Universitatea Ştefan cel Mare Suceava

VALOR

Co-funded by the Erasmus+ Programme of the European Union

QUALITY GUIDELINES

VALORISATION OF ANCIENT FARMING TECHNIQUES IN RESILIENT AND SUSTAINABLE AGRICULTURE

612501-EPP-1-2019-1-IT-EPPKA2-KA

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QUALITY GUIDELINES

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Report including
- Analysis of the Questionnaires of national Experts
- Analysis of research on Best practices

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1. INTRODUCTION

All terrestrial ecosystems, either cultivated or natural, are being disturbed quite often by climatic and biotic threats, such as draught, floods, pest invasions and so forth. In order to address these challenges, VALOR created an alliance of experts coming from different areas (nature conservation, public awareness, organic farming, husbandry, plant breeding and alike) in order to produce a competence framework addressing the farmers whose lands and premises are located near or within Natura 2000 sites.

The two keywords of this curricula are resilient and sustainable, meaning that before being **sustainable**, such an endeavor (i.e. farming nearby or within Natura 2000 sites) must be **resilient**, able to come back to its natural structure shortly after being affected by one or several disturbances such the ones aforementioned.

Numerous specialists dedicated to nature conservation i.e. administrations of Natura 2000 sites, have long been involved in promoting good practices with respect to regular or organic farming. Having acknowledged the synergy between the **Common Agriculture Policy** and **Natura 2000** basic requirements and principles, VALOR alliance offer training materials for farmers interested in promoting ancient farming techniques, obviously more capable to induce a natural resilience to any farming system. Hence, one of the first conditions is to find out more about ancient techniques, many of them being incorporated in organic farming. Being so connected to the labor market, the competence framework includes units of learning (qualification modules) based on recent research.

VALOR Quality Guidelines is aimed to guide project partners and inspire field professionals across Europe to design high quality training curriculum aimed to promote and support the valorization of ancient farming techniques in resilient and sustainable agriculture. To this end, the product is made available as a multilingual OER printable pdf on the project website (https://erasmus-valor.eu/) and can be downloaded for free.

2. TRAINING METHODOLOGY

Quality guidelines to ancient farming techniques in resilient and sustainable agriculture aims to describe the framework needed to develop and run dedicated training for resilient and sustainable farming.

The partnership of the VALOR project brought together real-life based knowledge and expertise of national parks and protected areas representatives together with researchers and training specialized organizations. Higher Education Institutions contributed to the project with the expertise in targeted research in relevant topics to the project.

Furthermore, HEIs bring in specific tertiary education methodologies aimed to address adult training needs using a variety of teaching methods and instruments: OER, blended learning, webinars, etc. University of Thessaly (Greece) and University Stefan cel Mare design and implement innovative education/ training programmes aimed at field specialists and to wannabe entrepreneurs interested in resilient farming, relying on solid integrated collaboration among themselves and with the VALOR consortium. This intensive cooperation is based on HEIs' experience in the design and management of tertiary education programmes that promote the latest results of theoretical and empirical research in environmentally friendly and sustainable farming.

The potential beneficiaries of the **Quality Guidelines** are the project partners, EACEA, the HEI educators, trainers and researchers, agricultural experts, representatives of concerned industries/markets and policy makers. Furthermore, the guidelines foster and

encourage self-study of experienced and young/new farmers, as well as of any stakeholder, be it other project team or the general public who might be interested in starting up a farming business.

To ensure high quality of the Quality Guidelines, VALOR partners carried out consultation with local groups of farmers in order to get a broad perspective on the extent to which traditional methods are applied, on the openness to them and on the needs of training and/or know-how. This contributed to the design of the Questionnaire and represented one of the most important preceding phases in the design of the Quality Guidelines. Based on a bottom-up approach, partner from Italy, Germany, Greece, Cyprus, Turkey, Spain, and Romania identified 20 experts in each country and invited them to provide feedback regarding the critical points gathered in the Questionnaire, which was aimed to improve the quality and relevance of the training and make it more relevant to the needs of the target group.

Each partner carried out national selection and proposed a list of 20 local experts who are highly relevant professionals: education designers and educators, staff of industries concerned, researchers, staff of policy making bodies, agricultural staff, staff/members of the associated partners, including farmers associations operating in the areas managed by the project Parks; new farmers and exiting farmers.

The groups of experts analyzed and made valuable proposals with respect to the contents of the curricula, and to the various country-specific topics that should be approached by the training. These experts will further provide valuable feedback during the project lifetime. Therefore, a quality indicator of this task is the degree to which local experts have produced valuable comments while filling in the questionnaires designed by University Stefan cel Mare and approved by the partnership.

Each partner contributed with best practices and study of the current needs of the agriculture sector that have been collected in each project country. The collection of best practices is the core information that the partnership provided to illustrate local/ national contexts that might inspire and guide.

The following quality indicators have been pursued:

1) relevance of specific measures with respect to ecosystem resilience

2) crops sustainability

Hints: the resilience shall be evaluated by statements such as: “it helps the crop (whatever crop) to bounce back to the initial timidity, after a draught period of time”. Obviously, manual hoeing helps resilience, but not economic sustainability, and a balance between resilience and sustainability shall be further sought whenever a “recipe” of good practices shall be delivered to the farmers.
This balance between resilience and sustainability is very important for convincing the farmers that organic farming is somewhere in between “full resilience” (without any economic consideration), and sustainability, which is a balance between efficiency, social acceptability, and resilience.

The **Quality Guidelines** has been assessed and validated by VALOR partners. Suggestions of improvement have been implemented by University Stefan cel Mare to ensure good quality.

2.1. Training Requirements and Quality Criteria

VALOR Curricula meets the training needs of two categories of target groups:

1. **Manager of resilient and sustainable farming Modules** which will be tested by at least 20 learners affiliated to two different HEI/VET organizations;
2. **Technician of resilient and sustainable farming Modules** which will be tested by at least 30 learners affiliated to three different HEI/VET organizations).

Proper logistics is a prerequisite to consider by the training providers to carry out resilient and sustainable farming training at their premises. The training can easily be organized by any education such as Higher education institutions as well as Vocational schools since these institutions already have the dedicated facilities in place.

Furthermore, depending on the topics of the Curriculum, other facilities might be provided to meet the specific needs of the trainers or of the trainees. Study visits and practice are recommended as complementary parts of the training.

Quality guidelines for technical aspects of VALOR training modules

Technical aspects	Indicators
● VALOR training available as online course (e-learning, MOOC, webinar)	All VALOR trainings modules available online in all partner languages
● VALOR training available as blended-learning format with classroom elements and online elements	All VALOR training modules available in printed version with references for tutors/trainers for classroom use with online elements (i.e. assessments) in all partner languages

• VALOR training as classroom in-service training course	All VALOR training modules available in printed version with references for tutors/trainers in in-company training in all partner languages

In case of legal or social constraints banning face-to-face courses, the training sessions can be hosted online using training platforms like Google Meet, Zoom or similar. Resilient techniques can be complemented and supported by technology. Even if due to Covid-19 everyone has jumped into technology, the training providers must check the level of computer literacy of the trainees in order to prevent difficulties or to be prepared to assist them, if such a situation occurs.

Quality guidelines for VALOR learning formats

Learning formats	Indicators
• F2F (physical) training offering rich learning experience through tutor-guided case studies, group analysis exercises, role-plays and small team task assignments	• Rooms equipped with computers and video projectors • Good internet connection • Capacity to print materials and resources • Appropriate capacity to host • 9 user-reports from learners in VALOR partner countries (based on short qualitative satisfaction questionnaire)
• Online course as a structured consecutive learning course: successful completion of a module is mandatory to continue with next module(s)	• 7 successfully piloted online modules in Italy, Germany
• Completed modules can be directly accessed again for repetitions	• 9 user-reports from learners in VALOR partner countries (based on short qualitative satisfaction questionnaire)

Regardless of the features of the target group, the trainers should always consider a couple of critical aspects that learners seek in training which will make the difference. Consequently, to ensure good quality training, trainers should double-check the following elements that will be assessed by all learners using a Satisfaction Questionnaire:

1. **Purpose of Training** – type of knowledge and level that must meet the target group's needs. Ideally, getting to know them and their skills will contribute to setting clear purpose of the training that must underlie the curriculum and the content.

2. **Engagement and Motivation** – trainers should actively involve the target group members in training activities by interacting with them regularly and by developing individual connections with each one, which will contribute to boosting their engagement.

3. **Retention** – according to specialists, learners remember about 10% of what they read or hear, and about 90% of what they see and practice. Consequently, any interactive or graphics-based contents will help the target group to memorize what they learn for longer.

4. **Outcomes of Training** – to deliver the expected results, trainers must pay special attention to teaching new information and skills and / or enhancing them so that the learners achieve the desired results after attending the training.

Adult learners respond very well to adult dedicated resources that are aimed to deliver the dedicated knowledge so that they understand the what and the why of novel concepts. Well-organized information and storytelling are highly recommended. Depending on the topic, trainers might choose from the following suggestions:

Quality guidelines for VALOR online learning resources

Learning formats	Indicators
● **Case studies** are scenarios that apply concepts learned in class to a "real-life" situation. They are usually presented in narrative form and often involve problem-solving, links to course readings or source materials, and group discussions.	● 1 case study per module

● **Infographics** are very efficient visual tools which allow reinforcing concepts and very important information in an engaging way.	● 2 infographics per module
● **Video Tutorials** allow a mixture of delivery methods by presenting information in graphical and written format and by using voice and sound as well.	● 1 video tutorial per module
● **Forum** for online discussions	● 1 online tutor on behalf of each partner available to provide feedback and online guidance

There are many factors to consider when you are teaching adults, especially farmers and agriculture professionals, such as: technical gaps, poor classroom skills and differences of skills or knowledge. Creativity might play an important role in designing the best content for adult learners. The mode of Instruction, F2F or online, will differ substantially and will require appropriate approach to the subject and to learner expectations. Designing the contents require that trainers consider carefully the following key elements:

Quality guidelines for VALOR printed learning resources

Learning formats	Indicators
● **Course Outline** – it provides a careful planning of the contents to be taught in the specified time, starting from simple / general skills/information before moving to more complex issues.	● 1 course outline for each module
● **Theory and Practice** – the training should provide a balanced and relevant mixture of theoretical and practical issues that need to be planned and consider the logistics: study visits, weather and distance to the facilities, availability of the study materials, etc.	● 40% theoretical input ● 60% practical elements
● **Self-Study** – trainers should create a pool of self-study materials that are relevant to the training contents and	● 3 self-study resources for each module

provide easy access. Check on the English proficiency of the learners and translate, if necessary, to facilitate understanding. Please remember that neither farmers, nor agriculture professionals might have time and/or complex studying skills, consequently some processing to make these materials user-friendly is recommended. Self-study should be followed by self-assessment such as a simple quiz aimed to evaluate the understanding and acquisition of the new concepts.	
● **Guided Group Discussions** create connections between group members and build relationships while training them on key concepts.	● 1 group discussion per module
● **Assessment** – it is of utmost importance that trainers track learners' progress by including frequent assessment in the curriculum aimed to evaluate the learners' performance: quizzes, tests, projects, and a final assessment, which is recommended to be carried out internally and externally. Projects and Assignments, both individual or group work, are very important since they reflect the understanding of knowledge and skills.	● 3 assessment resources: individual (2 quizzes or/and tests) and group (1 project) per module

2.2. Training Standards

The development of standards aimed to ensure full compliance with European Qualifications Framework (EQF) and ECVET requirements was coordinated by the **University of Thessaly**. The VALOR curricula will be implemented into the Ecology and Environmental Protection Bachelor, Master, or lifelong learning programmes of HEI institutions across Europe since the curricula have been validated via a framework compliant to the ECHE standards. The VALOR curricula will have a significant potential of transferability to other types of organizations in need of training for farmers.

By the end of the project, the VALOR curricula will be embedded in the Bachelor, Master, or lifelong learning programmes of University of Thessaly and of University Stefan cel Mare. Furthermore, SYNTHESIS and INTEGRA who are renowned training providers will integrate and use the VALOR curricula in their training initiatives, thus contributing to a higher level of employability of the trainees and fostering sustainable entrepreneurship environment.

The two VALOR curricula are dedicated to train:

(1) 'Manager of resilient and sustainable farming' - top-quality expert in resilient agricultural system (as education curriculum for trainers) which is high level curriculum for Managerial occupational profile, EQF level 7.

The design of the curriculum will comply with the following:

- Quality assurance, using self-assessment, effective learner tracking systems and feedback loops

- Curricula and qualifications that are learning outcome oriented
- Modularity

This training will equip farmers with the following:

- Highly specialized knowledge, some of which is at the forefront of knowledge in the field of work or study, as the basis for original thinking and/or research;
- Critical awareness of knowledge issues in the field and at the interface between different fields;
- Specialized problem-solving skills required in order to develop new knowledge and procedures and to integrate knowledge from different fields;
- Management of work or study contexts that are complex, unpredictable and require new strategic approaches;
- Responsibility for contributing to professional knowledge and practice, and/or for reviewing the strategic performance of teams.

A set of support tools for participants will be included to ensure high quality results within each qualification module, such as talks for learning support, self-assessment of participants and portfolio instruments. The curricula are developed in accordance with EQF level descriptors to ensure the correct assignment.

(2) 'Technician of resilient and sustainable farming' which corresponds to Operational level curriculum: expert occupational profile, EQF 3

This curriculum will include a strong Work-based Learning (WBL) component.
It is directly linked to help learners acquire knowledge, skills and competences which are essential in working life and a sustainable high-quality competence in resilient farming techniques. VALOR partnership piloted the testing version in Italy, Greece, Germany, Romania, and Spain, collected the feedback and implemented the recommendations to increase quality and relevance of the training dedicated to farmers and agriculture professionals.
Taking into consideration that farmers are not familiar with using computer-based technologies, the training providers must check the level of computer literacy of the trainees in order to prevent difficulties or to be prepared to assist them, if such a situation occurs. Furthermore, printed materials must be provided to the learners since many of them are living in remote areas where access to the internet and to the online resources might represent a real challenge.

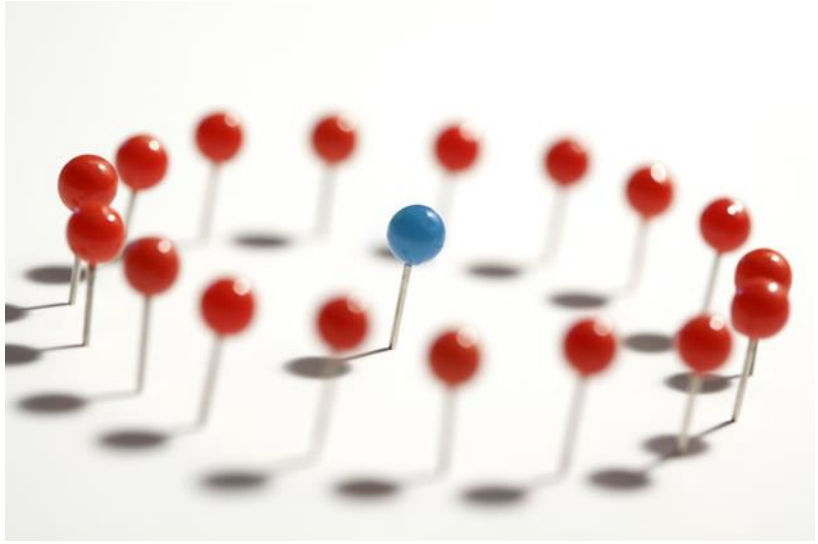
3. INSTRUCTIONAL DESIGN

The Curricula must be accompanied by a training framework defining the objectives, the learning methodology, the evaluation methods, and the learning outcomes that are specific to the contents of the training.

3.1. OBJECTIVES

A selection of learning objectives will be carried out by the training provider from the following examples:

1. Create awareness of ancient farming techniques in resilient and sustainable agriculture;
2. Promote the recovery, conservation and enhancement of the ancient local cultivation conditions;
3. Implement a compatible education model to support quality and ancient tradition safeguarding production as core activity leading to resilience and sustainability;
4. Foster socio-economic progress of communities;
5. Provide broader understanding of overall processes and effects deriving from (im)proper actions;
6. Provide new high-level skills, competences, and capacities to safeguard biodiversity and cultural traditions.



The learning objectives aim to ensure that the training meets the interests of the learners, and it is tailored to their needs and requirements. Basically, the main criterion is the distance to the Natura 2000 site to which each farmer is nearby. Therefore, the learning objectives should be advised and agreed by the administration of the Natura 2000 sites.

3.2. Training Contents

The Questionnaire for Experts was based on open and closed questions and aimed to collect qualified and informed opinions regarding the most relevant topics to be transferred to farmers, local administrations, operators, and staff in various capacities employed in protected areas. The questions were designed to collect recommendations regarding the relevance of the topics to be included in any Curricula dedicated to train and qualify:

1. farmers to preserve, valorize and promote local traditional identities and economies
2. top-quality expert in resilient agricultural systems

The training contents tackle important topics relevant to **Agroecology**:

- The preservation of traditional knowledge and methods, in relation to agriculture and biodiversity, that not only benefits natural ecosystems and species, but provides new financial and employment opportunities for local communities;
- The achievement of a viable balance between environmental conservation and sustainable socio-economic development that fosters the intergenerational transfer of ancient farming traditions.
- Both curricula will be designed in compliance with the concept of *Agroecology*.

