ETICOF

CURRICULUM

Conversion to Organic Farming in Higher Education

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Table of content

The ETICOF Project

The project “Education, Training and Innovations in Conversion to Organic Farming” (ETICOF) focuses on the creation of innovative educational materials for the topic of conversion to organic farming. It is a transnational project with partners from Slovakia, Czech Republic, Hungary, and Germany, thereunder three universities, one university of applied science and one NGO. All partners have years of experience in education and training in the field of organic farming. It is funded within the framework of Erasmus + regulations by European Union during a three-year project period from June 2023 – May 2026.

The curriculum for conversion to organic farming is the first partial result of this project. If you are interested in further resources on the issue, please take note of the additional results published by the ETICOF project (see below or www.eticof.uniag.sk).

Project goals

Enabling teachers and trainers to easily design innovative education

The project is creating innovative educational materials focusing on the issue of conversion to organic farming. The structure of the outputs also allows the easy creation of other follow-up materials, which can be customized according to individual needs. Innovative methods and procedures are based on the principles of action learning and multi-actor approach, which promotes an active role of students and supports the role of teachers and trainers as facilitators. The outputs of the project simultaneously target both, higher education and, in its modified version, agricultural practice and lifelong learning education.

Motivating and qualifying (future) farmers for conversion

The conversion to organic farming requires a considerable amount of knowledge, often new and different from established practices, and their verification in a short time. The conversion process can be risky and economically challenging, which is why many conventional farmers hesitate in approaching conversion. In addition, benefits of organic farming are often unclear. This is why the project aims to improve the availability of engaging and motivating education and training in the field.

Enhancing organic farming

By improving education in this field, the project aims to strengthen the growth and development of organic farming in accordance with European policy. Under the Green Deal's Farm to Fork strategy, the European Commission has set a target of at least 25% of the EU agricultural land under organic farming by 2030. To achieve this goal, education and training in this field need to be enhanced and facilitated.

Mitigating climate change

Organic farming is an environmentally friendly form of agriculture, which also contributes to the fight against climate change. Compared to conventional agriculture, the carbon footprint of organic farming is lower not only per area unit, but also per production unit. A significant increase in the share of organic farming in the coming years is one important step towards sustainability. Innovative educational and methodological materials on conversion to organic farming contribute to the successful expansion of organic farming areas. This helps to achieve the overall goal of the project: to reduce greenhouse gas emissions from agriculture and to fight climate change in general.

Curriculum for Conversion to Organic Farming

Approach

This curriculum is developed by combining a needs analysis of farmers with the experience of experts of the five partner institutions. The farmers' needs were analyzed with the help of a farmers' survey conducted in autumn 2023.

For the survey, researchers have created a semi-structured and open-ended questionnaire and interviewed a total of 80 farms. These included 10 conventional and 10 organic farms in each partners' country: Slovak Republic, Czech Republic, Hungary, and Germany. The questionnaire focused on conversion to organic farming and explicitly asked about motivations, obstacles, needs and recommendations of the farmers.

In a workshop-like set-up the project partners collected and clustered topics from the survey as well as topics from their own experience to cover the broad spectrum of relevant knowledge, skills, and competences. This topic collection then was transformed into the curriculum by adding more detailed content blocks, qualification goals as well as methodological suggestions. (Please note that there is extensive content on methodology as well as fully developed teaching content in the subsequent project results.) To assure the quality of the result, the curriculum was thoroughly reviewed by all partner institutions.

In total 5 modules have been elaborated: The first one, "Conversion to Organic Farming in Theory and Practice", was determined as the core module since it provides basic knowledge about the organic sector, the administrative framework, and organic farming practice but thereby has a strong focus on the conversion process itself.

Module 2 and 3 ("Converting Technological Practices" and "Mastering Economics in Conversion and Beyond") can be regarded as more in-depth courses that provide advanced knowledge on the agrotechnical, respectively the economic aspects of conversion. Both aspects have been determined as important obstacles for conversion during the farmers survey thus are recommended to be addressed in a highly practical and detailed manner.

