **Workshop 3: Organic farming and innovations**, Moderator Ewa Rembiałkowska
 1. Mykola Grabovsky, Ukraine
 2. Rukie Agic, Macedonia
 3. Martina Bavec, Slovenia
- 17h30 **Workshop 4: ENOAT matters and future. The purpose and future role of ENOAT in the European educational landscape:** Moderator Ewa Rembiałkowska
 Discussion– ideas and conclusion
- 19h00 Common dinner in a restaurant Gospoda Pod Młynem, ul. Wiolinowa 14, 02-785 Warszawa <https://www.gospodapodmlynem.pl/kontakt/>

Friday, 27 September (day 2) – excursion: Program of the excursion

- 9:00 - start from WULS, building 37 – bus excursion to the organic vegetable farm Niewiatowscy, Wólka Czarnogłowska
 13:00 –14:00 lunch in Mińsk Mazowiecki
 14: 00 – departure to the organic cattle farm Raczko in Czarnogłów
 15:30 – visiting the organic shop ‘Zdrowa Grządka’ in Mińsk Mazowiecki
 16:30 – departure to Warsaw
 18:00 – Central station in Warsaw

Saturday, 28 September – departure

ENOAT Workshop, 26-27 September 2019, Warsaw Univ. Participant List

Ewa Rembialkowska	Warsaw Univ.	Warsaw, Poland	ewa_rembialkowska@sggw.pl
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Day 1: Workshops and ENOAT matters

First Session, Thursday, September 26

Welcome:

Dr. Ewa Rembialkowska provided a brief welcome to the ENOAT group meeting in the Faculty of Agriculture and Biology, Department Building, Room 37. Next door is the Faculty of Nutrition, Building 32.

Dean's Welcome: She is a proponent of organic food in her own home; this sector is growing in Poland, with organic food from Poland as well as imported from other parts of the world. This year was a slow summer, with cool spring and late crops. We are encouraged to join a new era of organic production, and also to stimulate our students to embrace this philosophy.

Current Situation in ENOAT Member Universities:

Dr. Ewa Rembialkowska described the teaching in faculty of nutrition, with some changes in name and courses. Organic Food is an elective course with 60-80 students each time, lectures in Polish, and exercises. Erasmus course in organic production is also offered; moved from 5 students up to 30 students this year, in English, and many students from other countries in Europe. Also an elective course with 26 students for MSc level for both foreign and Polish students, all focused on nutrition with the growing interest in healthy food. [see p. 15 for details]

Dr. Kasha Kucińska described the teaching programme in crops and agronomy: Organic Agriculture and Food Production, a new study programme in the faculty, completed in six semesters.

- World organic ag land now 43.7 million ha
- Conversion according to Bologna Accord with 3 yr Bachelor, 2 yr MSc, and 3-4 yr for PhD. Degrees. Array of courses and credits are given in detail in the power point
- Programme includes biochemistry, physiology, microbiology, soils, agroecology environmental protection, legislation and agricultural law, foreign language, basics of human nutrition, organic crops, weeds and weed management, ecological aspects of nutrition and agriculture, livestock production, organic vegetables and fruits, food safety [see details in the ppt, available from the author].
- Other electives include policy, preventive nutrition, smart food, chemistry of natural compounds, food packaging, natural aspects of tourism and others [see ppt]
- New Agricultural Experiment Station in Skierniewice, 70 km south from Warsaw, one of the oldest experiment stations in Europe
- Teachers are invited from most EU countries from cooperating universities

Dr. Maya Manojlovic, University of Novi Sad, Faculty of Agriculture, Serbia

- BSc in organic agriculture - about 20 students of total 140 in department, another in Agroecology, another in plant protection, also in tourism
- MSc and PhD programs also in department in Agroecology

- Large challenge to find jobs, and sometimes take business courses, also prolong their studies; when some accept jobs, they have some difficulty finishing due to conflicts in time allocation; graduates go into business, or on to future studies, built on the experiences in their degree programmes. Those with MSc and PhD have an advantage in the job market [see p. 13 for details]

Dr. Zita Szalai, Szentg Istvan University, Budapest, Hungary

- Organic farming has been integral to the department's programme for many years, sometimes with up to ten students per year; currently five PhD students in organic farming. The Organic Farming topic is being integrated into other mainstream courses in the department, also attracting students from Natural Sciences; 50 students currently from a number of places and this course is in English. Farmers get initial support for converting to organic production and certification. Also one-day topic courses for farmers. This is called adult education, and is conducted on Saturdays. Cost is 30 Euro per course, and this is not prohibitive.