Agroecology is based on applying ecological concepts and principles to optimize interactions between plants, animals, humans, and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. The following ten guidance concepts of **Agroecology** will be considered:

1. Diversity
2. Co-creation and sharing of knowledge
3. Synergies
4. Efficiency
5. Recycling

6. Resilience
7. Human and social values
8. Culture and food traditions
9. Responsible governance
10. Circular and solidarity economy

Based on the feedback provided by the group of VALOR experts representing Italy, Germany, Cyprus, Turkey, Greece, Spain and Romania, VALOR Quality Guidelines recommends the following themes and topics to be considered in order to design relevant and quality Curricula.

Quality guidelines for VALOR learning objectives (theoretical skills)

Learning objectives (theoretical skills)	Indicators
1. Knowledge of resilient farming and management IT tools and applications	1 unit on resilient farming dedicated management and use of modern tools and applications
2. Creating motivation regarding ancient farming techniques	1 unit on the benefits of using ancient farming techniques
3. Synergies triggered by ancient farming techniques	1 unit on identifying synergies triggered by ancient farming techniques
4. Understanding challenges: loss of biodiversity caused by over-industrialization and climate change	1 unit on biodiversity
5. Knowledge of cost-effective means to reduce erosion rate	2 practical applications to implement reduction of erosion rate
6. Basic understanding of legal procedures and steps to pursue certification of organic farming	1 unit on national regulations and European standards
7. Solutions and opportunities for sustainable and resilient agriculture	2 study cases and applications dedicated to developing sustainable agriculture
8. Basic understanding of Circular economy	1 unit on principles and functioning of circular economy and 1 study case

9. Agricultural practices to counter effects of industrialized agriculture and the loss of biodiversity	1 unit on European agricultural practices (based on best practices)
10. Strengths and weaknesses of traditional and resilient agriculture	1 unit on strengths and weaknesses of traditional agriculture
11. Strategies to promote resilient and sustainable agriculture and public awareness	2 study cases based on best practices and 1 assignment to create public awareness
12. Basic principles of working with national parks or nature parks	1 unit on natural parks and reservations (profile, structure, etc.)
13. Creating eco-systems with agricultural industry, standard industry, protection of landscape, tourism, infrastructure development	Factsheets and presentations of various types of entities and 2 applications dedicated to networking
14. Understanding principles of marketing of sustainable agriculture products	1 unit on marketing and 2 applications on targeted marketing

Given the importance of **Soft Skills** regardless of the field of work or the position (employer or employee), we strongly recommend including them in both curricula. Soft Skills strongly influence the professional success and the personal wellbeing of the holders which account for their inclusion in the training.

Quality guidelines for VALOR learning outcomes (practical skills)

The sets of Soft Skills are targeted to best meet the needs of each category of learners:

Managers of resilient and sustainable farming

Learning outcomes (practical skills)	Indicators
1. Skills and competences in IT-based communication tools, data management and personnel data protection	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
2. Openness to change	Successful completion of online or offline assessment test after of respective learning unit or VALOR module

3. Developing Lateral Thinking	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
4. Innovation Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
5. Teamwork and Collaboration Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
6. Management of Diversity Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
7. Interpersonal and Professional Communication Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
8. Creating Motivation Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
9. Safety culture and culture of prevention	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
10. Empathy (Emotional intelligence)	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
11. Conflict management Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module

Technician of resilient and sustainable farming

Learning outcomes (practical skills)	**Indicators**
1. Skills and competences in IT-based communication tools, data management and personnel data protection	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
2. Creating Self-motivation	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
3. Taking initiative skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module

4. Observation and perception skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
5. Planning and organization of work skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
6. Carrying out teamwork and collaboration	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
7. Interpersonal and Professional Communication Skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
8. Problem solving skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
9. Critical thinking skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
10. Resource management skills	Successful completion of online or offline assessment test after of respective learning unit or VALOR module
11. Developing Achievement orientation	Successful completion of online or offline assessment test after of respective learning unit or VALOR module

3.3. Learning Strategies

VALOR training is an OER course and uses traditional, blended learning and VOOC methods which are aimed to consider the profile of the adult trainees and, consequently, avoid any academic or extremely formal approach. Nevertheless, VALOR proposes specific tertiary education methodologies aimed to address adult training needs using a variety of teaching methods and instruments: OER, blended learning, webinars, etc.

VALOR partnership considers that blended learning best matches the profile of the adult learners and their needs since it provides a flexible framework that combines face-to-face / classroom methods with computer-mediated activities. The terms “blended learning,” “hybrid learning,” “technology-mediated instruction,” “web-enhanced instruction,” and “mixed-mode instruction” are often used interchangeably in research literature.

Learning methods and objectives	Indicators
1. Mix of theoretical input (knowledge acquisition) and practice (acquisition of skills and competences)	Mix of 40% theory and 60% practice
2. Case studies based on real cases of resilient farming	2 case studies in each VALOR training module
3. Simulations of real-life tasks in protected areas	1 simulation per VALOR training module
4. Collaborative work assignments in small teams	2 collaborative work assignments as part of final assessment/test upon completion of VALOR training program
5. Analysis / assessments of real-life cases	20% of task-based learning in VALOR modules
6. Internships or job-shadowing as part of the VALOR learning methodology (optional)	1 job-shadowing or 1 internship after completion of VALOR training provision as optional added-value learning experience

The blended learning is proved to be more effective than face-to-face or online classes resulting in significant levels of learning achievement. The combination of digital instruction and one-on-one face time allow learners to work on their own with new concepts which enable the trainers to dedicate attention selectively in order to meet needs of certain learners who might need special support. Blended learning is also cheaper than traditional classroom learning. Blended learning often includes software that allows collecting learner data automatically and measuring learning progress, thus providing instantaneous feedback.

On the other hand, a reportedly claimed shortcoming is that blended learning has a strong dependence on the technical resources or tools which need to be reliable, easy to use, and up to date. IT literacy may represent a significant barrier for learners, which requires availability of high-quality technical support. Group work could be an extra challenge for the trainer in the online setting. Furthermore,

trainers should take into account that it has been noticed that providing effective feedback is more time-consuming (and therefore more expensive) when electronic media are used than paper-based assessments.

3.4. Evaluation

The evaluation methodology must comply with the quality indicators described by the occupational standards applicable in the country where the training takes place. The specific methodology must be target group oriented, engaging, interactive, personalized, and practical. VALOR evaluation methodology focusses on transferability within the adult education sector and will include:

1. Defining specific aspects relevant for resilient farming and sustainable agriculture;
2. Defining specific skills, competences and capacities within each of the specific areas defined in step 1 relevant for effectively facing the challenge of safeguarding biodiversity;
3. Defining specific diagnostic methodology including relevance of each of the aspects for resilient farming capacity of the target group and appropriate methods for proper assessment based on best practices in these areas and experts' recommendations.

It is recommended that the evaluation include a self-assessment component aimed to provide the farmers a proper understanding of the requirements of contributing to resilient and sustainable farming, its relevance and how this can provide the basis for the identification of the most suitable training path.

VALOR Quality guidelines for recognition and evaluation (Assessment)

Recognition and evaluation	**Indicators**
1. Assessment of knowledge of resilient farming and sustainable agriculture / skills acquired after each module	1 online or offline assessment test at the end of each module
2. Final test with analysis of resilient farming and sustainable agriculture real-life scenario	1 online or offline final assessment test

3. Recognition of successfully completed VALOR training based on 70% fully completed and correctly answered assessments	Integrated automated monitoring function of learning progress and assessment test success rate in online learning platform

The self-assessment component of the evaluation methodology allows to test specific competences and needs of farmers and include their needs for skills and specific knowledge development, as well as desired behavior and mindset development. Given the variety of contexts existing in various European countries, it is of utmost importance that the trainers identify the initial stage of the farmers' skills and understanding of the topic, their specific mindset, and their internal barriers.

The evaluation methodology is based on a specific mixture of assessment methods, including interactive practice-based testing. Self-assessment provides valuable information on various work-environment related issues of the farmers. The solution provides training tailored to the farmers' needs that are relevant to the region where they live and work. Furthermore, it aims to build awareness of farmers regarding the requirements of sustainable agriculture and provides improvement requirements to support farmers to overcome their limitations.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. European Experts on the Profile of the Modern Farmer and their needs

A thorough analysis of the feedback to ***Questionnaire*** (see *Annex 1*) that was delivered by VALOR international group of experts has shown a quite even interest across all the topics, which is a good hint to split the target group into a couple of sub-groups, each one having its own menu of information, skills and knowledge. All in all, 126 questionnaires were answered and analyzed in an excel file. For the time being, a sample of 50 questionnaires were randomly selected to test an algorithm to better match each expert to one of the four sub-groups. The questions from 7 to 13 did not specifically refer to a specific type of farming (based on crops or husbandry), but the answers given to the open questions (1-2, 14-18) helped us to envisage a sort of empirical typology of the target group.

The socio-economic profile of the average farmer differs from country to country, despite some common motivational features. A common nominator of all farmers is provided by the answers given to the first two questions, about the advantages of being a farmer, and the local synergies. Most of the respondents, except some experts from Romania, who are experts in environmental protection, not in farming, have found that a deep sense of ownership, strong connections with the loved ones, and food safety and quality are the most important ties with the homeland. As for the synergies, not surprisingly, a great deal of respondents has found aromatic plants and tobacco the unseen connections between protected areas, local municipalities, and the farmers.

Given the premises, we can conclude that the following four profiles of farmers could be addressed by the training:

1) the "**happy farmer**": quite content with her/his welfare, well-trained in what is happening around Europe, most interested in novelties, not in grassroots knowledge. This professional profile is exquisite in organic farming and alike and wants to improve her/his own farm economic sustainability. Therefore she/he is prone to move a little from the sheer organic farming to precision agriculture, not in the sense of buying state-of-the-art equipment but in processing the available information in a meaningful way: how to make use of climatic info, soil conditions, resistant species, etc. This profile is not quite interested in animal breeding, but mainly in organic agriculture.

2) the "**greedy but un-experimented**" farmer: interested in all novelties occurred in whatever farming (regular, precision, or organic). They are the ones who checked most of the boxes, including the ones outwitted by the others. These are newcomers in the business, they have not yet faced the real challenges hampering agriculture and animal breeding, but they are enthusiastic in learning by doing. They have the tendency to overestimate the power of the administration of protected areas.

3) the "**resilient and striving**" farmer: the one who is mostly attached to the family land; well trained and informed, but a little bit skeptical about state-of-the-art technologies. Too often confronted with financial difficulties and disproportionate regulatory demands, this one doesn't want to test new 'recipes' but needs more confidence in what she/he is doing: therefore (s)he is interested more in new regulations, and new economic leverages than technicalities. The lists of good practices are not so useful but new links to farmers associations sharing the same political interests are needed. Not surprisingly, social skills are more useful than technicalities and regular farming. Their ties with parks' administrations shall be strengthened and they must be better informed about the procedures of getting organic certification, where it is the case.

4) the "**lonely shepherd**": strongly attached to whatever livestock, mostly interested in animal husbandry and alike. New species of forage, resistant to draughts, new schemes of crop rotations, water saving and novelties in veterinary medicine are sought after (even though these questions were missing in the questionnaire, they checked the answered they considered to be close to what they wanted, conveyed by the answers given to questions 14-18.

Short term benefits of using the VALOR Curricula:

- access to novel contents and curricula relating to biodiversity and bio-economy;
- access to European networks of excellence where cooperation increasingly adds value;
- innovative learning tools dedicated to adult training;
- collaboration with national parks and other relevant stakeholders.

Long term benefits of using the VALOR Curricula:

- create long term synergies with authorities, businesses and stakeholders;
- increase the awareness of the preservation of traditional knowledge and methods, and their economic impact on the involved areas;
- boosting the farming business in protected areas;
- increase the transfer of resilient and sustainable farming skills and competences;
- contribute to enhancing the employment opportunities for local communities.

4.2. Agroecology and Current Challenges in Europe

The collection of 45 Best practices shows the success stories that are relevant to resilient and sustainable farming collected by the VALOR partnership from their countries: Italy, Greece, Germany, Romania, Turkey, Spain, and Cyprus.

The real-life initiatives that have been implemented in these countries addressing country specific challenges were compliant with Agroecology principles. The collection is aimed to inspire and guide anyone taking interest in sustainable and resilient farming, in employment opportunities for local communities and in bioeconomy.

Furthermore, each real-life case has introduced the local network of supporting organizations, thus providing an overview of the possible ecosystems to be created to solve similar challenges successfully.

VALOR Best practices represent success stories that have been tested and worked in the partnership countries. We offer on overview of the real-life cases in each country accompanied by the solutions found as well as the challenges encountered during implementation and, finally, the results.

P1 PNGSL - ENTE PARCO NAZIONALE DEL GRAN SASSO E MONTI DELLA LAGA (Gran Sasso - Laga National Park), **Italy**

1. **Establishment of a network of expensive farmers for the recovery of ancient cultivated varieties**
2. **Regulations for the granting of the name and logo of the Park to agri-food products**
3. **Recovery and enhancement of the ancient cultivation varieties - The case of the Turquoise Potato**
4. **The Guardian Farmers and Young People Meet - Project "Legumes & Legumes"**
5. **Creation of a certified supply chain of Park Pollen**

P2 ONPMA - FOREAS DIAXEIRISIS ETHNIKOU DRUMOU (Olympus National Park Management Agency), **Greece**

1. **Organic farming of vineyard and innovative vinification, in a vertical production unit at the foot of Mt Olympus**
2. **Seed production and organic cultivation of Mt Olympus tea, followed by innovative processing and packaging methods, in a vertical production unit, right under Mt Olympus**
3. **Olive Oil Mills, marketing, and standardization of olive oil with modern methods - Olive groves under Integrated management in the shadow of Mt Olympus**
4. **Cherry cultivation, production, sorting, standardization, and marketing, under the rules of integrated crop management, in Rachi Pieria**

P3 NSWMN - NATURPARK SCHWARZWALD MITTE/NORD E.V. (Nature Park Black Forest Central-North), **Germany**

1. **Nature Park (Farmers') Markets**
2. **Nature Park Market Barns**
3. **Nature Park Hiking Trail: Obstbrennerweg**
4. **Nature Park Fine Food Fairs**

5. **Nature Park Brunch (on the farm)**
6. **Blooming Nature Park**

P4 UTH - PANEPISTIMIO THESSALIAS (University of Thessaly), **Greece**

1. **Rational energy use in greenhouses in Mediterranean area**
2. **Precision irrigation of greenhouse crops in Mediterranean area**
3. **Management and control of hydroponic systems in greenhouses in Mediterranean area**
4. **Environmental control in greenhouses in Mediterranean area**
5. **Environmental control in livestock buildings in Mediterranean area**

P5 USV – UNIVERSITATEA STEFAN CEL MARE DIN SUCEAVA (University Stefan cel Mare), **Romania**

1. **Growing safe food in the backyard**
2. **Setting up a botanical garden and providing training to young farmers**
3. **A young Farmer investing in beehives**
4. **Briquette production at ECODOMANI**
5. **Dairy Farm with Biogas**
6. **Development and modernization of a vegetable farm**

P6 MAKRO - MAKRO YONETIMGELISTIRMEDANISMANLIK LTD. (MAKRO Management Development Consulting Company), **Turkey**

1. **Eastern Anatolia Agricultural Producers and Breeders Union (DOGTARBESBİR)**
2. **Organic / Natural dried fruits & nuts and frozen fruits**
3. **Cappadocia Organic Agriculture Farmers Union**
4. **Ege University Menemen Research, Application and Production Farm**

P7 CTFC - CONSORCI CENTRE DE CIENCIA I TECNOLOGIA FORESTAL DE CATALUNYA (Forest Science and Technology Centre of Catalonia), **Spain**

1. **Good practice in Aromatic plants crop and products producers**
2. **Code of best practice in organizing and holding races and mountaineering**
3. **Summary of Good Practice in agriculture in Catalonia**
4. **Memoria 2018 (in Catalan – info in English needed)**
5. **PARQUE NACIONAL DE AIGÜESTORTES I ESTANY DE SANT MAURICI**

P8 SYNTHESIS - Synthesis Center for Research and Education Ltd, **Cyprus**

1. **Ecophysis**
2. **Ygea Farm**
3. **Sericulture (Silk Farming)**
4. **Pollen Atlas of the beekeeping plants of Cyprus**
5. **Kika's Garden**

P9 INTEGRA - Integra Filder e.V., **Germany**

1. **SEKEM Farm for sustainable agriculture**
2. **Ecological farming: The seven principles of a food system that has people at its heart**
3. **Resilient sustainable agriculture (by Greenpeace Germany)**
4. **Center for ecological agriculture at Hohenheim University**
5. **Haus des Waldes (House of the Forest)**

4.3. Lessons Learnt and Recommendations

This subsection is aimed to provide a synthesis of the main lessons learnt that should guide the choice of most relevant topics and the creation of the Curricula for **Managers of resilient and sustainable farming** and for **Technicians of resilient and sustainable farming**.

ITALY

Lessons learnt from PNGSL

- Mountain areas and disadvantaged territories, thanks to their geographical layout and the isolation to which they have been subjected for centuries, represent a treasure chest of biodiversity that must be preserved as it could guard the solutions for our future. Therefore, maintaining this memory and these varieties is a duty that everyone should help to respect.
- Protected areas can be an indispensable element in reaffirming citizens' belonging to a defined territory. The Park and its emblem constitute and enclose not only the valuable naturalistic and environmental aspects, but also history, culture and traditions of the Identity Community that has lived here for thousands of years. The logo of the park allows, even if only partially, to give a concrete value to the systemic services offered by the compatible activities of the protected area.
- The recovery of the ancient cultivation varieties cannot be separated from the recovery of traditional agricultural techniques and the ancient knowledge to which they were closely linked. Through scientific and technical projects, it is also possible to pursue further and unexpected results such as the recovery of memory and the rescue of those elements of rural culture that can help us not only to explain our origins but also to propose new solutions for today's problems.

