

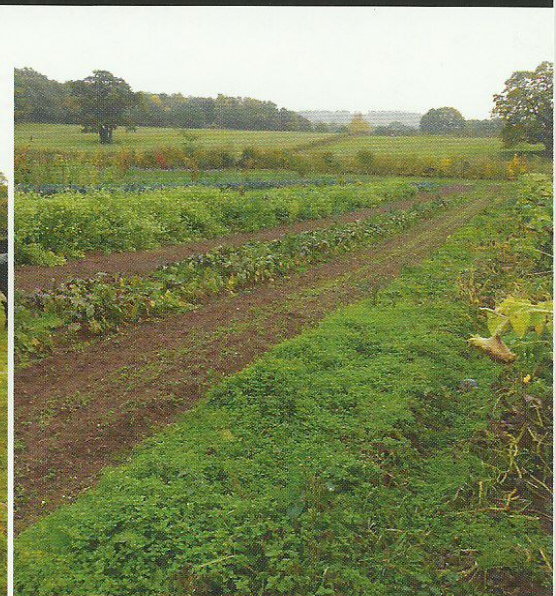
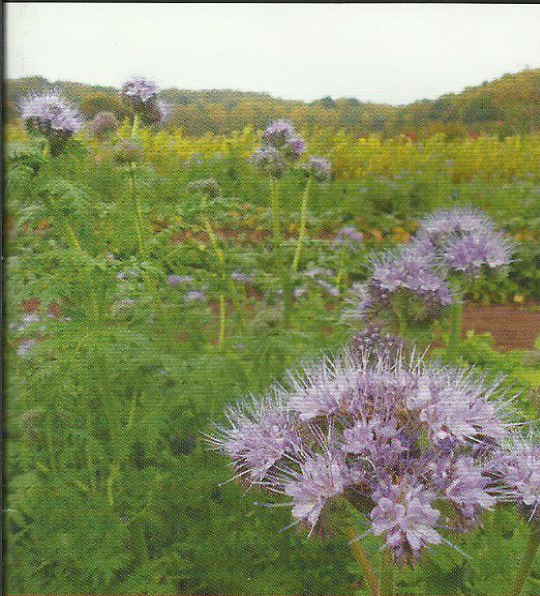
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ORGANIC FARMING IN FOCUS



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ECONewFARMERs BUILDING A FUTURE FOR NEW FARMERS IN ECOLOGICAL FARMING THROUGH VOCATIONAL TRAINING

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ABSTRACT

In 2013 6 institutions from 6 countries started a common innovation transfer program with the support of Leonardo da Vinci 2013-1-PT1-LEO05-15535. Within this paper we outline the outcome of the questionnaires filled by stakeholders and – based on the results - the training material developed.

The m-learning course curriculum (or syllabus) includes a set of information with great emphasis on the learners needs and characteristics, including the course goals, course objectives, length of the course, target audience, course prerequisites, course components (e.g., classroom instruction, farm practice) and evaluation methods. Based on existing innovative learning practices and on partners' expertise and training experience, a course curriculum was developed. The contents description and materials are under development.

The m-learning course curriculum will provide the structure for the learning process for the specific target group based on m-learning methodologies. They will work as a framework structure for the learning contents of the Platform.

The m-training modules for the ecological farming m-learning curriculum were selected available ecological farming material. The adaptation of the selected packages for vocational training considering the needs of the target group (young unemployed people without any knowledge in agriculture or with an academic degree in other scientific

area) and national conditions is going on. Revised, updated and adapted learning material will be included to the training platform.

The course is divided into modules, with a previews presentation of the course objectives and a final review, organized in sections. These sections contain the information related to the subject. The possibility of using voice-over is being analysed.

keywords: m-learning, curriculum, vocational training, ecological farming, international questionnaire

INTRODUCTION

Organic agriculture is increasingly becoming important as a preferred avenue of production of farm produce to meet a globally growing market demand. The relevance of organic agriculture is more so due to the need and demand for more organically produced farm products, which are free of chemicals and are ecologically sound and healthier. At present, organic agriculture results in value added products but these production systems require specialized approaches. There is a gap of expertise to address the challenges and requirements of organic farming.

Furthermore, an increasing number of people with higher levels of education are changing their activity to agriculture

without any knowledge in this technical area, mainly in countries with economic difficulties, such as Portugal. According to the Ministry of Agriculture, there are 200 new farmers by month and most of them did not have any education or training in agriculture.

Before we had been start with our work, we carried out a training need analysis in the form of international survey with questionnaire. The main goal was to explore the organic farmers need.