Dr. Holger Mittlestrass, University of Kassel, Witzenhausen, Germany

- Long history of teaching in organic farming, with up to 700 students enrolled in the courses
- Minimal changes in recent years, since the programmes are working well
- English MSc programme in food systems is attracting a new group of students; there may be major changes in 2-3 years.
- Short video about the programme in Witzenhausen to describe the ideas about teaching and learning, especially through project work. Video describes how the teaching programmes related to the UN's 17 Sustainable Development Goals. Every semester a group of 7-8 students are supervised to make a video about key topics in organic agriculture and agroecology. They can choose research projects, excursion projects, conference projects, video projects, or others.

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Dr. Rukia Agic, Faculty of Agriculture and Foods, Ss. Cyril and Methodius University, Macedonia

- Ten study programs, including one that is called 'eco-agriculture' which is mostly organic farming; this may be renamed in the next catalogue
- New Msc programme is being organized in organic farming, but in general students numbers are declining due to urban migration, larger farms, more conventional technologies; organic farming and foods have a window of opportunity, especially in non-formal education for farmers who are seeking new information but are not so interested in degree studies.

Dr. Ivan Manolov, University of Agriculture, Plovdiv, Bulgaria

- Focus in programs is on environmental dimensions of food production, and farming with nature [need a minimum of 7 students to offer a course; this year there are twice this number]. Organic agriculture, courses are taught in Bulgarian and in English for Erasmus students. [horticulture, agronomy, tropical agriculture; 158 students last year, but this year will be fewer]

- Topics include beneficial insects, soil fertility, environmental management [in cooperation with Greece], focused on improving the environment along the border areas.

Dr. Jan Moudry, Jr., from Faculty of Agriculture, Dep. of Agroecology, Ceske Budejovice University, Czech Republic

- Accreditation time in all courses in the country, problem is that we lost PhD programme in Agroecology, only three students, so it was merged with Applied Ecology [political decision, since there are both BSc and MSc degrees already in agroecology].
- Number of students is slowly increasing after some years of slow decline; organic farming does not have enough popularity in country, now looking for re-branding and creating a better image for farming in general and especially for young people.
- Some innovations in local food production, new alternatives such as insects in nutrition [cricket and worm powder], social dimensions of farming, ecological aspects and focus on environment.
- Share of products is about stable; 12% of farms are organic, but 0.7% of food in markets is organic; large amount of certified land is in pastures, and a challenge is to label foods; one strong motivation is subsidies.
- Participation is in NEXTFOOD program, with case study in developing organic food, learning by doing, project-oriented education, teachers/experts converted into moderators of the learning process. Many new questions coming up, and from first round there is strong interest from students in new learning methods.

Mykola Grabovsky, Ukraine Univ., Dep of Crop Production and Protection

- Agronomy, horticulture, plant production; cooperation with German Ag ministry in organic farming, to now get accreditation for MSc courses
- Utilization is another key new topic included in courses;
- Challenges include a disconnect and lack of legislation that will support organic farming; this year there was a merging of Ag Ministry with Trade Ministry and with _____ Ministry, so there is much reorganization and uncertainty about organic farming with the current administration.
- There is need to connect university with organic farming, and education of teachers for organic farming, and in the university faculty.

Dr. Charles Francis et al., Plant Science Department, NMBU, Norway [summary, p. 24-26]

Dr. Liina Talgre, Estonian University of Agriculture

- Organic farming is growing year by year, in university organics and agroecology are also growing, since 2014 there is a MSc in organic farming systems that is in English for Erasmus students
- Problem-solving focus of most new courses, students are working with farmers, face-to-face meetings, end of course reports shared with stakeholders, and good feedback from both students and farmers for this type of learning

- Agricultural production and marketing have some lectures in organic methods, same is true in animal science; new course based on agroecology and organic foods that is for BSc and MSc students; currently one PhD student in organic farming, working in organic fields at Tartu University.
- New programmes for kindergarten and other young students for planting and managing up to harvest; some lectures and field programmes for farmers and advisors.
- Student numbers are increasing year by year.

