Universitatea Ştefan cel Mare Suceava

VALOR

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

VALOR
QUALITY GUIDELINES

VALORISATION OF ANCIENT FARMING TECHNIQUES IN RESILIENT AND SUSTAINABLE AGRICULTURE

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

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VALOR Quality Guidelines - Short version

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

CONTENTS

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 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 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. This intensive cooperation is based on HEIs' experience in the design and management of tertiary education programmes that promote the latest results of the theoretical and empiric 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. Based on a bottom-up approach, partners from Italy, Germany, Greece, Cyprus, Turkey, Spain and Romania identified 20 experts in each country and invited them to provide feedback regarding relevance of the training 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. 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 following quality indicators have been pursued:

1) relevance of specific measures with respect to ecosystem resilience
2) crops sustainability

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.

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

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 part 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 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	• 7 successfully piloted online modules in Italy, Germany

module is mandatory to continue with next module(s)	
● 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 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 involve actively the target group members in training activities by interacting with them regularly and by developing individual connection 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 /	● 1 course outline for each module

general skills/information before moving to more complex issues.	
● **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 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.	● 3 self-study resources for each module
● **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 situation occurs. Furthermore, printed materials must be provided to the learners since many of them are living in remote areas where access to internet and to the online resources might represent a real challenge.

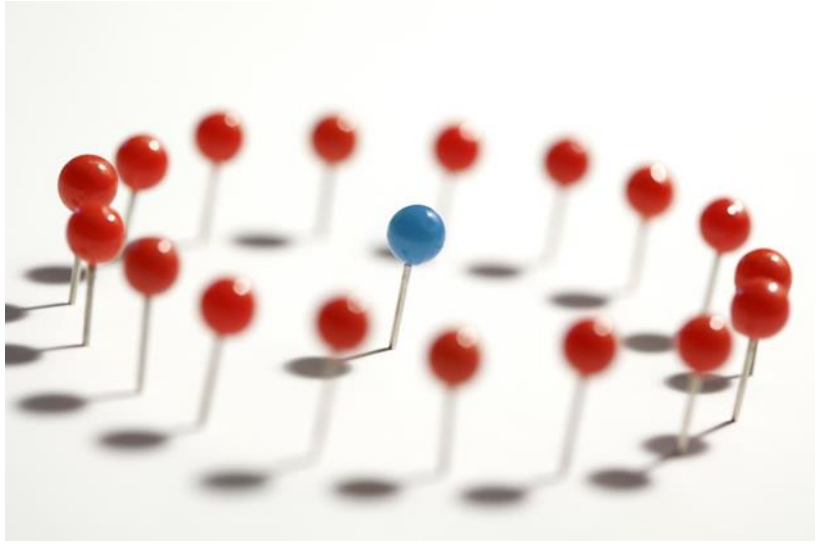
3. INSTRUCTIONAL DESIGN

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 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 matches best the profile of the adult learners and their needs since it provides a flexible framework that combines face-to-face classroom methods are combined 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 self-assessment component aimed to provide the farmers to a proper understanding of the requirements of contributing to resilient and sustainable farming, its relevance and how can this 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 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 referred 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.

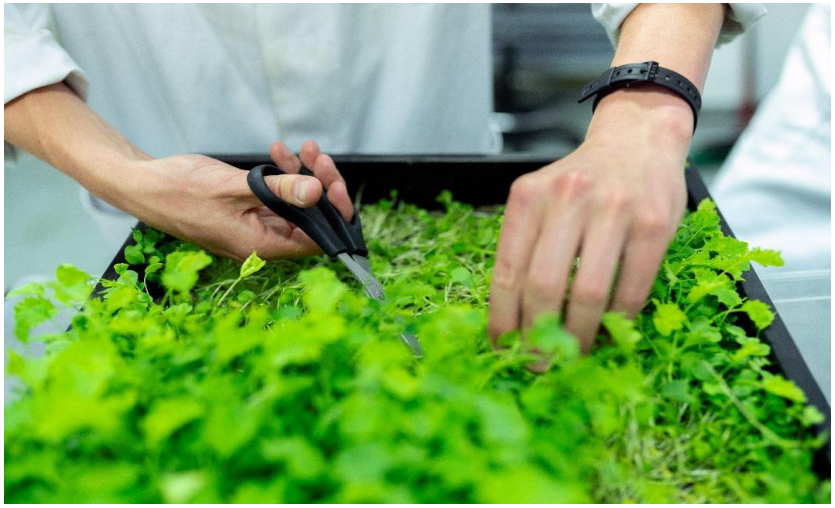
The socio-economic profile of the average farmer differs from country to country, despite some common motivational features. A common nominator of all farmers is provided by the answers given to the first two questions, about the advantages of being a farmer, and the local synergies. Most of respondents, 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 binds 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 the 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 unexperimented**" 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: therefor (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 tights 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 actually 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 40 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 (see below) 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. **Centre for ecological agriculture at Hohenheim University**
5. **Haus des Waldes (House of the Forest)**

5. REFERENCES

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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 gases released.
VOOC	Vocational Open Online Course