NEXTFOOD

Educating the next generation of professionals in the agrifood system

NEXTFOOD will contribute to a transition to more learner-centric, participatory, action-based and action-oriented education and learning in agrifood systems, which are becoming increasingly complex and require an increasing range of "hard" and "soft" skills. The objectives are to

- (O1) identify the skills needed for a transition to more sustainable farming and food systems,
- (O2) develop and test relevant curricula and training methods,
- (O3) assess existing policy instruments for the training and education sector,
- (O4) develop tools for evaluating quality of the training and education sector,
- (05) develop a platform for knowledge sharing.

NEXTFOOD will employ case-based action research to

(I) develop relevant and effective education and training programmes for a transition to more sustainable agrifood systems,
(II) generate new knowledge needed for similar achievements beyond the specific case.

The *case development (I)* will rest on a cyclic, iterative, participatory process consisting of

(1) observation and description of the current situation in each case,
(2) visioning of a desired future state,
(3) analysis to identify key issues, solutions, supporting and hindering forces etc.,
(4) elaboration and discussion of action plans,
(5) implementation of plans,
(6) iteration of steps (1–5) in a cyclical manner throughout the course of the project.

Simultaneously, *research (II)* will be done on qualitative and quantitative data generated during the case development process and analysed to answer research questions that are relevant beyond the specific case. This will produce new knowledge needed to drive the transition to the learning strategies required to educate and train professionals that can meet the very complex future demands in the agrifood sector.

The main research questions of NEXTFOOD are:

1. How can participatory and action-oriented learning strategies focusing on competences required to foster more sustainable agrifood systems, be designed and implemented?
2. What are supporting and hindering forces for such alternatives to establish and develop successfully?

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Case name and name of contact person/leader

Agroecology and sustainable farming systems: Designing of sustainable farming systems I+II, Conversion on organic farming and Quality, processing and distribution of organic products

University of South Bohemia In České Budějovice, Faculty of Agriculture, Czech Republic

Brief description of the case

Among other, Faculty of Agriculture of University of South Bohemia in České Budějovice runs two courses focused on sustainable farming systems and sustainable food production. A master's course in Agroecology and bachelor course Sustainable farming systems in agricultural landscape. Course Agroecology contains subjects Designing of sustainable farming systems I+II (two semesters, ca. 50 hours of lectures and 50 hours of practical exercises) and subject Quality, processing and distribution of organic products (one semester, ca. 24 hours of lectures, 24 hours of practical exercises), course Sustainable farming systems in agricultural landscape contains subject Conversion on organic farming (one semester, ca. 24 hours of lectures and 24 hours of practical exercises). Subjects Designing of sustainable farming systems and Conversion on organic farming have similar core – designing of sustainable farm and sustainable food production. During theoretical part, students gaining knowledge about sustainable farming and food production systems and related topics, during practical part, they are cooperating with farmers and food producers and creating proposal of sustainable farms or food processing subjects. In both cases, small groups of students (2-4 persons) establish cooperation with practice (farmer or food processing company). Each group have to create complex plan of conversion on organic farming/production and improving of sustainability and positive environmental impacts. Among steps related to appropriate legislative (administrative part of conversion), students create plan of changes in farm/company structure, production structure, simple economical balance and in case of farms also nutrient and feeding balance. Evaluated are also environmental impacts of current farm/company and environmental friendly measures are designed (eg. landscape elements designing, water sources protection, biodiversity support, etc.). All steps are connected with concrete lectures during semester and consulted with both – stakeholders from practice and teachers/scientists. Subject Quality, processing and distribution of organic products is focused on food production in organic farming system. The subject is focused on theoretical lectures (principles of organic production, certification, labelling and control system, quality aspects of organic production, processing of products, distribution, etc) and practical exercises part, which contains excursions, visit of experts from practice and processing of selected cereal products (bread, pasta). In this case, the cooperation with stakeholders from practice will be strengthened and practical exercises will be realised like complex project of selected product creation (from registration and processing to distribution and marketing).