Dr. Martina Bavec, Faculty of Agriculture, University of Maribor, Slovenia

- Field crops and ornamentals, programmes since 2001, international summer schools, 2005-6 BSc programme in organic farming.
- National plan supporting organic farming, with core group in Maribor University, and this is still the only organic program in Slovenia; common MSc in agronomy and food production with specialty in agroecology and organic farming; doctoral program also includes this option, and has the elective course in organic farming. It is hard to predict how many students will complete these degrees. New dean is not very supportive of organic farming, although departments and disciplines have strong interest in this direction. There is some uncertainty about the freedom of action by teachers in selecting material to present in their courses. Is this an issue of 'academic freedom' in the university? [editor CAF question]. Faculty members will be voting on these issues. There is more support from organic farmers and from some members of the national elected government. It is uncertain at this time. The conflicting attitudes reflect the same types of problems in several of our countries. Local foods have received strong support from national level, and how this question of local vs organic is yet to be resolved. A large company from France recently bought land to produce organic food, and invest large resources in this type of production. So far there are only 3 specialists out of 300 in government advisory service who are specialized in organics; this may increase due to pressures from farmers. There are some initiatives to increase profile of organic foods and farming, and also this is written into some government documents as related to environmental challenges.

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Workshop 1: Entrepreneurship. Moderator: Charles Francis

1. Holger Mittelstrass, Witzenhausen
 - goals: starting a new farm [social, economic, legal aspects]
 - methods: lectures, excursions, case studies, create own business plan
 - bootcamp: four business ideas internet platform, coaching
 - entrepreneurship contest, each year with participation & winners from organic ag sciences classes, help for crowd funding to support projects; organic field days with 11,000 visitors from across Germany, including a start-up exchange on regenerative agriculture
 - entrepreneurship board for eco-Region Witzenhausen
2. Ewa Rembiałkowska: Course to Develop Entrepreneurship
 - Education in SUSPLUS
 - Students, teaching, participating companies working together + coordinator
 - Syllabus of the small research projects
3. Chuck Francis: Class in entrepreneurship at UNL, Nebraska, with visiting expert, Prof. David Lambe, with details in handout for all [see paper on p. 21-23]

Workshop 2: Organic Agricultural Adaptation to Climate Change, Moderator: Martina Bavec

1. Jan Moudry Jr., Univ. South Bohemia in Ceska Budejovice, Faculty of Agriculture
"Organic agriculture as a tool to deal with climate change"
 - Life cycle assessment [LCA]: goals & borders, inventory analysis, evaluation of impacts, interpretation
 - Climate change, acidification, eutrophication, land use impact, human health, ecotoxicity, water consumption, soil depletion.
 - SIMA Pro software - tool for calculations; dependent on calculation of CO₂e production, variability of function units, frame setting, inputs and outputs
 - Results show that organic system has much less emission per kg of grain production than conventional: wheat, rye, oat; potatoes show similar emissions, with chips much higher than potatoes themselves, or grilled potatoes.
2. Liina Talgre, Estonian University of Life Sciences, Chair of Crop Science
"Organic Farming in Estonia in relation to Climate Change"
 - Climate change impacts on health, agriculture and food in Estonia"
 - temperature change has been greater in Estonia than in world average
 - plant breeding, including using old/local varieties; intercropping; increased biodiversity [winter cover crops, increased plant diversity]
 - nutrient leaching with autumn-like winter and more rain: nutrient leaching
 - increased carbon emissions [use no-till, Carbon sequestration]

- rural pastures, wooded meadows, coastal grasslands provide 100% beef and pork produced on grass
- new crops with warming climate: pulses, millet, others
- need to mitigate these risks by increase of BD, multiple cropping, breeding for adaptation

3. Ivan Manalov, Plovdiv Agricultural University

“Global warming and how this is introduced in university classes”

- Relative contributions to global warming by different GHGs are presented, and discussion around how calculations are made, and then how these can be introduced into organic classes and other agronomy/horticulture classes.
- Most important is the perspective of global warming, and how we can catalyze a conversation with students to come up with their own examples, then tools to measure, then what to do about this.
- Communication is the key, and defining terms and finding examples that are meaningful to students are the most difficult to achieve.