The last two modules 4 and 5 ("Communication and Cooperation for Organic Farmers" and "Achieving Sustainability despite Risks and Climate Change") both address skills and knowledge that have been proven to be crucial for conversion itself but also the long-term success in organic sector.

Module 1: Conversion to Organic Farming in Theory and Practice

Short description

This module offers a basic overview as well as core knowledge and skills for conversion to organic farming. It summarises the basics of organic farming and the conversion process following the picture of its own "world of organic farming" (first unit) and a "road map to conversion" (second unit) to get there. This knowledge then serves as the foundation for the third unit "entering new territory", which aims on practically working through the whole conversion process based on real or exemplary data.

In each unit, the module provides corresponding knowledge on legislation and administrative aspects in organic farming. This includes an introduction to the administrative requirements and obstacles during the conversion process as well as practical tools to overcome these challenges.

The goal of this module is for students to understand the benefits of organic farming, overcome resentments, and gain initial experience to feel able to tackle (or even advise on) a conversion process later in their careers. To achieve this, units are enriched with examples of common problems and possible solutions, best-practice success stories, and a well-founded outlook on future trends.

Qualification goals

Knowledge	Skills
• Principles of organic farming • Legislation, certification, and labelling • Administrative requirements for conversion (compulsory and recommended administrative steps) • Detailed knowledge of conversion process • Best practice solutions for common challenges • Future trends in organic farming	• Differentiating alternative certification systems (international and national) • Overviewing administrative steps • Analyzing conversion options for conventional farms • Decision-making • Integrating market information in decision-making • Development of conversion plan • Creative problem-solving

Competences

The learner is able to:

- Differentiate the benefits of organic farming
- Make informed decisions concerning the option of conversion
- Tackle challenges of conversion and organic farming in general in a creative and innovative way
- Act practically and problem-solving on administrative and bureaucratic obstacles

Module content

Unit	Description
1.1 The world of organic farming	- Goals and principles of organic farming - EU and national legislation - Certification, labelling and control systems on non-EU, EU and national level - Benefits and challenges of organic farming - Overview on organic market and structures - Outlook on future trends in organic farming - Innovative best practice examples for problem-solving / success stories (e.g. how to address lack of infrastructure)
1.2 The roadmap to conversion	- Requirements and preparation for conversion - Legislation on conversion - Administrative requirements during the conversion process (according to farm structure, office management, controls, certification etc.) - Full conversion vs. partial conversion - Examples of practice changes in crop rotation (with market consideration), nutrient supply, weed control, animal husbandry - Detailed “conversion roadmap”: (Overview and timeline on conversion process, administration checklist, obstacle analyses) - Examples of common problems and solutions
1.3 Entering new territory: a practical approach to conversion	- Analysis of farm suitability (requirements, different farm structures and their options for conversion) - Market considerations - Decision-making - Creation of a conversion plan

Module 2: Converting Technological Practices

Short description

This module provides detailed knowledge about the concrete changes to agricultural practices that are necessary for conversion to organic farming. By this, students learn how to approach conversion on an agrotechnical and technological scale: What changes need to be implemented in soil management, crop rotation, nutrient management and plant protection, etc. and what options are available? What trends and innovations are promising to facilitate organic production?

The module aims to enable students to gain extended understanding in fundamentals of crop and animal production technologies in organic farming. Further, problem-solving abilities within a broad, multidisciplinary context will be trained, such as the ability to integrate knowledge and to handle complex issues. The students will have the learning skills that allow them to continue their studies in an autonomous way.

The content of this module has a strong practical focus, therefore it is recommended to implement hands-on experiences as much as possible, like e.g. field work, farm visits and practical examples.