There is therefore a need to build capacity in skilled people in this field, in order to improve their agricultural skills and to facilitate their performance and innovation capacity, so they might contribute to the European (EC) rural development strategy.

This course is designed to produce such skilled farmers. The overall objective of this course shall be to produce new farmers with knowledge and skills required for development of the organic agriculture value chain.

The specific objectives will be:

i) To provide training in various aspects of organic agriculture and related fields such as natural resources management (soil, water, plants, environment) and rural development (conservation, family and organic farming, multifunctionality).

ii) To facilitate the effective exchange of knowledge and expertise in organic agriculture, rural development and environment.

iii) To offer technical support and knowledge in ecological farming on a permanent mobile context.

This course will also contribute to preserve European languages and cultures, in order to improve communication among the different stakeholders and target groups.

This course includes organic farming principles and techniques, based on the triangle plant-soil-environment and on the relations between animal production and the environment. Food preparation and labelling, marketing and conversion are also demonstrated. The presented principles and techniques are explained based on practical rules and guidelines (standards), with a logistic approach that will ensure the system balance and integrity. The course also presents the national and European regulations and standards that are mandatory for the organic farmers.

MATERIAL AND METHODS

Questionnaire, a means to guide the training offer in all partner countries

The project ECONewFARMERS aims to contribute for the training of new farmers who want to devote themselves to organic farming, and who already have at least secondary education but no formal knowledge in agriculture in general or organic farming in particular.

The aim of this questionnaire was to know the experiences of previous training in this area, or similar, with the view of

defining a set of guidelines (rules for training and evaluation, forms, themes) for the preparation of new contexts of training in biological agriculture, in particular in the form of m-learning (mobile-learning).

This questionnaire, as a means to guide the training offer, was presented and worked as base for a debate on the contents, formats and evaluation for training in ecological farming. It will contribute to define the course goals and objectives and contents, and to ensure that the course will meet the needs of the learners as well as training formats and preferences (duration, training place, evaluation, among others).

The questionnaire was structured in order to address the respondent's characterization, its past experiences in ecological farming training, its use of technologies and m-learning tools, and preferences on the type of training to offer. The questionnaire also tried to identify eventual gaps in training in ecological farming.

The questionnaire was firstly prepared in English and Portuguese and applied to the participants of the launch conference of the ECONewFARMERS projects – the Conference Innovative learning systems in ecological farming, that was held in the Polytechnic Institute of Viseu, in 2014 February 7th. Later it was translated into all the languages of the participating countries and applied to potential interested people in each of the countries of the ECONewFARMERS partners (Portugal, Spain, Slovakia, Hungary, United Kingdom, Italy and Turkey). The questionnaire was produced using the tools provided by Google Drive, as it provides an easy way of sharing and altering the language among all partners participating in the project.

Questionnaire structure

The questionnaire was structured in five sessions that aimed to assess respondents' characterization, past experience in actions for agricultural training, use technologies and m-learning tool, preferences towards the type of training to offer and gaps in training in ecological farming.

Respondents' characteristics that were addressed include age, education level, experience in agriculture (form learner to farmer) and place of professional activity.

The experience in agricultural training included questions related to the role in which they have participated in those actions (from learner to coordinator) and type of training used (classroom, e-learning, b-learning, m-learning, other). A short description about the organization of such actions was asked.

The practices related to the use of technologies and m-learning tools included a reference to the equipment commonly used (laptop, mobile phone, blackberry, tablet/i-pad, i-pod, i-phone, other), the reasons for its use (professional purposes or other), periodicity and which kind of research tools are used.

The preferences for different type of training included

formats such as Classroom, e-learning, b-learning, m-learning or other. Respondents were asked if they consider the organization of classroom sessions in the context of m-learning training essential, with what frequency and why (Sporadically in 1 or ½ day modules, once a month, when asked, in the beginning or in the end of the training or both). The types of support materials and evaluation for m-learning were asked.

Finally, an open question was presented so that respondents might present their opinions on which training topics/modules they considered useful and that constitute gaps in training in ecological farming.

RESULTS

The course consists of 7 modules, and has a previews presentation of the course and its objectives and a final review to help the learner to understand its achievements.

Each module is made up of between 3 and 8 sections. Each section contains the information related to the subject, presented in a set of pages with short notes and images (pictures, graphics, and schemes), animated and synchronised. The possibility of using voice-over is being analysed.