Recommendations from PNGSL

- Promote the passion of the old growers who have kept many different varieties even if of little commercial interest;
- Support the return of young people in the world of quality agriculture with greater hope in the potential of the agro-zootechnical sector;
- Rediscover of quality food linked to tradition and territory;
- Promote information for tourists and consumers who are looking for a healthy, local product that reflects the vocation of the place of production and the seasonality;
- Start production processes to meet the demands for safe products that have not undergone processes of degradation of nutritional, organoleptic and health characteristics;

- Counteract the damage that the decrease in pollinating insects creates to the environment and agricultural crops by supporting bees and their pollinating action;
- Promote measures to favor beekeeping activities that support the environment and make agricultural production possible.

GREECE

Lessons learnt from ONPMA

- Healthy and totally sustainable family businesses might be an option that meet the needs of pure organic farming, of environmental protection, and of biodiversity maintenance.
- The integrated management concerns and strictly defines the approved and appropriate agricultural practices in all the stages of cultivation such as: avoiding milling or plowing the fields but only removing of the weeds, avoiding using herbicides and constant monitoring of pesticide spraying and fertilization processes, regulating the proper time and quantity of implementation, and of course complying with the Codes of Good Agriculture Practice.
- Pruning of the cherry trees was introduced as an innovative cultivation experiment, which made the big difference in cherry production and made them very competitive on the international market.
- Settling Cooperatives ensures guidance to the farmers, determines the product policy, determines the plant protection and nutrition processes and provides to its members all the needed products for the above-mentioned processes.
- Modernizing small production businesses needs funding which may require lending money from banks. But a much better alternative is to apply for governmental or European funding schemes. Collaboration with consultancy firms is essential.
- The extremely limited knowledge and know-how concerning the tea cultivation, not only in the region of Litochoro but all over Pieria County, was coming from the tobacco crop experience and was not suitable in all the cases. There was not any help or guidance from the National Agencies because of the little interest in tea cultivation.

Recommendations from ONPMA

- Address experts and specialists in vineyard cultivation and winery, attend seminars on viticulture, oenology and winemaking, and gain experiences and more knowledge in modern practices.
- At least the 70% of the wine production, could and should be sold, in the winery facilities directly to visitors and other individuals, after tasting it and not with the typical marketing process.
- Get differentiated from classic vinification and grow alternative forms of tourism (i.e. gastronomic tourism or wine tourism).

- Sell the produced and bottled wine directly to individuals and visitors inside the winery, and not in traders or beverage stores, and specifically after trying it firstly to avoid the need of mass production.
- Participate in oenology exhibitions, cooperate with travel agents, and spread information.
- Initiate collaboration with the faculties of agriculture in the region which could provide reliable solutions and ensure compliance with local ecosystem requirements.
- Develop efficient methods of controlling the olive oil quality, so that only well checked olives are passing through productive procedure and comply with laws and regulations regarding waste management.
- Attend seminars on tea cultivation (planting, watering, weed controlling and harvesting), on tea drying methods and especially on tea processing and tea packaging methods, in order to get differentiated from the typical procedures and to gain experiences and more knowledge in modern practices.
- Start the product's certification procedures to give a quality ID to the product and to standardize the production processes. A brand name is very competitive and protects innovative cultivation practices from copyright infringements.

Lessons learnt from UTH

- Clearly there are numerous technologies for greenhouse systems which can be adopted by farmers enabling better, more efficient, and sustainable energy use. However, many obstacles and constraints remain to be solved that are related to the application of the existing technology and know-how to greenhouses in the Mediterranean area, to the high technology cost compared to the modest investment capacity of Mediterranean farmers, to the adaptation of technology to the problems that are encountered in Mediterranean greenhouses. The need for rational use of energy is critical since energy forms a substantial fraction of total production costs. For a heated greenhouse with tomato cultivation in Mediterranean area, the annual energy use for conditioning is roughly 1000 MJ·m-2. Heating is more and more commonly used to obtain early production and a constant quantitative-qualitative yield, leading to a higher energy use. Improved environmental control (e.g. more CO2 supply, additional lighting), intensified production schemes and use of cooling systems all cause an increase in energy consumption. On average the energy use ranges from 10 – 30% of the total production costs, depending on the regions.
- Regarding traditional irrigation methods, a time lag between water supply and transpiration often occurs in the case of time clock scheduling, while irrigation based on solar radiation is not taking into account other climatic factors which affects

transpiration, such as the vapor pressure deficit. Therefore, irrigation scheduling should be based on more complex evapotranspiration models, which correlate to greenhouse climatic and plant data.

- Methods are available to manage and control irrigation and fertigation efficiently in hydroponic greenhouse systems. However, the problem of applying nutrients and water to crops is more complicated, as it involves a multistage decision pattern for determination of optimal decision. There is a need for the development of a commercial irrigation controller unit, to model and monitor the soil-plant-atmosphere utilizing artificial intelligence analyses. In addition, the implementation of mathematical and empirical models, in combination with decision support systems, may be a useful tool for the better management of the nutrient solution in soilless culture system crops.
- There are numerous technologies for greenhouse systems which can be adopted by the farmers to enable better, more efficient, and sustainable environmental control. However, many obstacles and constraints remain to be solved that are related to the application of the existing technology and know-how to greenhouses in the Mediterranean area, to the high technology cost compared to the modest investment capacity of Mediterranean farmers, to the adaptation of technology to the problems that are encountered in Mediterranean greenhouses.
- Monitoring networks support decisively precision livestock farming approaches since they can provide almost real time measurements, informing the farmer about the climate and air quality that prevails inside the livestock building and provide her/him the opportunity to take immediate actions, if needed, e.g. ventilation control, to improve indoor microclimate, which is a major factor in production efficiency. However, a detailed accurate real time monitoring of environmental parameters requires expensive equipment.

Recommendations from UTH

- The rational use of energy can be achieved by efficient use of energy (i.e. amount of product per input of energy), and reduction of the energy requirement of the greenhouse. Improved insulation and reduced ventilation are the first steps to create energy conservative greenhouses. Consequently, apply wind dependent heating to control temperature, implement temperature integration strategy, set higher humidity set points, reduce the transpiration level of the crop, apply active dehumidification with heat recovery, select materials that cause low transmission of infrared radiation, use shading systems to achieve passive cooling and indoor energy screens to balance the ambient temperature of the greenhouse and reduce heating costs.
- Precise irrigation should involve the determination of the timing and the quantity of each irrigation event which may be estimated based on the climate of the greenhouse, monitoring of the substrate, or evaluating different plant indicators of water stress. Irrigation scheduling should be based on complex evapotranspiration models, which correlate to greenhouse

climate and plant data. There is a need to develop a commercial irrigation controller unit, in order to model and monitor the soil-plant-atmosphere utilizing artificial intelligence analyses.

- Irrigation and fertigation are the two critical inputs which enable farmers to control plant development, yield, and quality. The application of precision irrigation and fertigation methods in hydroponic systems is required, also considering water scarcity, climate change, and several environmental issues that exert pressure on agricultural producers. Hydroponic control techniques must be matched to local growing conditions.
- Application of irrigation and fertigation methods to soilless culture systems may be achieved by exploiting sensing, smart and sustainable methods.
- A better control of the greenhouse aerial environment can improve marketable yield and quality and extend the growing season. Use fans to circulate the heat from greenhouse ceiling to floor and monitor indoor and outdoor climate conditions continuously. The entry of unwanted radiation during sunny summer days can be controlled by using shading or reflection.
- Continuous, near real time, temporal and spatial monitoring of climate and air quality parameters inside the livestock building. Various practices can be applied to monitor environmental conditions inside a livestock building in order to control indoor climate and air quality levels, so as to ensure animals' welfare. The practices can be applied to naturally and mechanically ventilated livestock buildings. There is still a knowledge gap for the proper and optimum design of ventilation systems to improve indoor microclimate and reduce air pollution levels.

GERMANY

Lessons learnt from NSWMN

- The nature park markets promise a varied tasting and shopping experience. Farmers and producers present their products. These come exclusively from the nature park area. In addition to agricultural products, traditional craftsmanship is also offered. The markets are outdoor events and take place every Sunday between May and October in changing communities and towns in the nature park. There are about 20 nature park markets per year.
- With the project "Blooming Nature Park", the nature park wants to enhance areas visually and ecologically within the nature park and thus contribute to improve the conditions for insect diversity. The aim is to create a network of wildflower meadows in the Black Forest that is as dense as possible. At the same time, the citizens are to be taken along and sensitized for the protection of biodiversity - and this already begins in kindergarten and primary school with nature education.

Recommendations by NSWMN

- Projects need time to establish themselves in a certain area. The projects benefit from the organizations through and from the marketing power of the nature park.
- The project "Blooming Nature Park" The project and its participants are growing steadily from year to year. The project partners rely on continuous, professional support from the nature park. The topic is still highly topical after four project years. The motto "Every area counts" applies - even small areas in private gardens or a flower box on the balcony.
- To ensure success, it takes perseverance and a clear vision. Keep going forward, make plans, stay devoted to the principles on which you started.

Lessons learnt from INTEGRA

- "Food is life. What we grow and eat sustains our bodies. It enlivens our culture. It strengthens our communities. It defines, perhaps more than anything else, what we are – as human beings. And yet, the food system is broken. Consumers no longer trust what they eat. Many farmers are struggling with poverty. Malnourishment and obesity are blighting lives even where – on the surface – everything seems okay. And millions of people around the world continue to go hungry, day after day."
- People living in cities and urban clusters need to be informed, trained, and educated about the role and function of forests. The complex systems of forests need to be protected and the value of forests needs to be explained to visitors. There is a shared responsibility for our forests. Especially the young generation in cities needs to be educated about the role and function and value of forests. The "classrooms in the forest" or "the forest as a classroom" provides an ideal hands-on learning environment.
- In Germany, organic farming developed in the twentieth century in response to industrial agriculture, which was increasingly generating problems. Its goal was to produce healthy food in an environmentally friendly and animal-friendly way. The basic idea is disarmingly simple, namely - closely based on the example of nature - to operate in such a way that your own resources are sufficient. In concrete terms, this circular concept means that agriculture and animal husbandry must be coordinated. So that only as many animals are kept as the company can feed on its own feed. And the amount of animal manure used as fertilizer must also be adapted to the nutrient requirements of the arable land.
- The Sekem Initiative was founded in Egypt more than 40 years ago as a sustainable agricultural project. Today, "greening the desert" is one of the world's largest sustainable agricultural projects involving 20.000 small farmers with their families in Egypt and northern Africa. Support groups and Sekem-affiliated projects exist in German, Austria and in the Netherlands. Before the

project started, the area north-east of Cairo was plain desert. Today, it is a multi-hectare area of sustainable agricultural production based on near-to-nature, holistic and "alternative" forms of agriculture.

- The future of agriculture is faced with a wide range of challenges. It should produce healthy food in sufficient quantities, maintain nature and the environment and should safeguard jobs and income of farmers. Organic farming holds excellent potential to address these complex issues. The guiding idea of organic farming is to manage agriculture in a way that is consistent with and enhances natural life processes. The farm is understood as an organism within which soil, plants, animals, and humans interact. Therefore, the interdisciplinary nature of farming systems is a central concept of organic farming. Organic farming plays a prominent role in research and teaching at the University of Hohenheim.

Recommendations by INTEGRA

- The "Haus des Waldes" (House of the Forest) is an educational and learning center on forestry, sustainable forest economics, use of forest for recreation and wildlife in forests. It is part of the sustainable and resilient forestry network and has a special focus on city forests and forests in industrialized areas. With the House of the Forest visitors experience the forest with all senses. The "Haus des Waldes" is a good sample of "forest pedagogy" and "public classrooms" for environment education. It combines education and training for the public as well as training for students of agriculture, forestry, and nature-economics.
- Organic farming protects biodiversity and produces healthy food without toxic residues. The carbon footprint is significantly better than that of conventional agriculture. In the long term, only sustainable agriculture can ensure global food supply. Because industrial agriculture lives above its means: resources and soils are so exhausted - to achieve high yields - that fertile arable land is destroyed. A system that cannot be maintained for long.
- A combination of a political actions and awareness raising program in combination with training programs for farmers and agricultural experts on sustainable and resilient agriculture.
- Promotion of new delivery networks and food-chains for resiliently and sustainably produced food and producers.
- Creation of networks of farmers and agricultural experts for training and exchange of knowledge, expertise, and heritage.
- Support for "labels" for consumers to identify sustainable producers at markets.
- Central elements are educational programs for young farmers and their families, including social and cultural programs, schools, health-services, distribution, marketing, and study-programs.
- Establish international partnership and support programs.
- Establish large-scale educational training programs for all levels of education (from non-education to academic level).

- Convince by “doing” (show that it works) and use “own” distribution channels.
- Teaching and research should be in line with the idea of the organism and its interdisciplinary nature and should not be covered by one single institution, but rather coordinated and organized by networks of entities. This approach encourages interdisciplinary work between the institutes and promotes systems thinking in students. Consequently, teaching related to organic farming is usually conducted in an interdisciplinary way, i.e. experts teach aspects of plant and animal production as well as aspects of processing and economics which are of particular importance for organic farming or differ from other agricultural systems.

ROMANIA

Lessons learnt from USV

- A small commune in Romania used EAFRD support to restore and promote its local landmark, a botanical garden and design a training programme on environmental aspects for young farmers. EAFRD support was used to restore the infrastructure and vegetation of the garden and link it with other similar establishments at national and international levels. Additionally, the funding allowed to set up an educational programme for young farmers focused on environmental issues such as applied environmental protection, ecological storage of livestock waste, water consumption economy, drip irrigation in fields and greenhouses.
- Modernization and adoption of affordable new equipment can turn a subsistence family farm into a dynamic agri business. One of the main problems that expanding farm holdings face is difficulty buying or leasing additional land. The level of the farmers’ technical knowledge plays a key role in their capacity to successfully expand their holding. The financial support was used to set up three greenhouses of 300 square meters each, install a water drill for irrigation and acquire machinery and equipment for vegetable production
- Young farmers applied and received funds as a new entrant to farming to acquire vertical and horizontal hives, along modern apicultural equipment, and bee colonies. The successful beekeeping farm produces nine different types of honey and related products. Biodiversity benefited both on the farm and the surrounding areas through the pollination of plants by the bees
- Successful construction of a renewable energy production unit that uses by-products from milk production by dairy producers in response to increasing demand for milk in Romania. Using livestock manure and wastewater from the milking room and the milk processing unit, the system produces sufficient electricity and heat to operate the farm and the processing unit. The

advanced technological solutions applied helped reduce energy consumption and wastewater. Animal welfare for the animals was improved due to improved ventilation and reduction of insects. Processing of the manure to produce biogas reduced gas emissions to almost zero.

- A renewable energy plant was established to produce briquettes from the cultivation of energetic willow and wood dust coming from the area's wood industry. The necessary equipment was a dryer, a mobile chipper, a tractor, a crusher, and a trailer for harvesting this raw material for briquette production.

Recommendations by USV

- Projects successfully bring communities together by providing a common objective and stimulating shared and maintained commitment for its achievement.
- By using greenhouse/solarium modules, the duration of production can be extended from 4 months per year to 10-11 months
- Investing in quality seeds, irrigation, and crop rotation increase production significantly.
- When preparing an investment, the beneficiary should be aware that the workload and personal effort required will be considerable.
- Previous experience or knowledge about the activity which the investment will support is also essential for success.
- EU funding should be carefully targeted to address the real needs of beneficiaries and the community. A specialist consulting services greatly help with applications for funding.
- Under-utilized biomass resources can be successfully exploited in areas where demand for biofuel pellets is high.
- Banks must be made more aware of the benefits of investing in renewable fuel initiatives.
- The briquettes are an economically viable alternative to the burning of firewood.

TURKEY

Lessons learnt from MAKRO

- One of the leading processors, packers, and exporter of Organic / Natural dried fruits & nuts and frozen fruits in Turkey realized that they cannot handle organic agriculture at the micro level and that this philosophy should be handled and adopted together with all their farmers/ employees at the macro level. It is very important that everyone in a village adopts and believes in the same approach.
- Organic agriculture needs consensus - creating awareness and increasing the knowledge level of producers by providing training to them are crucial.

- The difficulties we encountered during the development stage were basically training the farmers, especially keeping them on a line on basic moral values. In fact, I personally had some difficulties in instilling the spirit of organic agriculture in them. We overcome this difficulty by keeping away the farmers who do not obey the rules of organic farming and having the behavior which is harmful for us from the cooperative market.
- It is not easy to explain initiatives to local governments and to persuade them to support our activities. Our success changed their viewpoint and they started to support us.
- In our region, compared to other regions of the country, the use of chemical pesticides and fertilizers is quite low. For this reason, our land is prone to organic agriculture. The organic crop and livestock production must proceed together. The government should increase its support for organic agriculture and give the support not only to producers but also to enterprises that process organic products.
- Restoring the destroyed natural balance is extremely difficult.
- It is important to get experience in organic production, to provide the opportunity to practice to the students and to spread out the knowledge of organic production among the producers of the region through farmer training. Furthermore, bringing organic products and consumers together deserves special attention.