Qualification goals

Knowledge	Skills
• Agroecological principles • Understanding of concrete, practical differences between conventional and organic farming • Soil fertility, nutrient- and soil management in organic systems • Crop rotations and technologies of organic crop production • Non-chemical methods of harmful organisms' management • Organic grassland management • Welfare and animal production technologies • Future trends and innovations in organic practices • Regenerative approaches	• Integration of knowledge to handle complex production issues according to regulations and trends • Calculating nutrient balance and managing of plant nutrition • Ability to design and evaluate crop rotations in variable conditions • Management of pests, diseases and weed control in particular environments • Ability to select varieties and breeds • Application of knowledge and ability to judge agricultural technologies according to latest developments • Basic assessing of health of plants and animals

Competences

The learner is able to:

- Manage and transform working activities that are complex and require new strategic approaches
- Take on responsibilities linked to application of knowledge and skills in complex issue of farming technologies
- Continue learning in self-directed study process

Module content

Unit	Description
2.1 Agroecological principles & soil fertility	- Basics on biodiversity and ecosystems as well as ecosystem services - Recap of the fundamentals of soil fertility - Holistic approach to agroecological principles of food production in comparison to conventional approach - Principle of circular farm management systems in organic farming - Regenerative approaches: How to restore soil fertility after years of conventional use, options and best practices for humus built-up
2.2 Conversion of arable land 1: Concerning soil and nutrient management, crop rotations, technologies of crop production, cover and intercrops	- Options for soil management (conventional, reduced, direct sowing, etc.) - Machinery and innovations in soil management (e.g. roller crimper) - Nutrient balance methodology, plant nutrition strategies and associated legislation - Crop rotations and their design for particular conditions, evaluation according to scientific criteria and legislative requirements - Differences in technology of main field crops production (conventional vs. organic), selection of varieties - Underutilized crops, non-traditional cereals, varieties - Growing technology of cover and intercrops and legislative requirements within I. pillar of CAP and related scientific results for different conditions - Excursus on organic plant breeding, population varieties, future trends

2.3 Conversion of arable land 2: Concerning weeds, pests, diseases and drought mitigation	- Recap of fundamentals of weeds ecology and weed identification including management strategies for selected annual and perennial weeds - Methods of weed regulation in organic farming including machinery and innovation - Recap of the fundamentals of phytopathology and entomology, pests and diseases of main field crops - Non-chemical and biological approaches to pests and diseases regulation - Legislation by country - Strategies for water management and for strengthening drought resistance of crops
2.4 Conversion of grassland and animal husbandry	- Differences in grassland management in conventional vs. organic agriculture, requirements according to I. Pillar of CAP - Basics of animal welfare, importance for animal production - Organic legislation according to animal species - Organic technologies of different animal species production and how to get there - including best practice before and after examples of conversed farms - Selection of breeds - Nutrition and veterinary aspects - Innovations and trends in grassland and animal husbandry: Cow depending calf rearing, mob grazing, dual purpose breeds, agroforestry systems for animal husbandry, etc.

Module 3: Mastering Economics in Conversion and Beyond

Short description

This module provides detailed understanding of the organic market and the knowledge necessary to attain economic stability throughout conversion and afterwards.

The aim of this module is to introduce students to the principles and concepts of farm management, -economics and marketing with a strong focus on conversion to organic farming. This also includes the analysis of the farm's financial performance and decision-making processes. It prepares them to converse and operate their farm successfully as they become familiar with the basics of planning and options for diversification and multifunctionality.

To train possible future farm managers in the integrity of the values of organic farming, the module additionally includes a unit on value-based staff management, leadership, and change management.

Qualification goals

Knowledge	Skills
● Farm profiles (vision, mission, strategy) and main economic indicators ● Market mechanisms and price determination ● True cost accounting ● Particularities of organic market ● Main steps of business and marketing plans creation ● Value-based staff management and leadership ● Diversification options and their benefits and challenges	● Developing of business plan (including financial plan) ● Basic farm management ● Making reasonable farm management decisions ● Developing marketing plan ● Improving the price of products ● Finding the most suitable market ● Developing staff training ● Lateral leadership skills ● Moderating change

Competences

The learner is able to:

- Analyze systemic factors that influence the economic viability of an agricultural business
- Make well considered changes to the management practice
- Make confident decisions
- Lead staff in an appreciative way
- Navigate change

Module content

Unit	Description
3.1 Introduction to farm economics	- Rough history of agricultural market and organic farming (green revolution, current economic trends in the agricultural sector, the role of subsidies…) - Key economic concepts: factors of production, cost of production, opportunity cost, value of production, gross margin, farm profit, cash-flow, efficiency, risk - Economic benefits and challenges regarding organic farming - Economic concepts and solutions for conversion time - Common economic problems during conversion and how to mitigate them (e.g. lack of investment capacities) - Analysis of the question: Is organic farming more or less economical than conventional farming? (Based on recent scientific research and true cost accounting)
3.2 Financial management for conversion and beyond	- How to develop a business plan (including financial plan) - Best practice examples of business plans during conversion
3.3 Value-based human resource & change management	- Differences concerning staff requirements between organic and conventional farms - Staff management - Options of dealing with scarcity in trained staff for organic sector, e.g. on-the-job trainings - Basics in team development - Lateral and value-based leadership - Change management

3.4 Basics of marketing, sales & the need for diversification	- Particularities of the organic market (history and future trends of organic market, area and market shares, value chains, processing structures…) - Fundamentals of marketing including sales and distribution - Marketing of organic products - Options of marketing for conversion time - Best practice examples of organic marketing - Marketing plan - Game changer multifunctionality and diversification: Possible diversification options, processing of production (knowledge and opportunities)

Module 4: Communication and Cooperation for Organic Farmers

Short description

Communication and cooperation have been determined as essential competences for a successful farm management, especially in complex and lengthy change processes like conversion to organic farming.

A strong network can help to overcome structural obstacles - particularly in organic farming - and generate new advantages, for example in joint marketing activities. The regular exchange of information with other farmers is seen as especially valuable by many organic farmers. Thus, this module aims to strengthen the communication-, social- and networking skills of students.

To get a better understanding on how communication functions some theoretical input will be necessary. Anyways, the focus in this module lies on the practical training of different communication and networking situations for the students to gain experience and confidence.

Qualification goals

Knowledge	Skills
● Options and benefits of cooperation ● Value of and options for networking ● Basics on communication theory ● Basic conflict models ● Communication techniques for various occasions	● Finding and connecting with suitable partners ● Networking ● Communication competence, non-violent communication ● Debating ability for organic farming ● Development of corporate communication

Competences

The learner is able to:

- Approach people in a confident and proactive way
- Communicate respectfully and effectively
- Build and maintain a network

Module content

Unit	Description
4.1 Cooperation and networking in farming and sales	- Options of cooperation (knowledge exchange, sharing of infrastructure, land exchange, marketing…) - Best practice examples of in practice cooperation - How to start cooperation - Contractual matters - What partners can be useful and where to find them - Benefits of Networking - How to build a network
4.2 Communication for organic farmers	- Basic models of communication theory (e.g. four-sides-model by Friedemann Schulz von Thun) - How to prepare for and navigate different types of conversations (e.g. negotiations, feedback, complaints…) - Basics on conflict management & non-violent communication - Making the case for organic farming and transporting the benefits - Basics on corporate communication and PR

Module 5: Achieving Sustainability despite Risks and Climate Change

Short description

Climate change is probably the most important challenge for agriculture in our time, but by far not the only one. This module is designed to prepare students for future challenges.

Students learn the underlying mechanisms of climate change and how it impacts agriculture. Already existing approaches and agricultural practices to counteract its effects are presented. Students get to know sustainable and even regenerative agricultural practices and get inspired to stay creative and open for innovation and experimentation. Again, field trips and dialogues with practitioners about sustainable adaptations to climate change are recommended to provide practical understanding.

Next to climate change other risk factors are addressed, like e.g. market risks, technology changes, or political instabilities. To tackle these issues, the module teaches risk management skills and solution-oriented thinking.