Discussion on Climate Change

The challenges are complex, people are a large part of the cause, and many young people are moving in the right direction. How can this be communicated to the general population? How can we shift to an ecological accounting that really measures impacts, and how can this be explained? It is obvious that people react to immediate challenges [bear at the door of the cave], but not to things that cannot be seen such as water pollution, nuclear contamination, soil erosion. We continue to use short-term economics, non-ecological accounting, and thinking of most changes as affecting our own creature comforts or short-term well-being.

Workshop 3: Organic Farming and Innovations. Moderator: Ewa Rembialkowska

1. Mykola Grabovsky, Ukraine Agricultural University

Mykola described the area and production of organic crops in Ukraine, plus the certification process and list of companies that are active today in doing the certification. This is a slowly-growing niche that is just getting established in the university.

2. Rukia Agic, Macadonia

Rukie told us about the organic innovations in farming and food. She featured innovation in organic seed technology, importance in breeding programs, innovation such as grafting, using rootstocks and grafts to produce yields, quality, insect & pathogen control. Beneficial insects are an important part of biological technologies for control that do not use chemicals. Weeding technologies without chemicals can be effective and more friendly to the environment. Innovations in storage technologies include hot water treatment, creative ad for ‘restrain’ anti-sprouting technology as a surface application. Innovations in packaging are used in organic marketing, including alternatives to plastic that is now banned in some countries. About innovation, ‘it seems impossible until it is done’.

3. Martina Bavec, Slovenia

Organic farmers: the most innovative part of Slovene agriculture [?]

What is innovation? A new idea which is successful in practice!

This includes new product, practice, process, services, production process or new way of organisation, cooperation, but valuable only when this moves into practice! depends on markets, cost efficiency, willingness to apply, presentation and perception of innovation

Farmers are

- independently searching for new knowledge ... but many still looking to publications, advisors
- upgrade traditional knowledge and experiences from past with new technologies
- developing innovative technological solutions [oilpress, roller crimper ...]
- testing new & alternative crops [haskao, amaranth, kamut, aronija, goji, ...]
- developing new products and marketing concepts [CSA, box scheme, internet trading, ...]
- have in general a higher educational level [than conventional]
- more registered activities on farm compared to conventional farmers; multifunctional activities

Cases of innovation: Haskap berries: info@haskap.si

Discussion: What are some new innovations in agriculture that will make a difference?

Workshop 4: Common Debate on Future of ENOAT and discussion.

Moderator: Ewa Rembialkowska

We decided to accept the kind invitation from Martina and Franci to meet in Maribor in 2020.

[editors' note: this meeting was changed to on-line due to the dangers of COVID-19 and travel restrictions. For details, see the 2020 Proceedings on this same web site]

Organic Agriculture and Agroecology Teaching: Faculty of Agriculture, University of Novi Sad

Maja Manojlović
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 1 year students are around 20. 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 Agroeconomics but is cancelled in 2019.

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

This year all our programs passed reaccreditation. Most of the courses are in Serbian while DAFM courses are offered in English as well as program for Erasmus students. We have had a few foreign students mostly from the neighboring countries but also Erasmus students from different countries e.g. Romania, Netherland, France.

BSc students are very heterogeneous having different level of knowledge, background, interest, therefore is challenge teaching them. In total we have 139 new and old students with around 20 new enrolled. Number of students is decreased compared to period e.g. five years ago and it is evident that some students are going abroad for a study at university but is stable last two/three years.

MSc students if are not planning to continue with PhD studies they often find any kind of job rather than first get MSc degree. Therefore, they prolong studies. Also, a 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.

Organic agriculture sector is developing fast in Serbia and there is a strong request from big companies for experienced agronomist specialized or oriented to organic agriculture. That is a signal that our students need more practical work during studies or even a new study program that will include longer period for getting work experience on organic farm or in company. Also, we have to encourage students to attend different types of training, to spend a semester at foreign university, start a small research project, start their own production, work with an NGO, and to continue study to get MSC and PhD degrees in order to more easily find jobs.

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

Martina Bavec, ENOAT meeting in Warsaw, 26-27 September 2019

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.