Recommendations by MAKRO

- Try to create organic agriculture product demand by providing awareness campaigns and training to consumers.
- Develop new projects and synergies that could support initiatives because things take time to change.
- Work with people and their mentalities. Make regulations for everybody and exclude wrong attitudes. Give an example and do not allow policies to be broken by anyone. Progress might be slow, but this is the only way.
- Establish powerful cooperation with the local authorities and build mutual trust.
- You need to create a reliable producer portfolio because organic agriculture is built on a basis of trust. If this trust basis cannot be established between the producer and the consumer, it is obvious that nothing can be put on it. Both the producer and the consumer must establish this trust environment and believe in the work done. After that, success comes very easily.
- First of all, producers and consumers need to be trained about organic agriculture and ecological life. There must be publications which are supposed to enlighten the individuals about organic agriculture in a comprehensive and clear way. Best examples of organic productions are needed. Available markets to sell farmers' organic products are needed.
- There is a potential demand for organic products in Turkey. However, importance should be given to create awareness of consumers towards organic consumption. The sector should be supported by specialized incentive tools. Regional development agencies should support the sector.

SPAIN

Lessons learnt from CTFC

- The popularization of mountain races has grown so rapidly that they may imperil the conservation of some of the natural areas they run through. The tendency to carry out these activities in attractive landscapes has, on many occasions, led to the use of protected natural areas as the setting. The authorizations granted by the environmental administrations adapted to the different proposals submitted as no task of common reflection had been undertaken by the National Parcs. The *Code of Good Practice (CBP)* is a reference document for planning and celebration of mountain races and marches in the natural environment of Catalonia. This Code aims to be an instrument of help and improvement in the organization and development of the event, including planning, holding, and performing tasks once finished, in order to guarantee compatibility with the conservation of the natural environment and with them activities of the people and the economic actors of the territory.
- *Taüll organics* is based on the Pyrenees, on the parc territory. They produce aromatic plants as a culture and tradition and their objective is the natural arnica gel that they commercialize. This enterprise is ecological certified and follows the CCPAE standards for producing aromatic plants. Also, for their products certified as well for pharmacy certification.
- *Parc de les olors* started as a little enterprise and now has become a big network of aromatic plants producers and health products around Catalonia (see the video on YouTube).
- In Catalonia, the Department of Agriculture has written several guides to good agricultural practices applicable to agricultural companies throughout Catalonia. You can find these agronomic good practices on their website. They are general rules on fertilization and soil to avoid water pollution. You can also find more specific publications ranging from animal welfare to guides to winegrowing exploitations. Also, you can have many ecologic exploitations certified by CCPAE (Catalan Council of Ecological Agricultural Production).

Recommendations by CTFC

- Keep in mind that some of the possible impacts on the environment and socioeconomic context caused by holding races and marches in the mountains can occur not only during the celebration of the event, but also before and after, for example, through the dissemination of the itinerary and the corresponding frequency or its use for training.
- Protected natural spaces should strictly regulate sports activities and guide the organization of sport events in an environmentally friendly way in the national park territories.

- Diversify the range of products made of aromatic plants: spices, infusions or liquors, aromatic air fresheners, etc. Allow visits and formation for schools and different agro ecological courses that can help people stack to the territory, showing them how to start an aromatic plant business.
- Run a good website and promote km0 commerce. Client communication (mouth to ear) is a strong point of the business strategy. Good and fast shopping is the strong arm of companies to stand and stay in and for the territory.
- Guides recommend the construction of dry toilets, renewable energy installations (photovoltaic), inventory of emissions from the consumption of diesel, gas and electricity, acquisition of an electric vehicle in the Park's fleet, installation of charging points, release of energy certificates, biomass heating.

CYPRUS

Lessons learnt from SYNTHESIS

- Making the beekeeping process profitable requires a lot of hives. This has led many producers to add sugar to the hives to have honey all-year long. However, this makes bees produce sugar-based honey. *Ecophysis* decided to stay small and follow ethical and sustainable practices. Weather conditions may affect the production process, but the training and educational activities supported them in difficult times. The company relies both on honey production and on educational activities which makes it more sustainable. Marketing activities require more time and effort as the company expands.
- The modern way of life has brought about disruption which makes people more and more unaware of where their fruits and vegetables were coming from, how they were grown, and how they were distributed. Mass production of fruit and vegetables, massive imports, and the supermarket food chains have alienated people from traditional practices and have also removed their own connection to the traditions and to their childhood memories.
- Free commerce allowed the importation of a great variety of honey of unknown quality, chemical consistency and origin that also left loopholes of mislabeling and misinforming the Cypriot consumer. All this led to unfair competition to Cypriot beekeepers and safety risks for the consumers. The Atlas created by General State Laboratory of Cyprus would provide info about the geographical region of the honey's origin, the genus of the plants used by bees in making any particular honey and its nutritional and constitutional background thus helping beekeepers avoid unfair competition, improve the local sustainability of beekeeping and safeguard the public by providing a healthier and authentic product.

- In Cyprus, all households had a loom and silkworms because they made silk. Nowadays, everyone involved in sericulture are non-professionals. There are no organized factories or government departments for silkworm breeding; and there is no dedicated ministry department for guidance (only the Department of Plant Protection and Beekeeping).
- Irresponsible, unsustainable actions, such as animal abuse by adding synthetic growth or breeding hormones, GMO-based feed, the use of pesticides, destruction of the native species etc., are affecting negatively and/or destroying nature and its inhabitants, including humans themselves. The quality of life of animals, the quality of the land and soil affects the quality of the products we consume, which affect our health and wellbeing. Ygea Farm aimed to tackle these issues by adopting organic practices. Ygea Farm is a family-run and fully bio farm adopting only organic farming practices and focusing mainly on the production of organic eggs.

Recommendations by SYNTHESIS

- Create educational projects around the production of honey and collaborate with other partners to share work. Approach travel agents to attract tourists and educations. Start working on other bee-produced products that are less known such as propolis, bee pollen and royal jelly to allow expansion to other markets, i.e. therapeutic products.
- Create networks and participate in seminars to increase skills and knowledge and become better.
- Use country specific products, grown on your premises according to the traditional farming practices, without chemicals or pesticides. This way, people are introduced to nature's life cycle through the products they get to taste and see how they are produced and/or made.
- No guidance or support from authorities may be replaced by the development of associations or organizations that will take out the silk threat and make silk clothes, as everybody involved in silk farming is autonomous individuals who usually do not have the tools or machines needed to take out the silk threat.
- Ygea Farm recommends the following sustainable practices: reusing and recycling, energy efficiency initiatives, water conservation, farm/landscape design aspects, and growing the percentage of the organic feed for the hens, no use of synthetic growth/breeding hormones which means less stress for animals and reduced human exposure to endocrine-disrupting chemicals, extensive outdoors access to nature and no confinement cages that ensure better quality of life for hens, superior health, as well as greater quality and nutritive value in the eggs they lay.

5. REFERENCES

Adger, W. N. (2000) 'Social and ecological resilience: are they related?', Progress in Human Geography. SAGE Publications Ltd, 24(3), pp. 347–364. doi: 10.1191/030913200701540465.

Graham, C. R. (2006) 'Blended learning systems', The handbook of blended learning: Global perspectives, local designs. Pfeiffer San Francisco, CA, pp. 3–21.

Schmid, O. and Knutti, S. (2012) 'Outcome-oriented approaches for regulating animal welfare in organic farming', Producing and Reproducing Farming Systems. New Modes of Organisation for Sustainable Food Systems of Tomorrow.

Valiathan, P. (2002) 'Blended learning models', Learning circuits, 3(8), pp. 50–59.

Whitworth, A. (2006) 'Communicative competence in the information age: Towards a critical theory of information literacy education', Innovation in Teaching and Learning in Information and Computer Sciences. Taylor & Francis, 5(1), pp. 1–13.

Yadav, D. S. et al. (2013) 'Assessing the training needs of agricultural extension workers about organic farming in the North-Western Himalayas', Journal of Organic Systems. Journal of Organic Systems, 8(1), pp. 17–27.

Yang, L.-H. et al. (2014) 'Evaluating team-based, lecture-based, and hybrid learning methods for neurology clerkship in China: a method-comparison study', BMC medical education. Springer, 14(1), p. 98.

Yigit, T. et al. (2014) 'Evaluation of blended learning approach in computer engineering education', Procedia-Social and Behavioral Sciences. Elsevier, 141, pp. 807–812.

Mitchell, A., & Honore, S. (2007). Criteria for successful blended learning. Industrial and Commercial Training, 39(3), 143–148

Allen, E., & Seaman, J. (2006). Making the grade: Online education in the United States.

6. GLOSSARY OF TERMS

Resilience	The capacity of an ecosystem to bounce back to its basic functions and structure sooner or later, after a climatic, biological, or socio-economic stress
Social resilience	”The ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change” (Adger, 2000).
Blended learning	An approach to education that combines online educational materials and opportunities for interaction online with traditional place-based classroom methods. It requires the physical presence of both teacher and student, with some elements of student control over time, place, path, or pace. While students still attend "brick-and-mortar" schools with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery. Blended learning is also used in professional development and training settings. The term blended learning is used in education to describe a teaching style that combines the use of technology and online educational exercises or materials to assist in the classroom, whilst having a ‘traditional’ hands-on and in-person lesson.
Hybrid learning	Hybrid learning comprises classroom face-to-face interaction and online computer-mediated communication (Mitchell & Honore, 2007). The Sloan Consortium (Allen & Seaman, 2006) further classified web-based learning environments by the proportion of content and activities delivered online: (1) web facilitated courses (1–29%); (2) blended/ hybrid courses (30–79%), and (3) online courses (more than 80%).

Sustainable	in VALOR context: a set of agriculture and husbandry technologies able to use natural and local inputs in order to produce outputs with low environmental impact (mainly adequate consumption of water consumed and organic products)
	In a broader context: a type of economic development which implies low rates of substitution between human-made capital and natural capital. Between very weak sustainability (all-natural capital can be replaced by human-made capital) and very strong sustainability (no substitution allowed) there are other two intermediate forms.
Organic farming	An agricultural system which originated early in the 20th century in reaction to rapidly changing farming practices. Based on anthroposophical ideas promoted by Rudolf Steiner, organic farming promotes close-to-nature technological means, without chemical compounds used as fertilizers and pest-controllers (just a few are being allowed).
Sentinel plants	Species of plants that deter natural propagation of insects or fungi to other cultivated plants
Biological pest-control	Pest-control based on different parasite of insects that harm cultivated plants or natural enemies of those insects, like birds)
Low tillage	System of tillage based on shallow furrows meant to reduce the consumption of non-renewable fuel. An important means to reduce the carbon footprint of agriculture, responsible for more than 30% of the greenhouse gasses released.
VOOC	Vocational Open Online Course

Annex 1 – Collection of Best practices

The following best practices from Italy, Greece, Germany, Cyprus, Spain, and Romania have been provided by VALOR partners:

Country	Summary of Best Practice	Real-life Case and Needs	Solutions and Actions	Difficulties and Challenges	Results and Improvement
ITALY (Source: PNGSL)	Genetic erosion and the dramatic decrease in the biodiversity of cultivated species, especially in mountainous and disadvantaged areas and loss of locally grown varieties.	Ensure the in-situ conservation of these species and make them economically and/or amateurishly interesting. Increase awareness of the importance of this unrecognized heritage and a widespread desire to preserve and enhance it.	Attempt to multiply them and keep them under cultivation by the custodian farmers. Identify indigenous germplasm of the ancient varieties of fruit trees and cereal crops. Create a garden of arboreal archeology and a center for the reproduction of the native plants in the identified area to guarantee the authenticity of the historical link with the territory. Encourage the organic cultivation and conservation of native fruit-bearing and herbaceous varieties by creating a	Complexity of the mountain territory and the difficulties of moving around the territory. Drastic reduction of the number of farmers and their age. Recognizing varieties found. Poor germinability of several seeds.	Farmers created a "Custodian Farmers" network aimed to ensure conservation and reproduction of plants. The network created a collection of ancient local varieties. The Botanical Garden has created specific sectors for the reconstruction of the ancient agricultural landscapes (for ex situ conservation, for educational purposes and for experimentation on cultivation techniques).

			network of guardian farmers. Encourage cultural and training actions in the field of organic farming and biodiversity. Undertake actions aimed at the enhancement and cultural recovery of ethnobotanical traditions.		
ITALY (Source: PNGSL)	Protected area management bodies have a logo used as the "Park Mark", in accordance with the regulations in force. The granting of the Park Mark is important in order to involve services and activities of the territory carried out in harmony with the protection of the environment and the purposes of establishing the protected area.	The law provides that Natural Parks may grant the use of the name and logo to local services and products that meet quality requirements and meet the purposes of the park in order to promote the development of tourism and local activities in accordance with the conservation needs. Until 2005, the Park logo was granted occasionally. The lack of a specific regulation as well as an overall organic vision prevented in fact the possibility to use the label profitably.	Name and logo were registered as a Community Collective Mark under Article 46 of Regulation (EC) No 40/94 with the Office for Harmonization in the Internal Market (OHIM) in Alicante (Spain). Next, the Park Authority adopted the Regulations to grant the Park name and logo to agri-food products aiming to: - help entrepreneurs use a brand differentiating them on the market; - help Brand dealers to adopt a quality system transferable to products-activity-services, based on behavior, reputation of operators and on the	Lack of information on the value of the product regarding the commitment required to produce it, the value of the raw material used, the value of precious and irrecoverable evidence of a given rural environment. Insufficient remuneration for the producer who has failed, or is unable, to distinguish his production from similar mass-produced products obtained at significantly lower cost. Absence of a collective image.	The Regulation has been in force for 10 years now and can count on about 30 companies with over 100 authorized products. The new requests are added to the previous ones through a dynamic mechanism of acquisition and updating. The Park Trademark is highly requested by producers because, in addition to guaranteeing identity and belonging to a territory, it increases recognition and appreciation by consumers. The selling price of the authorized products has increased because of the recognition of the higher quality of the product.

			quality of environmental resources and production processes; - allow consumers to quickly identify the products-activities-services that are specific to the area.	Marketing is still largely carried out in elementary and approximate forms.	
ITALY (Source: PNGSL)	Park Authority launched an important project for the recovery and enhancement of the Turquoise potato, an ancient crop variety once widespread in the mountain areas which has been gradually replaced with more productive, modern, and more easily available crops.	The loss of biodiversity affects the agricultural and livestock sectors in the protected area, characterized by mountain land. Crops were mainly cereals, legumes, and potatoes. Many of these varieties were selected in these environments and have characteristics of rusticity and resistance. Their loss would be serious and irrecoverable.	The project involved multiplication of the potato in the lab to restore its health integrity and then, in the field, to evaluate its agronomic characteristics and define the best cultivation technique. The Park established a non-profit association aiming to support the rural world within the Park to protect and promote the recovery, cultivation, conservation, exchange and diffusion of traditional varieties, the recovery of the territory and its preservation, popular knowledge, and local practices.	Difficulty of restoring the old tubers; compromised by years of misuse. -the ancient varieties present aspects of rusticity but also of delicacy during storage which created problems in their conservation and duration until the next sowing; The low productivity of this potato fails to maintain a fair income for the farmer if not by increasing the final selling price.	The association of Turquoise potato producers has been created. Farmers adopted production regulations and special rules for the sale. Over time, the association has grown and is currently made up of many farmers operating throughout the protected area. Since 2016, the Turquoise Potato has also become a Slow Food Presidium. The Turquoise potato is no longer at risk of extinction.
ITALY (Source: PNGSL)	The Park Authority created the opportunity to increase the cultivation of legumes by involving young	Young people who finished their studies and are looking for a professional identity not linked to the farming world but are interested in it and those	The initiative of the Park addressed the following issues: •Search of young people interested in deepening the	Access to agricultural property is made difficult by numerous laws and regulations. Especially in the	The project allowed young people the opportunity to learn a trade directly from those who have been practicing it for decades.