Qualification goals

Knowledge	Skills
● Impacts of climate change in organic farming, climate trends for Europe in the upcoming years ● Resource management ● Variety of adaptation measures: Common practices in organic farming as well as innovative or alternative approaches to learn from ● Other risk factors and trends relevant for agricultural businesses ● Risk management and options to strengthen sustainability	● Understanding of climate change effects on ecosystems ● Analyzing risks of climate change on farming ● Planning with foresight with regard to expected future climatic changes ● Finding local and creative solutions in adaptation to climate change ● Implementation of innovative approaches (e.g. agroforestry systems) into existing farming practice ● Developing a risk management plan

Competences

The learner is able to:

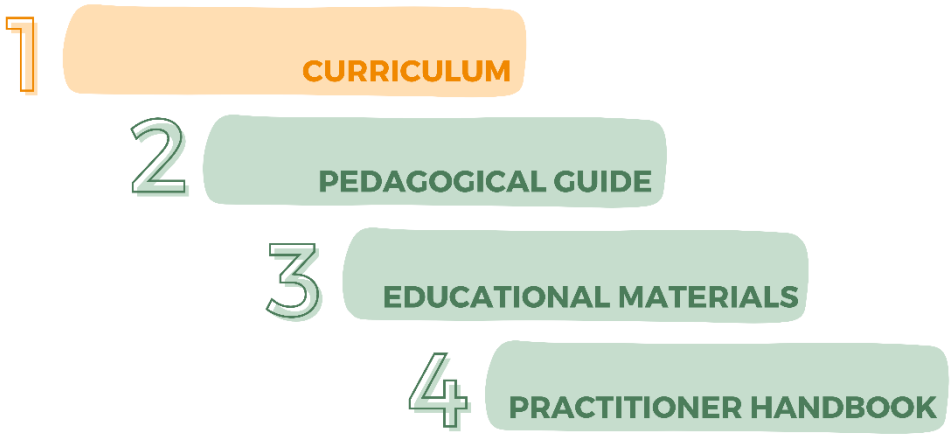
- Prioritize the need to reduce emissions
- Act solution-oriented about climate change mitigation
- Handle change
- Stay open to innovation and motivated for experimentation

Module content

Unit	Content
5.1 Organic farming in times of climate change	- How ecosystems function, interdependence and interconnectivity of farming elements and ecosystem, models of climatic trends in Europe for the upcoming years - Contribution to climate protection through organic agricultural practices (e.g. CO_2 storage by humus built-up) - Influence and effects of climate change on agriculture and organic farming - Adaptation measures to climate change in organic farming (crop rotation, water management, soil management, generation of microclimates, locally adapted varieties…), opportunities and obstacles/boundaries in adaptation - Alternative and innovative approaches to learn from: Regenerative farming, permaculture, agroforestry and syntropic systems, market gardening, mob grazing but also high-tech approaches (e.g. precision agriculture) and their advantages and disadvantages in comparison with organic farming - Examples of implementation of innovative or alternative approaches into organic farming systems
5.2 How to live with risks	- Link between politics and agriculture (“Planning for one legislature vs. planning for one generation”), subsidies as steering mechanism, existing and planned agreements on future developments - Basics of risk management (e.g. concerning market, needs, technology, climate, social/political issues, subsidies, extreme situations) - Risk analysis for organic farming in comparison to conventional farming, examples/best practice for risk management in organic farming - Definition of sustainability and strategies to get there (e.g. farm diversification, closed circular farm management, innovative approaches)

Further resources

This curriculum for conversion to organic farming is the first partial result of the ETICOF project and serves as the basis for further resources developed by the project team. The second partial result is the pedagogical guide, which supports the creation of customised innovative educational materials, including a variety of best practice examples. Both, curriculum, and pedagogical guide, are used as foundation for five completely developed one-day modules. For each module, the supporting texts and teaching materials are provided. Since these materials are focusing on university level of education, the practitioner's handbook transfers the knowledge and educational material into a form more suitable for agricultural practitioners.



All resources are provided on the ETICOF website: eticof.uniag.sk