In the first 10 years this study programme was at Faculty of Agriculture and Life Sciences (FALS) University of Maribor one of the most popular program concerning the number of interested students. Each year 5-7 Erasmus students takes Organic Agriculture modules. Also other students of 4 (since last study year 2018/19 not anymore on study program fruit and wine growing) out of 6 B.Sc. study programs have 5 or 3 ECTS course „Basics of organic farming“. It means majority of 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.

In Budapest in 2017 we reported that due to some personnel changes and attitudes of people in the leadership of faculty there was an intention to make several changes in the program without internal discussion with the Chair for Organic Agriculture and there was an intent to decrease number of B.Sc. study programs (2-5 out of 7) and further development was uncertain. Now it is going in this direction. Since study year 2015/16, it was reported in ENOAT that there is not support from leadership of the faculty which resulted in almost no publicity about organic study among students in secondary schools and in the media. Result is less interest to study on this B.Sc. programme and now based on a new fact, discussions about merging some study programmes into one came out again this summer. Dean tried to put it on council, but members refused to vote. If this will happen, it means defacto disappearing a Organic agriculture study programme on the University of Maribor. Due to less students they decreased number of study places on 20 for next year, but as it looks we will have only 5 new students (see table).

But in contrast, the organic sector in Slovenia is developing (5% of all farms and 10% of all agriculture area is organic) and sooner or later there will also be more courses on organic farming in other faculties or high schools. Two weeks ago there was also discussion about study program Organic agriculture in the National Council (second dome) and members concluded that the organic farming study programme is important for Slovenia and they asked the ministry for higher education to take care for it. Also, if University of Maribor will not be interested in the future, it should be established in some other institution with higher education.

Student numbers for courses in Organic Agriculture at FALS University of Maribor

Study year	Students in the 1st year	All students
2012/13	32	68
2013/14	41	73
2014/15	32	73
2015/16	20	60
2016/17	19	51
2017/18	10	30
2018/19	7	22
2019/20	5	14



**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)

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

1. 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. Elective course: **Ecological aspects of food and nutrition**
– for daily MSc students of the Fac. of Human Nutrition and Consumer Sciences in winter semester – 2 ECTS.
It is elected this semester by 26 students
language of course: English.

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 BSc study

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 chosen 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.

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)

Czech Republic: 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 years ago in the University of South Bohemia the numbers of students were very high, including in agroecology, and then have declined in the last two years. This in part (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.

Entrepreneurship Learning for Organic Marketing September 26, 2019

ENOAT, Warsaw,

Charles Francis & David Lambe, University of Nebraska -- Lincoln [UNL], Nebraska, USA

Importance of Entrepreneurship in Organic Foods

For speciality crops in the niche of organic food, it is essential to carefully develop a marketing plan before putting seed in the field. This is especially important for farmers new to organic crops, since their experience with conventional maize and soybean has been with nearby, convenient, and willing buyers for feedgrains, feedstocks for biofuels, and a small proportion for food-grade products. Although organic foods now represent about 4% of the U.S. food market, and about \$40 billion annual sales, it is still a speciality niche that requires adequate prior planning. This is a surprise to farmers new to such products and an introduction to a whole new dimension of their business.

Courses Taught by Mr. Lambe [more details below]

As an *associate professor of practice*, Mr. Lambe teaches three highly popular courses at UNL:

-AECN/AGRO/ENTR/EAEP/HORT 275 - Entrepreneurial Finance (AGRO/275)

-ABUS/AGRO/ENTR/EAEP/HORT 388 - Agribusiness Entrepreneurship (AGRO/388)

-ABUS/AGRO/ENTR/EAEP/HORT 488/888 - Business Management for Agricultural Enterprises (AGRO/488)

All three courses are taught both in the campus in a classroom and in the community, and on-line (distance class). Before starting his teaching at UNL, Mr. Lambe completed degrees in agriculture [BSc] and business management [MBA]. David had a strong interest in flowers, but he'd never actually been in business himself. To prepare himself for teaching, he decided to start his own wholesale flower business to gain first-hand experience in how to run a commercial operation. He found this highly useful to supplement prior formal academic training in business for his MBA degree. This was discontinued when he became a full-time teacher.