	people to trigger a mechanism of cultivation and cultural expansion, with positive effects on the environment and on the protection of the territory. The project not only focuses on legumes, but also on skills, tradition, trust, and hope to leave to future generations the result of the efforts of our ancestors.	who have lost their jobs and who see the agricultural sector as a possibility to stay in the territory required re-launching the rural economy and bringing young people closer to quality agricultural sector. There are elderly farmers who feel the need to pass on their knowledge, culture and experience to young enthusiasts so as not to disperse this centuries-old work.	theme of cultivation and willing to join the guardian farmers; •Search of elderly caretaker farmers interested in passing on knowledge to young people; •Search for varieties of legumes among the guardian farmers to be provided to young people; •Creation of a final event to raise awareness of the initiative.	mountains, it can be difficult to identify the owners of the land to purchase or rent it. Furthermore, the agronomic difficulties of cultivation are not supported by adequate and economically sustainable measures which discouraged many young people or still makes their work difficult.	This created new jobs or new sources of income support. It was also possible to recover and keep alive the agricultural traditions of the area and the cultivation of local varieties of legumes. The guardian farmers have thus been able to pass on their valuable knowledge to the younger generations.
ITALY (Source: PNGSL)	In beekeeping production, pollen does not see an experience and tradition equivalent to the considerable production potential. The entire pollen chain, from harvesting to marketing of the packaged product, is based on traditional processing. Most production is of dried pollen using different methods of collection, transport, sifting,	Pollen consumption is growing even though an effective specialized network for the preparation, processing and distribution of this product is not well structured in relation to market demand. It is necessary to set up production processes to ensure a safe product that at the same time has not undergone processes of degradation of its nutritional, organoleptic and health characteristics in general. The project seeks to meet the needs of the	The following steps have been taken: - analysis of the criticality of the various phases of primary production, proposing suitable collection and processing methods to safeguard the integrity of the product; - definition of the collection/processing processes, verification of methodologies aimed to obtain a product that can be easily preserved over time and that best	The limited production and limited sale of pollen by the beekeepers themselves has led to the marketing only of dried pollen. The sector suffers from the typical disadvantages of a niche production not yet established on the market and the inherent weaknesses of the product itself and the production methods. Precisely these negative aspects, linked to a precise know-how in the	The project offers development opportunities such as: - the possibility to produce "fresh" pollen which can thus be considered a "new product" compared to what is generally found on the market; - the definition and schematization of procedures for product collecting and processing aimed at guaranteeing the maintenance of the pollen's nutritional, health and organoleptic characteristics

	freezing and subsequent drying.	production sector of "fresh product".	preserves organoleptic characteristics; - proposal of internal traceability procedures aimed to limit risks of products unsuitable for consumption being delivered to the packaging.	production of quality pollen, have hindered the development of this particular micro-line.	thus offering operators in the supply chain a new production opportunity.
GREECE (Source: ONPMA)	Kourtis Winery is a family business in Pieria, Greece. It is a vertical production unit that was established in 1997. The business deals with organic vine cultivation in a privately owned area of 6 ha, with the winemaking, bottling and selling of 9 different wine varieties, and lately with the promotion of gastronomic and wine tourism. All the above is taking place in the traditional facilities of the old family winery, which were recently renovated to serve the ever-increasing demand of wines.	The needs that Mr Kourtis spotted, and were necessary to be done, had mainly to do both with the change of the type of the crop and the type of the farming as well. Mr Kourtis noted that there was no future in farming with chemicals, either for exploitation and for micro-environment sustainability. So, the main need was the right selection of the crop type (vineyard) and the total turn to the organic farming. These changes raised other needs such as: • more demanding tasks of work, especially referring to quality • acquiring the know-how and gaining expertise about the new type of crop	First of all, Mr Kourtis decided to gradually enlarge the arable land, firstly from 1 ha to 3,5 ha (2004) and then from 3,5 ha to 6 ha (2009), as it is until today, in order to reach an acceptable and adequate volume of production. Secondly, with a view to achieve a high and constant quality of the wine produced and to protect his crop from diseases and illnesses, he immediately addressed to experts and specialists in vineyard cultivation and winery, he attended seminars on viticulture, oenology and wine-making, and he visited a lot of wineries all over Greece to gain experiences	1) The Prefecture of Pieria, where my exploitation is located, is placed in the most recent viticulture zone in Greece, which means the authorities give priority to other types of cultivation. 2) No expertise in vinification in Pieria County, so that Mr. Kourtis, was directed appropriately, especially on the innovative wine-making practices and product promoting to an alternative clientele. 3) Not enough budget, therefore Mr. Kourtis proceeded with lending from banks and participating in co-	Today, Kourtis Winery is a very healthy and absolutely sustainable family business, which despite its small size and its limited production (ap. 26.000 bottles-750ml/year) for the status of international oenology, have managed to achieve 9 different varieties of high quality wine within the framework of pure organic farming, environmental protection, and biodiversity maintenance. Kourtis Winery managed to gain significant distinctions in International Wine Competitions

		• increase of the production to cover the demand without decreasing the product quality • minimize losses of production • extension of the cultivated land • innovative management practices to expand the scope of the work and the clientele as well.	and more knowledge in modern practices. Finally, Mr Kourtis, to get differentiated from classic vinification, decided to turn to a rapidly growing alternative form of tourism, which is called gastronomic tourism and especially to wine tourism. The original idea which is now turned out to be the main goal, was that at least the 70% of the wine production, could and should be sold, in the winery facilities directly to visitors and other individuals, after tasting it and not with the typical marketing process.	funded EU and national programmes. 4) Bureaucracy in all the approving and licensing procedures. 5) A lot of money and time spent to promote the products. 6) Serious difficulties of the unit expansion, due to suspension of Forest Maps and the implementation of the Forest Law.	
GREECE (Source: ONPMA)	Agricultural Cooperative of Rachi Pieria "Agios Loukas" (St. Loukas) is a cooperative enterprise, which was initially founded in 1978 as an informal group of thirty (30) cherry growers who came from the Local Community of Rachi, Pieria, and today counts about 250 members,	The needs of the cherry growers/members of the cooperative had to do with the cultivation methods: • increase the size of the cherries, so the products would become more attractive and competitive to the markets • ensure the uniformity of the size and, if possible, of the taste of the final products	The Management Committee was too small and not well organized. So, the members of the Committee started to participate and to attend national and international exhibitions, workshops and conferences regarding the rural sector, in order to have an idea of what is new and how a partnership of	The main problem was the lack infrastructure, The Cooperative had to carry out and fund research in co-operation with the Faculty of Agriculture of Aristotelian University of Thessaloniki which cost a lot of time and money.	The members of the Cooperative, after long-term testing, cultivate today up to 13 different cherry varieties. The cooperative produces, standardizes, packages, promotes and sells an average of 800 tons of cherries every year.

	consisting mainly from cherry producers (210) and growers of other cultivations, as well.	and the small alternation of the used cherries varieties • follow the same or similar methods of plant protection and fertilization, under the guidance of specialized agronomists. • further development of professional standards • the mechanization and the automation of the production processes • acquisition of storage capacity • thorough market research • solution to small-sized fields and fragmentation of land properties	cultivators is functioning in other European regions. At the same time they decided to review the agricultural practices in use by then, and follow the same updated agriculture practices during all the crop stages, in order to achieve homogeneity of their production with the ultimate goal of standardizing and certifying their products. The problem of land fragmentation has not been solved.	3) There was not enough budget, so the Cooperative lent from banks and participated in co-funded EU and national programmes. 4) Bureaucracy in all the approving and licensing procedures. 5) A lot of money and time spent to promote the products. 6) Serious difficulties that arose from rough weather conditions.	
GREECE (Source: ONPMA)	Olive Oil Mills is a privately owned business that had its basis in an old family Olive Mill, which was established in 1969.	The safe transfer of the olives to the Olive Mill, which was being done exclusively using animals, such as horses, mules and donkeys, started to show up, as the unit was running inside the village and very close to households. The lack of space because of the crowding of many people on a few square meters, while an old machinery without any standards, was working on.	Move the Olive Oil Mill in a new location, outside of the settlement of Skotina. Gain experiences and knowledge and to cover the know-how gap, to turn from classic to modern oil production. Study the new legislation and thoroughly search on the certification procedures.	Replacing the millstones with new modern machinery and the putting of the company's services under strict certification. To become economically sustainable requires producing oil and secondary oil products. Solve the matter of unit's waste to comply	The business mainly deals with olive processing and oil production, but also provides standardization and packaging services, and selling oil products to individuals or supplying restaurants, as well. Furthermore, the company produces and standardizes secondary oil products such as: wort oil, natural cosmetics, beeswaxes-

		The old machinery was responsible for the low output of the unit. There was not enough knowledge to ascertain the quality of the incoming olives (e.g. acidity control), as the concept of integrated management was still completely unknown, and that had a serious effect on the product. Company relocation in a larger and safer place, outside of the community of Skotina. The increase of production and quality.	Attend seminars, especially on product quality assessment, on the importance of integrated Olive & Oil management in the future oil industry, and on the categories and the appropriateness of the modern machinery.	with the environmental legislation.	ointments, handmade soaps based on olive oil and other physical products.
GREECE (Source: ONPMA)	OLYMBIOTEA / Aromatic-Medicinal plants & herbs is a sole proprietorship of rural character and a vertical production unit, which was established in 2008 and located in the Municipal Community of Litochoro (Pieria, Greece). The business deals with the seed production, the organic tea cultivation in a privately owned area of	In the past and before the installation of the tea cultivation, the fields of Litochoro were being cultivated mainly with arboriculture and tobacco. Farmers had to seek available information, to read an extensive bibliography and to attend seminars and workshops, at their own expenses, to install a successful and innovative tea cultivation. Make efforts towards the processing and the packaging	Acquired more arable land to manage tea crops in different stages of growing, so she could produce, process, and sell products throughout the whole of the year. Introduced and adopted new and innovative agricultural practices. Created own seedbed and carried out seed production for planting, by selecting the excellent phenotypes from the first 700 plants	There was not enough arable land available. There was not any expertise in tea cultivation in Pieria County. There was not enough budget. Bureaucracy in all the approving and licensing procedures. Small demand for the product in the domestic market.	The business is now a productive and a processive cottage industry unit, which may operate inside the settlement of Litochoro, as it is considered to be a kind of craft with low perturbation. All the above is taking place in the family's old grocery, which meets all the health and food hygiene standards.

	about 1,3 ha consisted of several fields which are spread in different places of Litochoro's rural area, the harvesting, the drying, the processing, the packaging and finally the selling, both in the retail sale and the wholesale of the famous special tea variety "Mt Olympus Tea – Sideritis Scardica", in quantities reaching 600-800 kgr/year, mainly in countries abroad.	of the produced product to make it more attractive to the market, to participate in National and EU Programmes and Projects as a small craft unit, and to become a member of the Commercial Chamber.	and maintaining them as maternal seeders, improving in this way her tea crops genetically, year by year. Introduced innovative patents which secured the business financial sustainability.	A lot of money and time spent to promote and market the products. Serious difficulties of the unit expansion, because of the rough tax treatment of the tea processing unit, from the national authorities.	
GREECE (Source: UTH)	Active and passive methods that could be applied in Mediterranean greenhouses to reduce energy use, without affecting the yield amount and quality.	There are mainly two ways to increase the energy efficiency in a greenhouse: a) reduction of the energy input into the greenhouse system and b) increase the production per unit energy. The major challenge is to find ways which meet both needs: improved energy efficiency combined with an absolute reduction of the overall energy consumption and related CO2 emission of the greenhouse industry. The major processes	Proper design and installation, and frequent check, of the greenhouse itself and the control equipment (at least at the start and once during the growth season) to obtain maximal benefit of energy efficient environmental control. Application of wind dependent heating to control temperature. Heat losses increase linearly as wind speed increases,	The existing technology and know-how developed in Northern Europe countries are generally not directly transferable to the Mediterranean growers: high-level technology is out of reach for most of the Mediterranean growers because their cost is too high compared to the modest investment capacity of these growers. Know-	Reducing 1 degree C in heating temperature saves roughly 10% energy - Application of wind dependent heating results in 5 – 10% energy saving - Implementation of temperature integration strategy results in up to 20% energy saving - Application of humidity control saves roughly 5% energy - Different types of greenhouse covering

		of energy loss in naturally ventilated greenhouses are convection and radiation from the greenhouse cover, and thermal and latent heat transfer through ventilation.	therefore, energy can be saved by reducing the heating set-points when it is windy and compensating, while increasing heating set-points at low wind speeds. Implementation of temperature integration strategy, which includes using higher than normal ventilation temperatures to maximize heating due to solar gain and compensating these temperatures by running lower heating temperatures at night or on cloudy days. To reduce the "humidity control related" energy consumption, several options can be applied like setting higher humidity set points, reducing the transpiration level of the crop, applying active dehumidification with heat recovery. Increasing the insulation by using double or triple layer materials and application of	how from Northern Europe growers is often inappropriate to the problems encountered in the Mediterranean shelters. Temperature control requires specific knowledge of the crop grown, as plants must be grown within the sub- and supra-optimal temperatures. Humidity control should be applied carefully as fungal disease outbreaks may occur, inducing devastating impact to crop production. A major disadvantage of most insulating covering materials is the fact that they cause reduction in light transmission and increase in humidity levels.	materials can trigger 25 – 51% reduction on annual energy use .

			coatings reduce the radiation loss. One should select those materials that cause low transmission of infrared radiation. Shading systems can be used to achieve passive cooling. Indoor energy screens can be used to balance the ambient temperature of the greenhouse and reduce heating costs. They can be opened or closed voluntarily depending on the external weather conditions and the crop. They offer a certain level of shade during the day reflecting outward unwanted solar energy and when opened during night, limit radiative cooling and losses of heat.		
	Irrigation management techniques that could be applied to soil-based or soilless greenhouse crops are proposed. For many years, irrigation was applied to crops at fixed time	Optimal irrigation scheduling of greenhouse crops is very important, since it influences the rhizosphere environment, media water potential and salt accumulation, which in turn affect plant growth, photosynthesis, crop	There are several approaches for making irrigation decisions in a greenhouse crop, the most common of them being timer-based, sensor-based, and model-based methods. A system that exploits all	The interactions between the microclimate and the physical conditions of the plants have to be well known. As the accuracy of the models is crop specific	Crop water needs can be accurately estimated in advance. - The water used by the plant can be estimated accurately in a short interval rate.

	intervals and quantities (i.e. time clock scheduling) and, more recently, by estimating the quantity of solar energy corresponded to the irrigation dose consumed by the transpiration. However, it has been well documented that none of these two methods are sufficiently accurate to satisfy the crop irrigation needed when used as a solo criterion for irrigation.	production and quality. Irrigation control involves the determination of both timing and quantity of water application. To optimize productivity, plants must never run out of readily available water or be subjected to conditions that cause stress and reduce plant growth.	these approaches multiplies the efficiency of irrigation control in greenhouses. Monitor and record the greenhouse and crop microclimate parameters (air temperature and relative humidity, solar radiation, and nutrient solution applied to and drained from the crop and substrate volumetric water content). Process and analyze the collected data. - Application of models to estimate parameters and simulate processes. Analyze models' results to produce recommendations.	and highly depends on the microclimate of the greenhouse, models must firstly be calibrated for the specific crop under the prevailing greenhouse environmental conditions. It is better to monitor continuously and automatically groups of plants distributed in several positions within the greenhouse rather than individual plants which may not provide representative data related to the plant water status.	- 100% increases of water- and fertilizer-use efficiency have been achieved. - The simplified Penman-Monteith equation transpiration model is recommended to calculate greenhouse crop transpiration rates.
	Techniques to manage and control soilless greenhouse production systems. Traditionally, greenhouse crops were grown in the soil but in the last decades switching over to soilless production systems is observed due to the benefits offered by the	Irrigation and fertigation scheduling has to take into account the effects of climatic parameters on crop water uptake (e.g., transpiration rate), water stress threshold values, systems' energy consumption, efficient nutrient crop uptake, environmental concerns	Application of transpiration models based on the originally proposed Penman–Monteith approach. Exploitation of plant monitoring systems to optimize the irrigation efficiency. Nutrients were supplied along with water (i.e.	Model validation under different climatic conditions does not always successfully fit calibration data. - In closed recycling systems, some nutrients and non-nutrients are accumulated in excess in the root zone, causing an increase of total	Water and nutrient use efficiency is higher in closed soilless culture systems compared with open systems. In a recirculating soilless system, fertilizer losses and water consumption were respectively by 15-65% and by 15-35% lower, compared to a free drainage system. -

	hydroponic systems. Today, soilless culture systems are one of the most intensive production methods recognized globally for its ability to support efficient and intensive plant production and at the same time applying environmentally friendly technology and implementing computational intelligence.	regarding fertilizer leaching and substrates disposal.	nutrient solution) simultaneously to the crop. The whole preparation process of the fresh nutrient solution was automatically controlled through hydroponic fertigation head units. Drainage water was reused without discarded irrigation solution in the surroundings. The benefit of recycling the nutrient solution without adversely affecting yields presupposes that it was replenished with appropriate amounts of nutrients before reuse. Semi-closed soilless culture systems were exploited. Mathematical and empirical models simulating specific ions accumulation in the root zone environment were applied. The nutrient solution in recirculation systems was periodically partly replaced during the crop growth.	salinity above a threshold value of acceptable salt accumulation. Semi-closed soilless culture systems efficiently control salt accumulation in the root zone. There is a difficulty of individual real-time corrections to each nutrient in response to actual crop nutritional demands which leads to periodical rejection during the crop growth or to partial replacement. The design of the trickle irrigation system has to be correctly sized in order to deliver water at the desired pressure and flow rate. Special attention should be given to the substrate water holding capacity and the restricted root of crops in soilless culture systems to avoid plant water deficiency.	The application of a web-based irrigation scheduling algorithm to determine the irrigation interval rate and the amount of nutrient solution in each irrigation event resulted in 100% increase in water and fertilizers use efficiency as opposed to common irrigation practices.

