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Project Title

Skills Alliance for Sustainable Agriculture

Project Acronym

SAGRI

Deliverable 3.2:
SAGRI TRAINING PROGRAMME: DESCRIPTION OF
METHODOLOGY AND TOOLS

Prepared by: ERIFO

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| Dissemination Level | | |
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| PU | Public | X |
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1. Introduction

This report presents the pedagogical tools and methodologies that the SAGRI project will employ for the effective training of the target groups, the agricultural extension staff and the farmers. The tools and methodology were carefully chosen to match the target group's specific needs and took under consideration the outcomes of the three design meetings (R3.1) held in Italy, Greece and Portugal in order to collect opinions from qualified experts.



2. Training methodology for the Extension Staff

The trainers who will train the agriculture extension staff will be mainly academic staff (Professors, Teaching Assistants, Researchers, Post Docs, PhD candidates, etc.) of the three Universities of partner countries. However, the trainees could be public servants agriculture engineers or otherwise called agriculture extension staff, experienced trainers in agriculture (from VET partners), free-lancer agriculture engineers and/or graduate students.

A number of trainees will be hired by VET partners in order they train the agricultural workers in the next phase of the project implementation. For the selection of the trainers will be used a multi criteria approach, to include if the trainer has already experience in farmers training. Some selection criteria:

- Degree in Agricultural Engineering or agricultural related field
- Knowledge of English language at least level B2 of ECLF
- Basic ICT skills
- Previous teaching/training experience

2.1 Suggestions on training key topics and contents

During the design meetings the following training topics were identified:

| N. | Topic | Contents |
|----|---|--|
| 1 | Precision agriculture | To know how to manage differentially production factors in order to improve return of investment and reduce environmental impact. |
| 2 | Integrated pest management in plant protection | To know how to solve pest problems in crops while minimizing risks to people and the environment. Using an integrated combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties and use of pesticides only when the monitorization indicates its needs |
| 3 | Agricultural reuse of organic residuals | Possible reuse of agricultural co-products, by-products and wastes in the same agricultural sector or in different high-value chains, according to the best solution aimed to the valorization of the organic residuals (biomass). When this biomass is produced, the suitable way to reuse it in different application, recycling or recovering it before the disposal will be examined, as well as the possibility to use it in other industrial sectors (e.g., cosmetics, nutraceutical, etc.). |
| 4 | Drip irrigation and water-conserving technologies | The use and benefits of drip irrigation systems. It will present the required skills for a better use of the drip irrigation techniques and water conserving technologies based on economic and environmental criteria. |
| 5 | Renewable energy and its application as green | Renewable energy as a means to enable sustainable development by using renewable energy sources in agriculture. It will present the |

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| | agricultural energy source | case for how renewable energy sources represent both an environmental necessity and an economic opportunity. This module aims to train and encourage agricultural workers and farmers on the use of renewable energy technology in agriculture. |
| 6 | Bioenergy and energy crops | The concept of bioenergy as well as the main energy crops employed in southern Europe, their classification and selection based on technical and economic criteria and their environmental impact. Bioenergy is the energy derived from recently living material such as wood, crops, or animal waste. It can contribute to reduce the overall consumption of fossil fuels. Energy crops are defined as any vegetal material used to produce bioenergy. They have the capacity to produce large volume of biomass with high energy potential, and can be grown in marginal soils. The training of agricultural workers is finalized on the use and benefits of alternative solutions such as energy crops. |

2.2 Suggestions on training delivery methodology

The results of the design meetings provided the following suggestions:

- Trainees should create a number of learning designs susceptible of being applied to their own teaching practice
- Training length: Each module will require approx. 6 hours of learning effort per week, for a total of 50hs
- One day of each workshop should be devoted to a field visit, where selected new technologies are going to be demonstrated in practice
- Other learning strategies: learning through discussion, collaborative learning, demonstrations, videos, etc.

2.3 Suggestions on training assessment and evaluation

Assessment: an exam will be organized at the end of each training session. The suggestions are about the design and use of a specific assessment TOOL kit instead of traditional questionnaires. The tool-kit will contribute to the evaluation of the programme delivery, by both trainers and trainees. The evaluation of the first round of delivery that will be conducted through the Toolkit, will be used for the production of a programme delivery report that will include specific recommendations for the improvement of the training programme as well as offer input to the project evaluation report (D7.2 – Evaluation Report). Those recommendations will be used for the optimization of the second training period.