Teaching Entrepreneurship in Organic Products

In a 400-level [fourth year] course *Organic Farming and Food Systems* at University of Nebraska -- Lincoln, David Lambe was invited to use an entirely participatory interaction approach. Instead of lecturing about how to sell organic produce, he leads the class in a discussion of their personal goals in getting into this new business. Students and teachers co-develop a list of practical goals -- level of profit needed to justify the business, opportunity to work with people, focus in an area of intense personal satisfaction such as growing organic products. With this list in mind, the class moves toward marketing, first defining the most likely demographic of people who will buy the organic produce. In a recent class, we decided together that the most frequent buyers

would be 1) women, 2) ages 30-40, 3) family with two children, and 4) adequate interest and income to buy organic food. As a class, we speculated on what foods they were most likely to purchase, for example baby foods, those that are consumed fresh rather than cooked, foods on the 'dirty dozen list' that are most likely to have pesticide residues, and those children like to eat. One conclusion was that we really needed to research this topic for the local area, perhaps with a survey of potential customers and consumers. Then we developed a list of essential steps to start the business, and included 1) how to find land for farming, 2) what products would likely be in highest demand, 3) where we would find nearby markets, 4) what scale would be most appropriate, 5) labor demands for organic production methods including product preparation for sale, and 6) availability of financing to start the business. We discussed all the people who might be involved in decisions, such as the entrepreneur and how much time she/he had available, family members for labor or support, land owner, input suppliers, market managers, and those involved in transportation.

Student Output and Learning

To reflect on the three-hour class and summarize what was learned, students made their own brief marketing plan for a small, organic garden near a major city. They used class notes and recall to develop this business plan and then present it a week later to the class for critique. We evaluated these plans, and did a short survey to test the value of the exercise to students. It was generally agreed that this participatory approach to learning was far superior to listening to a lecture, no matter how well prepared and enthusiastic the teacher might be. They agreed that other topics could be made more exciting if addressed in a similar way. We use this type of teaching in our Department of Agronomy and Horticulture, bringing in experts who are in the flow of topics and use innovative teaching methods.

Application to Other Organic Course Topics

We have used this same approach for other topics in the *Organic Agriculture & Food Systems* course. To explore the history of organic farming, we have students choose one important person and develop a one-page report on their contributions. Examples include Eva Balfour, Walter James Northbourne with the Soil Association in U.K., Albert Howard's work in India, Hans Müller and Maria Bigler in Switzerland, Rudolph Steiner from Austria, and several from the U.S.: J.I. and Robert Rodale, Elliott Coleman, William Albrecht, Fred Kirschenmann, Miguel Altieri, Stephen Gliessman. Students have also researched and reported on the organic certification standards in different countries, pointing out where they are more strict than in the U.S., and speculating on why they may differ. The major individual assignment is a semester-long project of the student's own choosing, and this allows us to explore topics that are not included in the published syllabus.

Brief Background for my UNL Colleague David Lambe

Areas of Focus

- Entrepreneurship – emphasis in agriculture
- Finance
- Marketing
- Business plan development

Research Interests

- Entrepreneurship education

Major Project Activities

- Instruction of undergraduate and graduate students in entrepreneurship with emphasis in agriculture
- Lead Instructor - Engler Agribusiness Entrepreneurship Program
- Distance Education

David Lambe's department web site: <https://agronomy.unl.edu/lambe>

Current Agroecology Education at NMBU, Norway September 26, 2019

ENOAT, Warsaw,

Geir Lieblein, Tor Arvid Breland, Anna Marie Nicolaysen, Charles Francis
Agroecology Programme, Department of Plant Sciences
Norwegian University of Life Sciences, Postboks 5003, 1432 Ås, Norway

Brief Education Programme History: 20th Anniversary [2019] of *Agroecology: Farming and Food Systems*

After a three-year series of week-long doctoral courses [1995-1997] the Agroecology MSc programme using participatory learning methods was initiated in 2000. This is the 20th year of attracting an international student group to a four-semester curriculum with three terms of classes and one for thesis [with two semester thesis project as an option]. Primary changes have been from lecture presentation to field-based activities using the phenomenology approach and team learning in farming and food systems. Two field visits by teams in each project represent the core of the semester, and all activities are designed to help students become agroecologists by learning and practicing five competences: observation, participation, dialogue, reflection, and visioning. We have also mentored new programmes in Sweden [SLU, Alnarp], India [in two universities in Kerala and Kolkatta], Ethiopia [Mekelle University], and Uganda Martyrs University. Plans are under way to work with UNSGI in Pollenzo, Italy, and University of Chile in Santiago.