			Micro-irrigation substrate was used as it is probably the most used, highly efficient, water delivery method. The direct estimation of the irrigation amount was performed according to the substrate's unique characteristics, using a relevant equation, and following appropriate processes to obtain the required input data. The quality of source water was evaluated based on the type of the soilless culture system. The salinity of the nutrient solution was quantified based on electrical conductivity measurements, which correspond to the total amount of dissolved ions in the solution. A web-based irrigation scheduling algorithm was applied to determine the irrigation interval rate and the amount of nutrient	Different types of soilless culture systems require different irrigation scheduling approaches, which in turn need modification according to the microclimate inside the greenhouse	

			solution in each irrigation event.		
	Active and passive methods that could be applied to control climate and CO2 levels inside a Mediterranean greenhouse, without affecting the yield amount and quality. The lack of climate control in many greenhouses in Mediterranean countries results in an inadequate microclimate that negatively affects yield components and input-use efficiency.	Temperature and humidity are the most important variables of the greenhouse climate that need to be controlled. Plants must be grown within the sub- and supra-optimal temperature and relative humidity values. Additionally, CO2 concentration must remain at the optimum levels to enhance crop photosynthesis. All these variables are strongly related to the energy consumed for greenhouse operation.	Reduction of the heat load is the major concern for greenhouse climate management under hot climate conditions. This can be achieved by reducing incoming solar radiation, removing the extra heat through air exchange, and increasing the fraction of energy partitioned into latent heat. Shade screens and whitewash are the major methods used to reduce the incoming solar radiation. Ventilation is an effective way to remove the extra heat through air exchange between inside and outside when outside air temperature is lower. Evaporative cooling is the common technique to reduce sensible heat load by increasing the latent heat fraction of dissipated energy.	Forced ventilation by fans is the most effective way to ventilate a greenhouse, but it consumes electricity. Natural or forced ventilation is generally not sufficient for extracting the excess energy during sunny summer days. Before installing an evaporative cooling system, the required water flow rates have to be calculated. The orientation and insulation of the greenhouse affects positively or negatively the heating losses and therefore the heating strategy and costs. The poor efficiency of ventilation systems of the low-cost greenhouses in Mediterranean countries, coupled with the use of insect proof	Improvements have been achieved regarding the environmental control inside the greenhouse. Efficient measures have been applied to control temperature, humidity, and CO2 levels through adjustments of ventilation, shading, cooling, heating, and dehumidification.

				nets, results in relatively high CO2 depletion. Establishing optimal CO2 set points is a complex procedure as they depend on several factors like photosynthesis rate, indoor CO2 balance affected by ventilation, economic issues, etc. Condensation can be a major problem and unfortunately, at least at certain times of the year, it cannot be avoided entirely.	
	Practices that could be applied to monitor environmental conditions inside a livestock building to control indoor climate and air quality levels, so as to ensure animals' welfare. The practices can be applied to naturally and mechanically ventilated livestock buildings.	The environmental conditions that prevail inside a livestock building induce various physiological and behavioral effects upon animals. Air quality and climate conditions are considered as major factors affecting them. Poor indoor air quality and climate conditions trigger adverse effects to animals related to their welfare, health, growth, and production. There is a need to improve the climate conditions and mitigate air	Monitoring indoor climate parameters (temperature, relative humidity, wind speed, wind direction) at several points and heights □ Monitoring indoor air quality (ammonia and size fractionated particulate matter levels) at several points and heights An integrated telemetry system was used to collect and transfer the data recorded by some of the equipment indoors	Air quality and climate parameters interact inside the livestock building, especially in a naturally ventilated building under hot weather. It is difficult to control humidity levels in a livestock building, as the moisture content does not remain constant, depending on several factors including feeding diet, feed	Thermal comfort conditions, air pollution levels, and ventilation rate can be adequately adjusted in almost real time considering the indoor environmental conditions, as well as the outdoor weather conditions. Measurements could be exploited to validate a CFD numerical model that could be applied to assess qualitatively and quantitatively the indoor

		pollution levels inside a livestock building. The control of climate in livestock buildings is mainly based on indoor temperature. However, relative humidity control is considered as one of the most important procedures to improve the climate in livestock buildings. Therefore, relative humidity control along with temperature control must be implemented. Additionally, particulate matter and ammonia are considered as important health hazards for animals.	monitoring outdoor meteorological parameters (temperature, relative humidity, wind speed, wind direction, solar radiation, precipitation) Wired and wireless sensors were installed. The farmer can have direct access to the data and to specific advice. Appropriate indices were used for the simplest presentation of the information.	intake, digestibility, ruminal pH, water intake, fecal and urinary characteristics, bedding material and floor type. Under hot weather conditions, natural ventilation alone is not an efficient method to reduce the temperature conditions inside a naturally ventilated livestock building, as outdoor hot air can move indoors by ventilation, thus preventing cooling inside the barn. In this case, additional, active and passive, protective measures are recommended. Accurate determination of the ventilation rate requires more data, like monitoring the concentration levels of a representative gas (i.e. CO2). Unlike the mechanically ventilated livestock buildings, it is	thermal and pollution flows.

				more difficult to determine the natural ventilation rates. Factors, such as ventilation, feeding practices, bedding materials, animal activity and manure management can affect indoor air quality directly or indirectly.	
GERMANY (Source: INTEGRA)	*Food for life* is a report that grew from the work of a team of people working in Greenpeace, all over the world, on the Food for Life campaign. Farmers are the backbone of our human civilization and deserve our biggest respect and support. However, many farmers and their families, especially smallholders, struggle for a safe and rewarding livelihood. This paper is dedicated to the millions of farmers in the world that grow our food	The food system is broken. Consumers no longer trust what they eat. Many farmers are struggling with poverty. Malnourishment and obesity are blighting lives even where – on the surface – everything seems okay. And millions of people around the world continue to go hungry, day after day. What is more, the profit-driven, chemical-intensive, industrial scale model of agriculture, which large parts of the world have subscribed to, is an enormous threat to the planet. The most positive, life-sustaining human endeavor – the growing and eating of food – has been turned into a	Food sovereignty Benefiting farmers and rural communities Smart food production and yields Biodiversity and diverse seed systems Sustainable soil health and cleaner water Ecological pest protection Climate resilient food production	Ecological Farming combines modern science and innovation with respect for nature and biodiversity. It ensures healthy farming and healthy food. It protects the soil, the water and the climate. It does not contaminate the environment with chemical inputs or use genetically engineered crops. And it places people and farmers - consumers and producers, rather than the corporations who control our food now - at its very heart.	Rural, social, and consumer movements, environmentalists, academics, and many others have been fundamental in creating support for agroecology. It is a vision of sustainability, equity, and food sovereignty in which safe and healthy food is grown to meet fundamental human needs, and where control over food and farming rests with local communities, rather than transnational corporations. Together, we can return our food to what it was always meant to be: a source of life

	with dignity and love, often getting too little in return.	threat, with serious consequences for people and the planet.		Greenpeace's Food and Farming Vision describes what Ecological Farming means, and how it can be summarized in seven interdependent principles – based on a growing body of scientific evidence on agroecology.	– for all people on the planet. Reyes Tirado, Greenpeace Research Laboratories, University of Exeter
GERMANY (Source: INTEGRA)	The "**Haus des Waldes**" (House of the Forest) is an educational and learning center on forestry, sustainable forest economics, use of forest for recreation and wildlife in forests. The House of the Forest is open to people of all ages and offers special programs for school classes and students. It is part of the sustainable and resilient forestry network and has a special focus on city forests and forests in industrialized areas.	People living in cities and urban clusters need to be informed, trained, and educated about the role and function of forests. Forests are places of recreation, places of economic activities (active forestry and wood industry), places of wildlife, preservation of wildlife, deer breeding and protection of fauna and flora. Forests have an important role in our geological and climate system. They not only filter our air and provide clear air, they also protect us from heavy winds and storms, store water, offer areas with hedges for wildlife of insects and bees and have an important role in the exchange between cold and warm air.	The "Haus des Waldes" is a good sample of "forest pedagogy" and "public classrooms" for environment education. It combines education and training for the general public as well as training for students of agriculture, forestry and nature-economics. The "Haus des Waldes" was established 30 years ago and has developed into a main educational institution offering out-of-school education for the young, trainings and seminars in the forest for the mid-age generations, sports and leisure activities for all ages, lectures and	NA	Today, the Haus des Waldes counts several thousands of visitors per year. It has an active and open annual programme with talks, lectures, seminars, and training.

		The complex systems of forests need to be protected and the value of forests needs to be explained to visitors. There is a shared responsibility for our forests. Especially the young generation in cities needs to be educated about the role and function and value of forests. The "classrooms in the forest" or "the forest as a classroom" provides an ideal hands-on learning environment.	talks and empowerment for the older generations and takes an holistic approach to training and learning.		
GERMANY (Source: INTEGRA)	In Germany, organic farming developed in the twentieth century in response to industrial agriculture, which was increasingly generating problems. Its goal: to produce healthy food in an environmentally friendly and animal-friendly way.	The basic idea is disarmingly simple, namely - closely based on the example of nature - to operate in such a way that your own resources are sufficient. In concrete terms, this circular concept means that agriculture and animal husbandry must be coordinated. So that only as many animals are kept as the company can feed on its own feed. And the amount of animal manure used as fertilizer must also be adapted to the nutrient requirements of the arable land.	**Fertilization:** In addition to manure, organic farmers use plants that bring nitrogen from the air into the soil - legumes such as peas, beans, or alfalfa. **Crop rotation:** In conventional farming, this is restricted and, in extreme cases, is not carried out at all. This protects the floors and does not leach them out. In addition to improving soil fertility, well-thought-out crop rotation ensures that pests and weeds are kept in bay. **Pesticides**: Weeds are more difficult to assert if	An energy-intensive matter - the production of the artificial fertilizer consumes a large part of the energy requirements of conventional companies and causes high CO2 emissions. The cost of food is still too low to pay correct money to farmers. People need to learn that good food has its price.	Public awareness has improved tremendously and the need for organic food etc. has developed its own market share. • A combination of political actions and awareness raising programs in combination with training programs for farmers and agricultural experts on sustainable and resilient agriculture. • Promotion of new delivery networks and food-chains for resiliently and sustainably produced food. • Creation of networks of farmers and agricultural

			vegetables are grown in between cereals, which suppresses weeds. Pure grain crop sequences promote the spread of unwanted grasses. **Animal husbandry:** animal husbandry is as species-appropriate as possible. This includes more space, regular exercise, and better feed. Feed that is solely geared towards fattening and performance is also prohibited, such as keeping cages for laying hens or fully slatted floors for pigs. This attitude makes the animals less sick. The prophylactic administration of drugs such as antibiotics to all animals via the feed is not permitted in organic farms. If animals get sick, they are treated individually. **Genetic engineering:** organic farming and GM crops are incompatible. The organic farm relies on robust varieties and diversity.		experts for training and exchange of knowledge, expertise, and heritage • Support for "labels" for consumers to identify sustainable produce at markets such as "Demeter"

GERMANY (Source: INTEGRA)	The Sekem Initiative was founded in Egypt more than 40 years ago as a sustainable agricultural project. Today, "greening the desert" is one of the world's largest sustainable agricultural projects involving 20.000 small farmers with their families in Egypt and northern Africa. Support groups and Sekem-affiliated projects exist in German, Austria and in the Netherlands.	Need of water-management / ground-water management Need of intelligent use of natural resources Need of education on how to use fertilizers etc. Need of international affiliations and political links Need of cultural core-program to train young farmers	Core training program for young farmers including their families Information on links between nature, agriculture, and sustainable use of resources Information on "circle of resources" and cradle-to-cradle principles in sustainable farming Use of composting and ancient farming techniques, use of cultural heritage knowledge Establish international partnership and support program Establish large-scale educational training programs for all levels of education. Convince by "doing" (show that it works) High ethical standards "own" distribution channels	In Egypt corruption, no understanding for change and "new old principles" of agriculture Reliable distribution channels for agricultural products as stable source of income Problems with authorities, regulations, laws, and rules Financial shortcomings and lack of access to venture capital	One of the world's largest organic farming projects with 70 hectares as standard operating size 100% organic. Sustainable development report since 2007. Alternative Nobel prize and right livelihood award in 2003 Food security project 20000 people are involved in Sekem.
GERMANY (Source: INTEGRA)	The Center for Organic Farming at Hohenheim University offers • the curriculum on organic farming at	They identified a clear need for such a HEI-based study program based on modules which can be taken in addition to traditional agricultural	We defined clear objectives: Biological agriculture is based on a holistic perspective, which is why	Financing and certification, but all this is taken care of now. HEI studies in Germany are free of tuition. Third	The Center for Organic Farming was one of the first HEI offering BA, MA and PhD programs for organic farming as a full-time study

	the University of Hohenheim • the organic research projects of the various institutes at our university • current events on organic farming in Hohenheim, Baden Württemberg, Germany and internationally Hohenheim University is based in Stuttgart and is Germany's largest agricultural university. It ranks among the top 5 agricultural universities in Europe and among top 10 worldwide.	studies. Students of the Bachelor program Agricultural Sciences can choose between elective modules related to organic farming (these modules are in German language). Students of "Agricultural Biology" and "Sustainable Raw Materials and Bioenergy" can choose the courses after they have gained the consent of the examination board. The Master Program says: The ecological market is growing worldwide, and consumers are increasingly interested in the quality of food and the sustainable production of food. That is why the demand for experts in organic agriculture is also increasing. The degree program can be studied as a "single degree" or as a "double degree," for which the students spend the second year of studies at one of four partner universities.	processing and marketing organic products requires specialized knowledge. Students obtain skills and knowledge in all relevant aspects of ecological agriculture (production, processing, marketing, certification): ●Organic crop production ●Ecological Animal Husbandry ●Ecological Agriculture in the Tropics and Subtropics ●Food Chains and Networks in Ecological Agriculture ●Market development of organic farming in various European countries Students also learn: • to work in a team in a structured and goal-oriented manner. • to lead teams • to systematically work through problem-solving approaches	country national students need to pay a minimum fee.	program. The program comes in modules. Organic farming plays a prominent role in research and teaching at the University of Hohenheim. Teaching and research, in line with the idea of the organism and its interdisciplinary nature, are not covered by one single institute but are rather coordinated and organized by the Center for Organic Farmer. This approach encourages interdisciplinary work between the institutes and promotes systems thinking in students.
GERMANY (Source:	There were only regular weekly markets in the	The importance of regional agricultural products is	The nature park markets should offer guests of the	Only exhibitors who come from the region	In the meantime, the nature park markets have

NSWMN)	nature park that offer, in addition to regional fruit and vegetables, exotic products, like retail.	constantly growing in society. However, many people have little or no time to shop directly on the farms or not every farm has an on-farm sale.	region, but also locals, a possibility to get in contact with the farmers of the region and to shop regionally. At the same time, the nature park markets offer farmers an (additional) sales platform. The markets are organized centrally by the nature park in cooperation with the towns and municipalities. The nature park checks which market exhibitors can visit the markets (exclusively regional suppliers) and takes over the marketing for the events (flyers, social media, etc.). The towns and municipalities organize a supporting programme appropriate to the markets, e.g. children's programme, music, etc.	may be admitted. The markets are meanwhile very successful, so that exhibitors who do not themselves or whose products do not originate from the nature park also want to participate.	become established events in the region, which contribute greatly to sensitizing customers (locals and guests) to buy regional products from farmers. The markets have become a showcase for the variety of regional foods. Many exhibitors benefit from the markets and have been able to build up a customer base.
GERMANY (Source: NSWMN)	Due to intensive agriculture, monocultures or frequently mown lawns, the diversity of wildflower species has declined considerably,	Many people (individuals, municipalities, clubs/ associations, companies) would like to support biodiversity. However, very few people have more in-depth knowledge about this.	The project was launched in 2016 with cities, municipalities and companies providing fallow land so that perennial, native wildflowers can be sown on it. Furthermore, it	It is important to convince the partners of the professional implementation of the project. In the case of municipal areas, this means, for example,	Since the start of the project four years ago, 50,000 square meters of land have already been sown with native wildflower meadows. The nature park has already

	and with it the diversity of insects such as wild bees, hoverflies or butterflies, and ultimately also the number of field birds.	Many well-intentioned actions only serve marketing purposes and fail due to an inadequate and not professionally sound implementation. An institution is therefore needed to pass on the necessary know-how, serve as an information and networking platform in the region and develop measures to improve the overall situation.	is the nature park's task to coordinate and organize the overall project by informing and connecting partners and informing the public.	that a wildflower meadow looks less well-tended to the eye than, for example, an accurately cut lawn.	been able to sensitize many people to the protection of biodiversity and to inspire them to participate in the project.
GERMANY (Source: NSWMN)	The "Obstbrennerweg" is a hiking trail of 20 km in the municipality of Nordrach. It leads past 15 farms or distilleries, where hikers can take a break and taste the in-house distillates and, of course, do some shopping. Along the way, the guests receive information about the distillery history as well as about old, regional straw fruit varieties in the form of information boards.	In tourism, regional products are increasingly being used for the marketing of a region. At the same time, guests are looking for authentic active experiences and culinary pleasure. The municipality of Nordrach has recognized this trend. The small community is home to a comparatively large number of distilleries that still exercise the distilling right in the traditional manner.	The municipality of Nordrach, together with the local agricultural enterprises, has designed and implemented the routing of the hiking trail. Information boards were placed along the way. A flier was developed to market the newly created offer. The nature park has supported the implementation of the project by subsidies and advertises the offer.	No serious difficulties.	The "Obstbrennerweg" is visited by many hikers, the information boards along the way are well received. The farms and distilleries along the route can now also offer their products to hikers for tasting and sale and benefit from the increased added value. The combination of a touristic offer with regional products works well.
GERMANY (Source: NSWMN)	There are currently two market barns in the Nature Park Black Forest	The importance of regional agricultural products in society is growing steadily. There are	The pilot project, the "Naturpark-Marktscheune in Berghaupten", started in	Regional supply relationships had to be developed while	The two market barns have developed into well-attended and established