Course Contents
Module 1 - Introduction to organic farming
Section 1 – The Organic Philosophy
Section 2 – History of organic farming
Section 3 – Food quality
Section 4 – Organic farming and conservation
Section 5 – Organic farming for family farms
Section 6 – Multifunctionality in organic farming
Section 7 – Marketing organic produce
Assignment
Module 2 – Soil and Nutrient Cycling
Section 1 – Soils and soil fertility
Section 2 – The plant/soil system
Section 3 – Nutrients in organic farming
Section 4 – Manures and supplementary nutrients
Section 5 – Composting
Assignment
Module 3 – Plants and technical itineraries
Section 1 – Knowing plants and crops
Section 2 – Crop rotation
Section 3 – Machinery and equipment
Section 4 – Soil preparation and crop establishment
Section 5 – Irrigation
Module 4 - Livestock husbandry
Section 1 – The role of livestock on the organic farm
Section 2 – Origin and conversion of livestock

Short description of each module:

The course starts with a brief outline presenting the objectives and structure of the course.

Module 1 - Introduction to organic farming

Introduce the history and philosophy and environmental benefits of organic farming including how it is regulated. It also describes the food quality issues that come with organic farming and the marketing channels that are most usual with specific reference to their advantages and disadvantages. The close relations between organic farming and conservation, as well as the interest of organic farming and a production option for family farms are presented. The advantages and possibilities of multifunctionality in organic farming are introduced.

Module 2 – Soil and Nutrient Cycling

Outlines the soil structure and characteristics, and its central role in organic farming. Introduced principles for nutrients management on organic farming and for soil fertility conservation and improvement. Composting techniques are explained.

Module 3 – Plants and technical itineraries

Knowing plants and crops is essential to choose appropriate

Course Contents
Section 3 – Livestock health
Section 4 – Grass and forage management
Section 5 – Feeding organic livestock
Section 6 – Housing and accommodation
Assignment 1 and 2
Module 5 – Conversion planning and farm profitability
Section 1 – Organic farming – Tell your history
Section 2 – Gathering information
Section 3 – Planning the conversion
Assignment – Case study information, Part 1 and 2
Module 6 - Conservation and transformation of organic products
Section 1 – Food alterations
Session 2 – Importance of water in food conservation
Session 3 – Conservation and transformation processes
Session 4 – Effects of processing and conservation on the nutritional value of foods
Session 5 – Packaging technologies
Assignment
Module 7 - Certification, standards and procedures
Section 1 – Organic regulations
Section 2 – Procedures at farm level
Section 3 – Summary of European and national Standards
Assignment
Course Review and Personal Action Plan
Glossary

crop species and varieties to meet particular farm situations and market requirements. The module includes a detailed description of farming practices required for successful organic farming. These practices will be discussed in the context of the organic farming principles. Technical itineraries are presented, as a set of steps from crop rotation to integrated plant protection. Advantages and disadvantages of the different techniques are presented

Module 4 - Livestock husbandry

How to produce livestock in organic farms and the ways and rules to livestock health maintenance and housing are presented. Includes the techniques to enhance grass production and the most required species for pastures and forages in organic farming. It also covers grassland management to enhance animal nutrition and health.

Module 5 – Conversion planning and farm profitability

Successful organic examples are introduced as a basis to start a new project in organic farming. Requisites for farm conversion and start planning an organic farm, based on farm and soil management plans, as a way to ensure sustainability. Determination of the potential profitability of organic farms are detailed. Crop rotation and crop management strategies are presented as a means to facilitate the transition process.

Module 6 - Conservation and transformation of organic products

The advantages associated to the consuming of organic produced foods are also strictly related to the preservation of their quality from the moment they are produced up to the moment when they are consumed. Hence the aspects related to conservation and transformation of organic products are important as a means to guarantee quality throughout the whole food chain. The principals of food alterations and conservation are addressed, as well as the effects of processing on the safety and quality of foods and their nutritional value. Finally, and because most of these products are commercialized with some kind of package, the packaging materials and technologies are also briefly discussed.

Module 7 - Certification, standards and procedures

Explains how organic farming is regulated in Europe. Describes how to become a certified organic producer, based in different national Standards.

Course Review and Personal Action Plan

A course review and the Development of a Personal Action Plan as a process of expanding, shaping and improving skills, knowledge and interests is proposed. This will help learners to move ahead to the next stage in their professional career.

Each module will include proper assignments at its end. Each assignment is based on information given in the module

itself, delivered in specified texts and on information obtained by the learner. These assignments will test the learners' understanding of the modules, and try to encourage them to look for information elsewhere. Assignment responses can be one or two words, written explanations or descriptions, or numerical answers with calculations. The time expected for completing each assignment is between ½ to 3 hours, depending on their familiarity with the subject.