Communication with practice helps to understand to the principles of sustainable farming and food production systems designing and to use theoretical knowledge in practice. For education/research, this system brings new challenges, as farms/companies are selected straight by students and each new cooperation brings also new questions and problems which have to be solved. Discussions between all involved parties (students, stakeholders from practice, teachers/researchers) are also part of subjects. In some cases, the student projects were already realised by farms/companies

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(conversion of farms on organic system, development of food processing and distribution).

From feedback of Faculty of agriculture absolvents is clear, that this approach helps students to use theoretical knowledge and outputs of all subjects Designing of sustainable farming systems I+II, Conversion on organic farming and Quality, processing and distribution of organic products are used in their further practice more often. Positive feedback is also from practice, in some cases cooperation leads to employment of concrete students, or further cooperation between practice and research is established.

How will the case contribute to achievement of the NEXTFOOD objectives by action research as the main strategy?

The case will be an arena for achievement of

- O1 description of key competences and skills needed for practice application
- O2 improving of current method on base of project NEXTFOOD outputs and transfer to other subjects in frame of selected courses
- O4 cooperation on testing and evaluating the framework for monitoring, reporting and evaluation of education and research quality
- O5 multi-actor approach – students, stakeholders from practice and teachers and researchers are involved to cooperation

How will the case study provide evidence to answer the NEXTFOOD research questions?

The case study provide practical outputs and data useful for description of key competences and skills needed by practice. Based on feedback of absolvents collected during last 8 years and on communication with involved actors from practice, competences and skills will be described. Case study will work also like space for testing and evaluating of the framework for monitoring, reporting and evaluation of education and research quality, as the current model will be improved on base of project NEXTFOOD outputs and on experiences exchange within project team. Similarly, the multi-actor approach will be evaluated.

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When do you plan do run the first cycle (starting and ending dates) of the educational activities (courses, seminars etc.)?

First part of first "trial version" cycle will be started in October 2018, when the subjects Designing of sustainable farming systems I, Conversion on organic farming and Quality, processing and distribution of organic products starts and ended in January 2019. Second part of first "trial version" cycle will start in February 2019, when the subject Designing of sustainable farming systems II starts and ended in May 2019.

During this first run the closer cooperation with practice (especially involvement of experts from practice into education) will be tested and the optimal forms of cooperation will be selected for second "full version" cycle, which will be started in October 2019, resp. February 2020.

What is the planned (expected) number of learners (students, farmers, etc.)?

Ca. 35 students

What is the level of the course(s)? (BSc, MSc, other)

8 students of BSc, 27 students of MSc.

There will be invited also Ph.D. students from relevant departments like observers/assistants.

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Who will be the teachers/learning facilitators?

Teachers will be members of the relevant USB departments (Focus on organic and sustainable agriculture and food production) and from cooperating organisations. From USB there will be involved prof. Jan Moudrý (organic farming, plant production), assoc. prof. Jan Moudrý (sustainable farming systems, conversion on organic farming), assoc. prof Petr Konvalina (processing of organic production) and Dr. Jaroslav Bernas (conversion on organic farming, sustainable agriculture) Other teachers from USB will be selected later on base of concrete needs of course. Teachers will be supported by experts from advisory and control organisations and from ministry of agriculture.

A description of the 'learning arenas':
Where will the activities take place, what will be the processes to enable co-learning between teachers, learners (students, farmers, etc.) and research persons in society (farmers and others)?

In case of Designing of sustainable farming systems I+II and Conversion on organic farming, the activities will take place on selected farms around USB and straight on USB. All involved persons (students, teachers, farmers, experts from practice…) will met on farms, where the case studies will be realised and also on USB, where theoretical discussions will be realised and proposals of partial solutions for case studies will be presented. In case of Quality, processing and distribution of organic products, the activities will take place on USB, practical parts will be realised in laboratories for production of food products and partially also in selected companies focused on relevant food production. Experts from these companies will be involved into education and will cooperate with students on concrete case studies.

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