	Central/North. In the "Naturpark-Marktscheune Berghaupten" and in the "Geroldsauer Mühle" in Baden-Baden everything revolves around regional food. The focus is on the market, where visitors can buy exclusively regional products. Seasonal fruit and vegetables, bakery and butcher's products, regional drinks, spirits, and much more are offered to the customers. In addition to regional shopping, the market barn consists of a gastronomic offer (certified as nature park host). The host's menu includes seasonal, regional dishes. The two market barns are flagship projects of regional marketing in the nature park.	many smaller farm shops in the nature park - but these only sell their own products. There was no place to go in the nature park where customers could buy the whole variety of regional products. Many people have little or no time to shop directly on the farms or would have to travel long distances to buy all the food they need or even have to visit several farms. At the same time, regional producers are looking for opportunities to sell their products.	2011. The owner of this market barn himself is a very committed farmer and a pioneer in sustainable agriculture. Together with him, the concept of the market barn, which is based on a combination of sales, gastronomy, and tourist information, was developed. Regionality, credibility, authenticity and consistency in the handling and marketing of regional agricultural products are the core elements and absolute prerequisites for the successful project implementation. The second market barn, the "Geroldsauer Mühle", was developed along the lines of the pilot project and opened its doors in 2015. Here too, the owner is a regional farmer.	implementing the markets.	institutions in the region, which contribute greatly to sensitizing customers (locals and guests) to purchase regional products. Both market barns are visited by tourists as well as locals. At the same time, the market barns offer regional farmers an (additional) marketing and sales platform. Over the next few years further market barns will be added.
GERMANY (Source:	The Nature Park Brunch on the farm offers	For some time now, there has been an alienation between	The Nature Park Brunch is intended to offer guests of	Only products that have been produced by the	The nature park brunch has become an established

NSWMN)	"home to taste and enjoy". Farming families open their farms and offer locals and guests a rich and regional breakfast buffet with products from their own farm. They also organize programmes on the farms, e.g. a children's programme or farm tours. The brunch takes place yearly, on the first Sunday in August. Every year, between 20 and 25 farms in the Black Forest Nature Park Central /North participate in the action day. The event takes place in all seven nature parks in Baden-Württemberg.	society and agriculture. At the same time, the decline of farmsteads is continuing dramatically, especially where the care and preservation of the cultural landscape is concerned. The region needs the farmers who keep the typical Black Forest cultural landscape with its characteristic alternation of forest, pasture, and meadow open through cultivation. For some time now, there has been an alienation between society and agriculture. At the same time, the decline of farmsteads is continuing dramatically, especially where the care and preservation of the cultural landscape is concerned. The region needs the farmers who keep the typical Black Forest cultural landscape with its characteristic alternation of forest, pasture and meadow open through cultivation.	the region, but also locals, an opportunity to get in touch with the farmers of the region and provide an insight into agricultural life. At the same time, the Nature Park Brunch is a special platform for farmers to present their own farm and especially their own products. The brunch is organized centrally by the nature park in cooperation with the farms. The nature park takes over the marketing for the event (flyers, posters, social media, etc.). In addition, the nature park offers an information event for the farmers once a year, where they can get advanced training and receive suggestions on how to arrange an appealing brunch buffet or which dishes are particularly suitable for the brunch.	farm itself may be offered at the brunch. Products offered that are not from the own farm, must be bought from farms within the nature park. Retail products are not admitted (exception: coffee, cocoa, tea). For the farmers, the organization of the brunch day is a big challenge. Therefore, the nature park takes over the complete marketing for the event day.	event in the region, which contributes greatly to sensitizing customers (locals and guests) to purchase regional products from the farmers and to the work involved. Many farms benefit from the brunch and have been able to build up a customer base.
CYPRUS (Source: SYNTHESIS)	Kika's garden is a private business that centers around sustainable farming, using	The modern way of life had brought about a disruption making people more and more unaware of where their fruits	Kika's garden offers a full traditional brunch, with Cypriot products, the majority of which are grown	Financial liquidity, financial sustainability, and the difficulties in introducing this concept	Their business is doing very well right now. They hope that they are making a difference in bringing

	traditional Cypriot practices, with a brunch concept, making the produce available -as a finished product- to the public. The area was primarily agricultural, with apple orchards, fig trees and vegetable produce. These were primarily aimed to meet the family needs and were not commercially available. However, as they were producing a lot of products, they decided to make them available to locals, as a finished product (an organic brunch) rather than as individual products.	and vegetables were coming from, how they were grown, and how they were distributed. Mass production of fruits and vegetables, massive imports, and the supermarket food chains, have alienated people from traditional practices and have also removed their own connection to the traditions and memories they had as children. Mrs. Mounti shared that Kika's Garden aims to reestablish the connection with the natural life cycle of farming, reintroduce the traditional flavors and practices, but also deliver them in a way that was consistent with the modern trends.	on the premises. All products are grown according to the traditional farming practices, without chemicals or pesticides. In this way, people are introduced to nature's life cycle through the products they get to taste and see how they are produced and/or made. We added and enhanced the range of products available, always using Cypriot seeds and local fruit and vegetable varieties, cooperating with other like-minded people to produce our own flour, eggs, honey, etc. This however wasn't enough, so the idea of offering those products directly to the people through a brunch service, made more sense both in terms of financial sustainability but also allowing us to nurture bonds with the community and all our guests.	of Cypriot brunch, both to the locals and to visitors from other countries.	people in touch with flavors, tastes, and memories they had of how things tasted before they became massively produced. More and more people, young families, and guests are eager to learn more and also adopt a healthier and more sustainable attitude towards food, by realizing that it not only nourishes the body but helps us connect to the tradition and the environment around us.
CYPRUS (Source: SYNTHESIS)	Ecophysis is a family business in Vafla, Cyprus. Ecophysis	Making the beekeeping process profitable requires having a lot of hives. This has	Ecophysis created an educational project around the production of honey.	It happened that the weather conditions affected the production	The company has operated for 5 years now and they rely both on honey

	started as an organization focusing on beekeeping but they later expanded their work bee-based products and created an information center. The aim of the organization is to inform people about beekeeping, the environment and nature in general through educational programs and outdoor activities.	led many producers to add sugar to the hives to have honey all-year long. However, this makes bees produce sugar-based honey. Ecophysis decided to stay small and follow ethical and sustainable practices. Ecophysis wanted to create something with love and share it with the world. As Georgia observed, there was not enough information out there about beekeeping and they wanted to inform people about the beekeeping production process.	Their collaboration with other partners helped them share their work with others. Initially, they had meetings with several travel agents to help them approach tourists. However, the travel agents were not very interested in collaborating as they found it a bit risky. Ecophysis was not interested in having mass tourism. So, they came up with school visits. At the beginning they were visited by private schools and later by public schools. At this point, they started to work on other bee-produced products that were less known in Cyprus such propolis, bee pollen and royal jelly. Thus, they expanded in another market, i.e. therapeutic products.	process, but the training and educational activities supported them in difficult times. Another difficulty was that the headquarters of the company are in Vavla (small town in Cyprus), a location that is not very close to services such as the bank, the post office, etc and that makes it difficult for the staff as they have to spend a lot of time traveling between locations. Finally, the legislative framework did not have a type of organization that matched their operations	production and on educational activities which makes it more sustainable. Marketing activities require more time and effort as the company expands. As Georgia shared, she would have liked to have spent time in the beekeeping production and the preparation of the products procedure and have other people to take over the marketing procedure.
CYPRUS (Source: SYNTHESIS)	Free commerce allowed the importation of a great variety of honey of unknown quality, chemical consistency and origin that also left	Managing unfair competition. Safeguarding the health of the public. Incorrect or misinforming honey labeling. Honey consistency.	By amassing and listing beekeeping plants that are specific to Cyprus, through melisso-palynology, laboratories can now specify whether the honey	Collecting beekeeping plants - the collection of beekeeping plants was carried out from various areas of Cyprus at the	The General State Laboratory procured this Atlas amassing the beekeeping plants specific to Cyprus to safeguard the quality and authentic origin

	loopholes of mislabeling and misinforming the Cypriot consumer. All this led to unfair competition to Cypriot beekeepers, the uncertain quality of honey consumed by the public and presented public health issues.	Supporting the sustainability of Cypriot beekeeping meant helping the environment and its bee-dependent crops through more successful pollination.	is produced in Cyprus, if it is monofloral honey and if it's labeled as the correct flower genus and if it's tampered by any means affecting its consistency.	appropriate stage of flowering. Preparation of Pollen Sample slides – for the preparation of the slides the Louveaux et al (1978) method was used. Identification of pollen samples – the morphology shape and size of each of the 120 types of pollen was identified and taxonomized in the Atlas.	of all food products. Through melissopalynology (the study of pollen in honey) the Atlas would assure the geographical region of the honey's origin, the genus of the plants used by bees in making any particular honey and its nutritional and constitutional background thus helping beekeepers avoid unfair competition, improve the local sustainability of beekeeping and safeguard the public by providing a healthier and authentic product.
CYPRUS (Source: SYNTHESIS)	Silk has existed since ancient years. In Cyprus, it was a domestic programme. All households had a loom and silkworms because they made silk. Nowadays, everyone involved in sericulture are non-professionals. There are no organized factories or government departments for silkworm breeding.	There should be a dedicated ministry department for sericulture, like there is for plant protection and beekeeping, at least for guidance.	The development of an association or organization that will take out the silk threat and make silk clothes, as everybody involved in silk farming is autonomous individuals who usually do not have the tools or machines needed to take out the silk threat. Efforts were made to bring scientists from Bulgaria to plant mulberries, but at the end nothing happened.	There was no response, nor guidance from the government, for example regarding the diseases of the silkworm. People had to learn everything on their own. In Cyprus, there is indifference about silk farming; however, those involved in sericulture are creating their own things and products, for	During 20 years, people learnt how to handle silkworms properly, how to feed the silkworms, how to protect them from diseases, how to make creations, jewelry, crafts, trays, how to handle the silk, i.e. in warm water. One cannot buy silkworms. Everybody involved in silk farming got their silkworms from others and gave

	There is no dedicated ministry department for guidance (only the Department of Plant Protection and Beekeeping). There are only some weaving lessons at the Cyprus Handicrafts Center.		Currently, there are no developments on this issue.	example hair for dolls, jewelry, trays, and more.	cocoons to others many times.
CYPRUS (Source: SYNTHESIS)	Ygea Farm is a family-run and fully bio farm adopting only organic farming practices and focusing mainly on the production of organic eggs. Ygea Farm is committed to local farming, organic foods, humane treatment of animals, and nature conservation providing a better balance between nature and food.	Irresponsible, unsustainable actions, such as animal abuse by adding synthetic growth or breeding hormones, GMO-based feed, the use of pesticides, destruction of the native species etc., are affecting negatively and/or destroying nature and its inhabitants, including humans themselves. Mr. George told us that when artificial chemical fertilizers and pesticides are being used to boost production it harms and leaves negative implications to the environment. The quality of life of animals, the quality of the land and soil affects the quality of the products we consume, which affect our health and wellbeing. The farm	Sustainable practices adopted at Ygea Farm include: Animal feed is produced from vegetative raw materials, without GMOs and only organic food, as fully certified by SKAL Biocontrole. Also, a portion is their organic chicken feed grown from the same bio-land that farms the hens. No use of synthetic growth/breeding hormones which means less stress for animals and reduced human exposure to endocrine-disrupting chemicals. Free range lifestyle - extensive outdoors access to nature and never kept in confinement cages that	It is “very difficult to start and maintain an organic/ bio farm according to local and international standards.” He also explained that there is high competition in the industry due to the mass import of eggs from other countries. Also lack of information and awareness about the true organic and sustainable farming is an issue. People are not aware of how to recognize organic products, such as eggs, among others. In addition, there is a myth that organic products	Only now, at the 4th year the farm is starting to gain some profit from its actions. Ygea Farm and its organic eggs are becoming more well known. The client network is increasing and acknowledging the high-quality production. In fact, not only YGEA is reaching out to its clients but new customers are reaching out to YGEA as well. People are becoming more aware of the benefits of organic products on their health and on the environment. Appreciate high quality products in their daily lives. The farm itself is growing and increasing the variety

		aimed to tackle these issues by adopting organic practices.	ensures better quality of life for the hens, superior health, as well as greater quality and nutritive value in the eggs they lay. No persistent pesticides, synthetic fertilizers, or toxic chemicals, which are bad for health and the environment.	must be expensive so that they can bring larger profits.	of native herbs, fruits and vegetables, as well as the number of happy hens.
SPAIN (Source: CTFC)	Creation of the *Code of best practice in organizing and holding races and mountaineering* Protected natural areas host over 1,100 mountain races and other organized collective activities in which the participants go on foot through a route decided by the organization (rambles, hikes, marathons, cross-country races, mountain triathlon/duathlon) and the number of participants in these events exceeds 246,000. There are certainly many more events in our	The popularization of mountain races has grown so rapidly that it may imperil the conservation of some of the natural areas they run through. The tendency to carry out these activities in attractive landscapes has, on many occasions, led to the use of protected natural areas as the setting. The authorizations granted by the environmental administrations adapted to the different proposals submitted as no task of common reflection had been undertaken by Estany de Sant Maurici National Parc.	Possible environmental impacts of racing and mountaineering The following are possible impacts on the environment and socioeconomic derived from holding the races and marches by mountain. Keep in mind that some of these impacts can occur not only during the celebration of the event, but also before and after; for example, through the dissemination of the itinerary and the corresponding frequency or its use for training.	No major difficulties.	The Code of Good Practice (CBP) is a reference document for planning and celebration of mountain races and marches in the natural environment of Catalonia. This Code aims to be an instrument of help and improvement in the organization and development of the event, including planning, holding, and performing tasks once finished, in order to guarantee compatibility with the conservation of the natural environment and with them activities of the people and the economic actors of the territory.

	natural spaces, and the number of participants is much greater, but a percentage of these are not recorded or counted by the environmental administrations.				This CBP has to be one guarantee of a development appropriate and consistent of the races and marches or others recreational activities, which also serve to prevent possible conflicts at territory.
SPAIN (Source: CTFC)	Both enterprises are based on the culture of high quality of aromatic plants and health products. The first one, *Taüll organics* is based in the Pyrenees, on the parc territory. They produce aromatic plants, and their objective is the natural arnica gel they commercialize. This enterprise is ecologically certified and follows the CCPAE standards for producing aromatic plants. Also, for their products certified as well for pharmacy certification. The main idea was making a high-quality product made of	Prat de Sala is certified as an Ecological aromatic plant producer. Even so, they are not satisfied with this system. Communication between clients is more efficient for them than ecological certification. They are achieving their own client's satisfaction, and this is a good point in their company.	The company strategy is to diversify its final products made of aromatic plants, commercializing spices, infusions or liquors and aromatic air fresheners. Also helps the territory with visits and formation for schools and different agro ecological courses that can help people stack to the territory, showing them how to start an aromatic plant business of their network. Both enterprises have good websites that promote km 0 commerce, their products have been tested and have a good reputation. Client communication (mouth to ear) is a strong point of the business strategy. Good	No major difficulties.	In Catalonia, the Department of Agriculture has written several guides to good agricultural practices applicable to agricultural companies throughout Catalonia. You can find these agronomic good practices on their website. They are general rules on fertilization and soil to avoid water pollution. You can also find more specific publications ranging from animal welfare to guides to winegrowing exploitations.

	aromatic plants and they grow and take care of the crops from an ecological point of view. The second one, *Parc de les olors*, started as a little enterprise and now has become a big network of aromatic plants producers and health products around Catalonia.		and fast shopping is the strong arm of these companies to stand and stay in and for the territory.		
SPAIN (Source: CTFC)	In Catalonia, the Department of Agriculture has written several guides to good agricultural practices applicable to agricultural companies throughout Catalonia. You can find these agronomic good practices on their website. You can also find more specific publications ranging from animal welfare to guides to winegrowing exploitations. Also, you can have a large amount of ecologic certified exploitations	Great water saving. Circular and integrated waste management. Transformation of waste into resources. Avoid water pollution, environmental alteration, and landscape impact. Energy self-sufficiency with clean and renewable sources. Reduce CO2 emissions into the atmosphere. Reduce CO2 emissions into the atmosphere from vehicle diesel. Know the energy efficiency of all infrastructures. Reduce CO2 emissions and consume a natural resource that is wood from forest uses	Construction of dry toilets VSSF wetland construction Renewable energy installations (photovoltaic) Inventory of emissions from the consumption of diesel, gas, and electricity. Acquisition of an electric vehicle in the Park's fleet. Installation of charging points. Energy certificates. Biomass heating.	No major difficulties.	Most of the agricultural exploitations and farms near the parcs and protected areas follow protection and ecological standards.

	certified by CCPAE (Catalan Council of Ecological Agricultural Production)	of sustainably managed forests.			
TURKEY (Source: MAKRO)	IŞIK TARIM A.Ş. has grown from a small company into one of the largest suppliers of organic / natural dried fruits, nuts and frozen fruits in Turkey. Today, the company has over 4,000 registered organic farmers in more than 150 different villages, covering 12,000 hectares of land all over the country. They are proud to be the 'First Turkish Company' to start its own organic project called 'Happy Village'. The beginning of Işık Tarım Ürünleri was in 1974. In 1990, they started organic agriculture and they were the first company to create	We first started organic agriculture on our own land. The business, which started on 5-100 hectares, then spread to the farmers in my region and then to a wider area. In the years when we started organic agriculture, we first encountered the need for qualified human resources who knew organic agriculture and practices. In addition to this need, we have seen that the necessary systems should be prepared to combat pests.	First, finding human resources who can speak foreign languages and who can transfer information and practices related to organic agriculture from the international community. Next, we worked on organizing the procurement of organic pesticides from abroad to combat pests. We worked with employees who speak foreign languages, made our plans about what kind of infrastructure we could establish and put them into practice. We determined our needs in the fight against pests and imported solutions.	•In organic agriculture, the integrity of the lands and the implementation of organic agriculture are very important in terms of environmental contamination. But, in Turkey, lands are divided into small parts, due to inheritance. This was the primary difficulty we faced. •The absence of sufficient knowledge and equipment in farmers that are interested in organic farming was one of the difficulties. •It took a long time to travel from village to village to ensure the integrity of the land and to ensure the organic	•Awareness about organic agriculture has increased and it has been adopted as a philosophy. •We / our farmers have much better knowledge and equipment in organic pest control.