The proposal of developing a Personal Action Plan as a process of expanding, shaping and improving skills, knowledge and interests will help learners to move ahead to the next stage in their professional career. Learners will be asked to define what they want to achieve and to set their own goal(s). Each learner will write a personal development plan (PDP) to outline the actions they should undertake to achieve their goal(s) in organic farming and also to evaluate how close they are to the goal. Based on, a final reflexion might be done on what further actions are needed.

DISCUSSION

In our questionnaire-based survey the respondents identified a set of useful training modules, that constitute gaps in training in organic farming and that could be interesting in the context of m-learning training. These include very diverse areas, such as those listed.

- animal production
- bee keeping
- certification
- conservation and transformation
- conversion
- crop protection
- food safety
- management
- markets and marketing
- multifunctionality
- organic farming principles
- organic fertilization
- qualification
- technical itineraries
- tourism

The majority of the respondents were from Hungary, Spain, Slovakia and Portugal representing almost three thirds of the sample (80%). The participants from Turkey, United Kingdom and Italy represented 20% of the overall sample.

Most respondents had a higher level degree (68%). From those who have a higher education, about 27% was in Agricultural Sciences. Other areas of higher education were in nearby subjects, such as Environmental Sciences, Biology or Landscape architecture, but also in very distinct ones, as Law, Economy, Civil Engineering, History, Social Sciences, Nursing, Arts or Sports.

An expressive number of farmers with no training,

education and experience in agriculture (52%), are already involved and aiming for training in this areas. From the respondents, 86% currently have, or are thinking of starting, some agricultural activity, and the average farm size (either current or planned) was 25 ha, but with a majority of farms (58%) with less than 5 ha. As to the crops they presently have or consider exploiting in the future, the greatest production goes for fruit crops (47%), vegetable crops (36%), followed by field crops (20%). Regarding the farming system, 70% have already adopted ecological (organic) farming or wish to adopt it in the future, revealing the interest for this farming system. However, when it comes to certification, it seems as not being an option for the majority of farmers (52%). The local market appears as the first choice for selling the goods produced (40%) followed by specialized shops (32%) and door to door baskets (25%) or via internet (23%).

Most of the enquired that practice some kind of agricultural activity do it because they like this area (51%). Some respondents, however, come from other areas of knowledge (70%), and some others were even unemployed (15%). Among those who practise agriculture, 28% obtained their farm though family and 40% already had experience in organic farming.

From the respondents, 58% had already participated in training activities related to agriculture. The teaching, training and learning experience was generally in classroom (65%), with only a few presenting experience in e-learning, b-learning and m-learning training.

All respondents use IT technologies regularly, with preference for laptops (79%) and mobile phone (74%), including for their professional activity. The use of this kind of devices is in a daily base, by the majority. An important number of respondents use these devices to search for information related to their professional activity.

The solution for the training offer that was indicated for a larger number of respondents was classroom and m-learning, with a significant number preferring that some classroom sessions were included in the training (29%). The reasons for this opinion were to allow to clarify doubts, exchange thoughts and discussion of topics and to facilitate the assimilation of knowledge. These sessions should occur when asked by trainees (29%) or periodically once a month (23%). Also training sessions on a farm were identified as a useful tool for complementing the training (83%). The preferred training materials were manuals (22%), electronic books (e-books) (21%) but other materials were also recognized appropriate (specific software, manuals, interactive platforms, technical leaflets). Regarding the assessment of the learning performance, the tests for response on-line were preferred (32%), followed by practical activities in the classroom (25%).

Some gaps of training in ecological farming were pointed out, partly related to technical aspects and knowledge (such as crop protection, organic farming, technical itineraries, conversion, conservation and transformation, certification,

food safety, multifunctionality, markets and marketing) as well as to social and economic issues (like consumer education, certification, commercialization, legislation or marketing).

The results of the questionnaire allowed characterizing the target group and identifying its training needs and preferences towards m-learning formats, giving valuable tools to design the training offer. The curriculum has been based on the discovered gaps.

CONCLUSIONS

Training in organic farming will constitute as a tool for building knowledge and understanding the requirements of organic farming. Whether the new farmers are planning to convert their land or make an application to certify their products, or already are certified in organic farming, the organic farming course can help them to understand the organic regulations and standards.

Training can cover any and all requirements from farming methods and permitted inputs, to product composition, labelling and record-keeping. This training course is designed to give confidence to manage organic integrity, especially to those people that are or intend to be new farmers, mainly ecological farmers, and which don't have experience and knowledge in agriculture.

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