3. Training methodology for farmers

The SAGRI curriculum main target group should be agricultural workers (i.e. farmers) interested in following the training. The farmers may come from the partnership countries or from other countries (i.e. Cyprus, Egypt). During the design meetings some of the participants highlighted the opportunity to widen the target group by including:

- VET schools/Institutes students
- Agricultural sector professionals

For the recruitment and selection of participants a set of criteria will be defined once the training contents will be developed, also according the training certification scheme adopted by the project.

3.1 Training key topics and contents

During the design meetings the following training topics were identified:

| N. | Topic | Contents |
|----|--|--|
| 1 | Precision agriculture | To know how to manage differentially production factors in order to improve return of investment and reduce environmental impact. |
| 2 | Integrated pest management in plant protection | To know how to solve pest problems in crops while minimizing risks to people and the environment. Using an integrated combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties and use of pesticides only when the monitorization indicates its needs |
| 3 | Agricultural reuse of organic residuals | Possible reuse of agricultural co-products, by-products and wastes in the same agricultural sector or in different high-value chains, according to the best solution aimed to the valorization of the organic residuals (biomass). When this biomass is produced, the suitable way to reuse it in different application, recycling or recovering it before the disposal will be examined, as well as the possibility to use it in other industrial sectors (e.g., cosmetics, nutraceutical, etc.). |
| 4 | Drip irrigation and water-conserving technologies | The use and benefits of drip irrigation systems. It will present the required skills for a better use of the drip irrigation techniques and water conserving technologies based on economic and environmental criteria. |
| 5 | Renewable energy and its application as green agricultural energy source | Renewable energy as a means to enable sustainable development by using renewable energy sources in agriculture. It will present the case for how renewable energy sources represent both an environmental necessity and an economic opportunity. This module aims to train and encourage agricultural workers and farmers on the use of renewable energy technology in agriculture. |

| | | |
|---|----------------------------|--|
| 6 | Bioenergy and energy crops | The concept of bioenergy as well as the main energy crops employed in southern Europe, their classification and selection based on technical and economic criteria and their environmental impact. Bioenergy is the energy derived from recently living material such as wood, crops, or animal waste. It can contribute to reduce the overall consumption of fossil fuels. Energy crops are defined as any vegetal material used to produce bioenergy. They have the capacity to produce large volume of biomass with high energy potential, and can be grown in marginal soils. The training of agricultural workers is finalized on the use and benefits of alternative solutions such as energy crops. |
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3.2 Training delivery methodology

The training course will be organized in 6 modules: each module will be approx. 50 hours long for a total of 300-350 hours of training and 2 additional hours for the final exam. A certificate will be provided to those who pass the exam. Each module will be structured on a blended approach:

| Knowing the platform/module | Classroom lectures | Self-study | E-learning | Hands-on training | Self-assessment | Peer assessment | Feedback |
|-----------------------------|--------------------|------------|------------|-------------------|-----------------|-----------------|----------|
| 4% | 12% | 36% | 26% | 4% | 4% | 12% | 2% |

3.3 Training evaluation , assessment and certification

For the training evaluation by the trainees, in terms of quality, effectiveness, etc., the suggestions are about the design and use of a specific assessment TOOL kit instead of traditional questionnaires. The tool-kit will contribute to the evaluation of the programme delivery, by both trainers and trainees. The evaluation of the first round of delivery that will be conducted through the Toolkit, will be used for the production of a programme delivery report that will include specific recommendations for the improvement of the programme. Those recommendations will be used for the optimization of the second training period.

Assessment will be consistent with the learning objectives and based on weekly self and peer assessment, to prepare the trainees for the final exam, which will ultimately determine if the trainee is going to obtain the certificate. An exam will be organized at the end of each training session. The tests will be based on a wide range of methodologies, such as:

- Multiple choices: the trainees have to choose the correct word to complete the sentence.
- Embedded Answers (Gap Filling): the trainees fill the gap to complete the sentence

- Matching: with this question type, the trainees must link items from the first column to items in the second.
- True / False: the trainees must decide if a statement is true or false
- Short Answers: the trainees must answer the questions in a synthetic way
- Numerical: the trainees must answer the questions with numbers / percentages

Certificates will be awarded to the participants that successfully conclude the training seminars. An escalated model will be followed for the certification:

- Level 1: Certificate of successful attendance
- Level 2: Certificate of “sustainable farmers” according to the standards of ISO 17024 which is the international standard for personnel certification.

Certificates will be awarded to the trained agricultural workers, who will successfully complete the scheduled examination procedure. A final examination will consist of written and oral exams. The participants who will pass the written examination (multiple choices questions) will take part in an interview by expert examiners in the specific field. The candidates that failed to pass these exams, but attended the training courses, will be awarded a certificate of attendance by the VET partners.