	projects about organic agriculture.			farming philosophy is adopted by our farmers.	
TURKEY (Source: MAKRO)	The Cappadocia Organic Producers Association was established in 2009. It aims to increase the number of organic producers as well as the quantity of organic production. Organic agriculture should be sustainable, have aims towards development, not harm biological diversity, and have an aim of reducing the effects of factors that cause erosion, desertification, and climate change.	In 2009, when our association was established, there was only one organic farming producer in Kayseri. With the efforts of us today we reached almost 100 registered members in the association. Among them, there are 50 certified producers who are having organic production on an area of approximately 900 acres. Therefore, a considerable value of organic agriculture potential has been created in Kayseri by starting almost from scratch with the activities of our association.	When we established the Association, we first started to work on how to find and get together the farmers in the region. For this purpose, we tried to create awareness and increase the knowledge level of producers by providing training to them. At the same time, we tried to create organic agriculture product demand by providing awareness campaigns and training to consumers. In the next stage, we carried out studies to establish an organic market in our city. With this organic market, we acted as an intermediary for the producers to deliver the products they produce to consumers easily. At the same time, we prepared and launched a	We tried to reach our goals by constantly developing new projects. We chose a way of collaborating with supporting institutions. Within this framework, we worked together with the Kayseri Metropolitan Municipality and social foundations in several projects. In summary, we developed complementary projects which build upon each other. Complementary projects are the measure that we usually implement.	We have an organic market operating for about 3 months in a year along with 8 years. This year, manufacturers earned 720 thousand TL from this market. 45 families earned this money by selling around 160 tons of fruit and vegetables. We have a women's cooperative which has a processing facility where a woman producer brings her organic products harvested in her field and adds value to them by processing it. We receive demands from local governments and district municipalities to open organic markets in their districts.

			project to produce vermicompost by farmers to enable them to produce their own raw material. We also supported women to establish cooperatives.		
TURKEY (Source: MAKRO)	Mr. Nazmi Ilıcalı, born in Erzurum in 1953, comes from a farmer family. Mr. Ilıcalı, who graduated from Erzurum Education Institute and Atatürk University, Department of Turkish Language and Literature, changed his career to agriculture after 25 years of teaching. In 2003, he established the Eastern Anatolia Agricultural Producers and Breeders Union (DOGTARBESBİR) by bringing together 663 farmers within the framework of "Daphan Plain Contracted Organic Agriculture Project" in the province.	The producer was not knowledgeable about organic farming, and those who did not use chemicals were not knowledgeable about their agriculture. He did not know the importance of organic farming for health and the environment. He did not know about organic farming practices.	Participants were trained on organic agriculture in the villages training facilities of the association. Local seeds were supplied free to producers. Planting and harvesting happened under the supervision of the control and certification agency. Producers who received theoretical and practical training started organic agriculture. Publications were printed and distributed to all producers in the villages.	Forage crops and grain production is common in our region. There is a need for pasture improvement for organic farming, which constitutes Turkey's 18% of the total pasture area. Although there has been progress in "organic livestock breeding" with the projects that we have implemented in animal shelters for organic livestock, there is still a need for the development of organic production. On the other hand, the organic market is not sufficiently developed yet. The producers are not able to find consumers for their	At the end of all our works, as of this year, 100,000 acres of organic plant in the form of forage crop and grain is cultivated in Erzurum. Awareness of organic farming has been created among the farmers in the region. While the farmers still have marketing difficulties, some amount of organic wheat, rye, oat and barley were sold to the enterprises producing flour outside of Erzurum. Demand for organic forage crops has decreased considerably. The reason is that some of the organic livestock businesses have been closed. A significant portion of the producers have sold their organic products as

	Our association was established in 2002 for the purpose of applying production types suitable for the region by using scientific methods, therefore increasing the organic agriculture potential of the region and serving about 3000 farmers.		Awareness was created on organic agriculture and animal husbandry by a series of regional development and EU supported projects. The association worked on the formation of public opinion on legislation change for increasing government support of organic farming.	products. These sorts of problems are relevant for both plant and livestock production.	conventional ones. Since the organic processing plants are located outside of the region, significant transportation costs are involved in marketing.
TURKEY (Source: MAKRO)	The farm started its activities in 1963, on an area of 3400 acres. The main crops are wheat, corn, feed crops, fruits, and vegetables. Additionally, there are 450 cows and 300 sheep in the farm. 3000 liters of milk is produced per day, which is used in making yogurt, cheese, kefir, and butter. Conventional agricultural production continued in the farm until 2000,	Creation of a facility for applied studies and internship for undergraduate students. Teaching and introducing the organic farming methods to the regional producers. Disseminating the organic farming practices among the farmers in the region. Creating the best practice for an organic farm model which is operating with its own inputs for the purpose of maintaining production and	An agreement was made with a private "organic agriculture control and certification institution", a 3 years "transition process" was started on 450-acre field. Training and implementation plans were made for the regional producers. Practicing fields have been created for undergraduate and master's students. At this stage, we encountered a significant low yield in the first years in	Providing monetary resources to research and production applications, Recruiting employees who know and accept the principles of organic agriculture, Procuring organic certified input to be used in research and production activities, Needing for a long time to restore the	The recovery of the destroyed natural balance took 8-10 years. With the transition period, yield values obtained from conventional conditions were achieved in all plant species.

	when the "Organic Agriculture Project" was launched. In this context, research and production activities as well as applied training for VET students and for farmers started.	research activities by using organic technology and carrying out promotion of organic products to consumers.	the soils where chemical fertilizing was abandoned. We experienced significant problems, especially in feed crops, as well as wheat and corn production. We gave tremendous effort to restore the disturbed natural balance.	deteriorated natural balance.	
ROMANIA (Source: USV)	A small commune in Romania used EAFRD support to restore and promote its local landmark, a botanical garden, and design a training programme on environmental aspects for young farmers.	One of the main landmarks of the small community Prajesti, Romania, is a complex consisting of a botanical garden and a museum. Due to lack of funding, both the botanical garden and the museum had not been maintained since 1990 and suffered from continuous degradation	Following an earlier restoration of the museum through national and regional financing, EAFRD support helped to refurbish the botanical garden and adapt it for training activities for local young farmers Specifically, EAFRD support was used to restore the infrastructure and vegetation of the garden and link it with other similar establishments at national and international levels Additionally, the funding allowed to set up an educational programme for young farmers focused on environmental issues such as applied environmental	No major difficulties.	The number of visitors to the complex increased by 25 throughout the first year following the finalization of the restoration activities. Bilateral agreements for exchanges with schools from 15 localities (towns and communes) in Bacau County were signed. Fifteen young farmers participated in the training programme and improved their knowledge and skills on a series of environmental issues. The project helped build trust in the potential benefits of RDP funding in view of the 2014-2020 programming period.

			protection, ecological storage of livestock waste, water consumption economy, drip irrigation in fields and greenhouses.		New opportunities to promote local assets and boost the local economy arose.
ROMANIA (Source: USV)	Turning a subsistence family farm into a dynamic agro-business through modernization and adoption of affordable new equipment.	Rusimovici farm is located in Belobrești village, Pojejena commune, Romania. Before this investment, the Rusimovici family farm was a subsistence as production was not sufficient to make the farm commercially viable. Investment support was used to improve the farm's competitiveness through modernization and adoption of affordable new equipment.	The financial support was used to set up three greenhouses of 300 square meters each, install a water drill for irrigation and acquire machinery and equipment for vegetable production.	No major difficulties.	By building/using greenhouse/solarium modules, the duration of production was extended from four months per year to 10-11 months. Before the project, the farm cultivated 2ha of potatoes, obtaining a production of 35-40 tonnes/2ha. By investing in quality seeds, irrigation, and crop rotation, production increased significantly. One ha now produces the same volume of potatoes that was previously generated by two ha. Sales increased by over 80 during the first year of the investment compared to the period before the project.
ROMANIA (Source: USV)	A dairy producer in Romania obtained EAFRD support for the construction of a	Increasing demand for milk.	A dairy producer was able to set up its own power generation system through Measure 121 which grants	No major difficulties.	The advanced technological solutions applied helped reduce energy consumption and

	renewable energy production unit that uses by-products from milk production.		support for the modernization of agricultural holdings. The system produces renewable energy (from milk production by-products. More specifically, using livestock manure and wastewater from the milking room and the milk processing unit, the system produces sufficient electricity and heat to operate the farm and the processing unit.		wastewater. Welfare for the animals was improved due to improved ventilation and reduction of insects. Processing of the manure to produce biogas reduced gas emissions to almost zero. The investment also helped create new jobs without gender discrimination since the units have separate changing lockers. High quality milk and dairy products are being produced to meet the high demand in the market. At the same time, reduced production costs and greater efficiency has increased the farm's profitability and competitiveness.
ROMANIA (Source: USV)	A young farmer applied and received funds as a new entrant to farming in seeking to establish a beekeeping farm.	A young farmer in Iasa county, north east Romania, was looking to access funds to establish new bee colonies on his farm. The young farmer applied and received funds as a new entrant to farming.	The beneficiary acquired vertical and horizontal hives, along modern apicultural equipment, and bee colonies. These acquisitions were made carefully to ensure that equipment and the colonies acquired would be in optimal condition and thus	No major difficulties.	The helped set up a successful beekeeping farm which produces nine different types of honey and related products. Biodiversity benefited both on the farm and the surrounding areas through the pollination of plants by the bees. The young farmer

			ensure the success of the investment.		is in control of his income as the end products can be sold directly to consumers, resulting in greater added value for the farmer.
ROMANIA (Source: USV)	The establishment of a wood briquette production plant that utilizes this wood dust and energetic willow shows how a region's natural resources can be exploited in an eco-friendly way for energy production.	This Romanian project demonstrated how a region's natural resources can be exploited in an eco-friendly way to the benefit of the environment and the local community.	It established a renewable energy plant that produces briquettes from the cultivation of energetic willow and wood dust coming from the area's wood industry. EAFRD funding supported the company to buy the necessary equipment a dryer, a mobile chipper, a tractor, a crusher and a trailer for harvesting this raw material for briquette production.	No major difficulties.	The briquettes are already much in demand, highlighting that they are an economically viable alternative to the burning of firewood in practice. The project helped further develop the renewable energy sector in the area, harnessing the potential of the wood processing industry and the cultivation of energetic willow. The new briquette production plant created two permanent, full-time jobs that were filled by two locals over the age of 50. The company foresees the hiring of a shift worker for the growing of the energetic willow.

ANNEX 2 - QUESTIONNAIRE SURVEY

The QUESTIONNAIRE SURVEY is addressed to the experts in order to figure out the most important points to address and what should be included in the Quality Guidelines.
The main purpose of the VALOR project is to provide targeted training to farmers and other stakeholders operating within a National Park or other protected areas (e.g. Nature 2000 site).
Based on a bottom-up approach, we first turn to a group of experts and stakeholders able to fully understand the critical points of the current agricultural systems, in order to better adapt the training proposal made within the project to the know-how requirements identified by the experts. Finally, the project aims to increase resilience, also from a social point of view, in some European pilot areas by monitoring the resilience of the main ecosystems.
We therefore ask you to fill in this questionnaire, based on open and closed questions, hoping that your opinions and skills will help us to identify and deepen the most relevant topics to be transferred to farmers, local administrations, operators and staff in various capacities employed in protected areas.

QUESTIONNAIRE SURVEY

Consultation of local groups of experts and farmers

1. Which are the first three advantages you may be looking for if you were a farmer?

1……
2……..
3. ……

2. What are local synergies triggered by ancient farming techniques (i.e. opportunities to grow tobacco for weed control, walnut trees, silkworms, aromatic plants)?

3. **Which are the most important topics to develop in the training materials on resilient and sustainable agriculture addressed to farmers? (Rank the options from 1 to 5)**
    a. Pesticides – current orientation, toxicity levels, another relevant trait (you name it)
    b. Watering systems and water pollution (non-point sources, nitrates issues)
    c. Best practices in crop fertilizing (quality of manure, storage optimization, availability and design of compost platforms, spatial distribution, other facilities required, nitrates issues (optimal amounts of nitrates according to plant requirements, crop rotation)
    d. Beekeepers and beehives: basic knowledge, means to attract more people in this business
    e. Animal husbandry: ways towards organic production

Which are the most important topics to address, in your opinion (Rank each topic from 1- no importance - to 5 – very important)

a	b	c	d	e

4. **Soil erosion and cost-effective means to reduce erosion rate**
    a. Technological aspects (plowing, pesticides, fertilizers, watering, where needed and possible)
    b. Hydrology basics: average rainfall, alternance of heavy rainfalls and draughts, clues about the carrying capacity of pasturelands
5. **Marketing sustainable agriculture products**
    a. Creating your own clientele
    b. How to use social media for better networking with clients and other farmers, in order to reduce delivery costs
    c. Share the experience gained by other farmers in Romania
6. **Steps to getting sustainable agriculture and organic certification**
    a. Procedures and red flags that may occur during certification process
    b. „Who is who" in terms of legal procedures and steps to pursue certification of organic farming.
    c. Opportunities to valorize **sustainable agriculture** products: chains of delivery, storage facilities
7. **How can agriculture adapt to the loss of biodiversity caused by over-industrialization and climate change? (multiple choices)**

☐ more resistant varieties, crops better adapted to critical weather conditions, cultivation methods suitable to mitigate the effects of climate change;
☐ genetic improvement for cultivars resistant to cold, drought;
☐ interventions aimed at hydraulic regulation;
☐ support for conservation techniques of soil tillage alternative to plowing;
☐ National extension service
☐ Strengthening agro-meteorological services;
☐ forecasting and projection research services, technical assistance;
☐ Producer and researcher-technician interaction;
☐ web GIS at consortium level; Implementation of water-soil-plant models;
☐ Professional training and knowledge transfer

8. **Does the industrialization of the agricultural sector, climate change and the loss of biodiversity imply opportunities for sustainable and resilient agriculture? If so, which ones?**

☐Rationalization of the use of natural resources towards greater sustainability
☐Fostering new agriculture based on resource reduction
☐Increasing producers' technical skills
☐Conservative agriculture
☐Economically supporting mitigating agriculture
☐Introducing minimal cultivation techniques
☐Recovery of more resistant native species and varieties
☐New crops
☐Expansion of Mediterranean crop areas
☐New species adapted to the new climate
☐Recovery of agricultural products and varieties
☐Extension of cultivation areas for valuable crops
☐Recovery of abandoned hilly-mountain land
☐Multifunctional agriculture and ecosystem services

9. In your view, how can adaptation of agriculture to future changes be facilitated?

☐ Strengthen agricultural planning, networks, technical assistance systems, research and transfer of results;
☐ Provide concrete guidelines for adaptation;
☐ Rural development incentives;
☐ Task forces to implement knowledge and bring it back to the agricultural policy decision-making tables;
☐ Adopt bottom-up agro-environmental measures;
☐ Involve stakeholders in the design of measures and research;
☐ Funding public research; support research on conservation agriculture;
☐ Increased interaction between research-farmers-consumers;
☐ Promoting access to good practices for farmers;
☐ Promoting sustainable and quality crops.

10. What agricultural practices should be encouraged to counter the effects of industrialized agriculture and the resulting loss of biodiversity?

☐ Conservation of soil fertility
☐ Maintenance of traditional crops
☐ Precision farming
☐ Energy saving
☐ Use of varieties better adapted to the new climate
☐ Kilometer 0
☐ Water saving
☐ The organic conservation of soil fertility
☐ Maintenance of traditional crops

11. What do you see as the strengths of traditional and resilient agriculture?

☐ Selection varieties that are more resistant and guarantee constant productivity;
☐ Wide variety of species and cultivars, including ancient ones;
☐ Rich plant germplasm;
☐ Great variability of environments (climate-soil) and crop varieties and therefore flexibility in responses;

☐ Variability of quality crops and soils;
☐ Adaptability of agricultural systems; small farm size;
☐ Orography, diversified territory; environmental diversity; sustainability and agro-diversity; possibility to change crop areas;
☐ Localized agriculture with low environmental impact; high territorial value production;
☐ Quality, research, services, technologies; scientific research for water emergency containment measures
☐ There aren't any

12. What are the main challenges for sustainable and resilient agriculture?

☐ Protection of biodiversity
☐ Reduction of soil degradation
☐ Conservation of genetic diversity, e.g. traditional breeds and varieties
☐ Reduction of water pollution Rationalization of water use
☐ More sustainable use of pesticides and fertilizers
☐ Reduction of air pollution
☐ Environmental risks such as fires, floods, etc.

13. What are the main problems to be faced to become a resilient farmer?

☐ Poor profitability
☐ High land prices
☐ Lack of available land
☐ Land regulation
☐ Difficulty in accessing credit
☐ Taxation
☐ Administrative obligations
☐ Access to new technologies/knowledge
☐ Other .....

14. How could we preserve and document methods and good practices of traditional and resilient agriculture in the various cultural regions of Europe (or our world)?

_____

_____

15. **How can national parks or nature parks support traditional and resilient agriculture and promote knowledge, skills, and competences of farmers?**

_____

_____

16. **How can agricultural industry, standard industry, protection of landscape, tourism, infrastructure development and space of living within a geographical region be balanced?**

_____

_____

17. **How can international mobility, migration of people as well as wildlife (fauna and flora) be integrated into strategies to promote resilient and sustainable agriculture and public awareness of its importance?**

_____

_____

18. **Which are the most important tasks for national parks or nature parks for the next 10 years (till 2030) to promote a strategy and learning effort leading towards resilient and sustainable agriculture, protection of heritage and intangible cultural values?**

_____

_____