Agroecology Student Handbook

Former students in Agroecology in Sweden and Norway collaborated to develop an orientation handbook to ease the transition from conventional university learning environments to the new learning landscape in participatory co-education. The 'living document' describes learning about *reductionist vs systems thinking, autonomous learning, how do minds work, group dynamics, international interpersonal competency*, and the major connections among these themes. It is designed to reduce initial frustration, and help students move from a hierarchical, top-down educational environment where students take responsibility for their own learning, and professors play the role of facilitators rather than experts. This was entirely a student initiative.

Transforming the Educational Landscape in Agroecology

Based on 20 years' experience, we have designed learning activities that all contribute to learning, internalizing, and practicing the five competences listed above. We insist on a transformation from teaching to learning, from one-way lecture to discussion among learners, from reliance on a single expert who knows 'all the facts' to an open and multiple-resource information environment using the internet, and from top-down hierarchy to co-learning among students, teachers, and stakeholders in the field. One of the largest challenges is for professors/teachers to develop then accept a new identity that is vastly different from what once attracted them to academia.

NEXTFOOD: Outreach in an EU Project in 13 Country Locations

Diverse teaching programmes in several countries are active in a 3-yr EU-funded research project on developing unique educational environments using participatory learning. Our learning model developed over two decades designed to develop five key competences is being applied to a diverse array of programs ranging from a farm school in Greece, to a non-conventional practical training programme in Bulgaria, to an equipment operators' course in forestry harvesting in Sweden. With a common set of criteria for evaluation of learning, we will conduct a cross-case comparison before the end of the project and include a number of examples of teaching resources in an open-access web site.

[with Lutgart Laenerts, Asmund Steiro] Mr. Steiro is a MSc graduate from the NMBU Agroecology Programme.

Cultivating Public Spaces: Outreach in Urban Agriculture

An interdisciplinary cooperative project has the goal to assess potential for urban agriculture as a driving force for sustainability transition in Norwegian cities. Focus is on the social, ecological, and economic dimensions of social sustainability, in terms of quality of life and social justice in a compact city, and how urban agriculture can contribute in Oslo. The project is funded by the Norwegian government. [with Vebjorn Stafseng] Mr. Stafseng is a MSc graduate from the NMBU Agroecology Programme

ADAPT: Sustainable Adaptation - Resilience in Urban Regeneration

ADAPT is funded by the Norwegian Research Council, and is focused on how reuse of industrial heritage alongside new infrastructure may contribute to human wellbeing. NMBU is responsible for a work package on integration of urban agriculture [UA] in two case areas, both former brownfields, to provide insight on how to:

- Facilitate socially sustainable and resilient urban develop by integrating urban agriculture
- Assess potential of UA for engaging the wider public and examining progress in a pilot study
- Develop a set of policy and process recommendations for implementing UA and regeneration

Agroecology Team Adapting to Rapid Growth

With addition of one post-doc and two MSc graduates to the research team, the agroecology programme is developing criteria for deciding which future grant possibilities have potential to contribute to the teaching program. People are already stretched thin on time, and we need a process to make team decisions. A new urban agriculture center at NMBU brings more resources, plus a need for clarity of roles and close collaboration.

Future Challenges: Transforming Academia from Lecturing to Co-Learning

While exploring the needs for teacher orientation and training, institutional support, and successful examples of participatory models of learning, the challenge of transforming teaching methods stands out. We are becoming convinced that one major constraint to greater adoption of creative methods is an inertia among the instructors and professors in teaching faculties, where there may be lack of understanding of these method and perceived rewards to making a change. Even though the literature is compelling about the value of new learning environments, there is much resistance to reducing the emphasis on 'expert lectures' and converting more course goals and activities to alternatives that promote conscious efforts to promote co-learning situations to improve student motivation and success in education. A research project in 2020 and 2021 during a sabbatical leave of co-author Charles Francis will explore the potential roles of teachers, students, administrators, and stakeholders in the field in this new learning landscape.

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