Advancing Digital Skills in European Farmer Advisors

D2.3 – Report on the Training Scenarios and Learning Objectives

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1. Introduction and Purpose of the Deliverable

DigiFarm aims to strengthen the digital, environmental and business capacities of European farmer advisors, enabling them to effectively use Earth Observation (EO) data, smart farming technologies and sustainability-oriented advisory models. Building on the analysis of learners' profiles and expectations carried out in Deliverable D2.2 and informed by the benchmarking of effective training practices carried out in Deliverable D2.1, the present report defines the training scenarios and learning objectives that will guide the design of the DigiFarm training programme in WP3.

The purpose of this deliverable is to translate the identified learners' needs into concrete training pathways, structured learning objectives and pedagogical scenarios that ensure relevance, accessibility and impact for diverse advisory profiles across partner countries.

2. Training Scenarios: Concept and Rationale

This section presents four detailed training scenarios, fully aligned with the four foundation modules defined in WP3. The scenarios are explicitly grounded in the results of the learners' questionnaire (WP2, D 2.2 Report on the learners' profiles and expectations), which revealed strong interest patterns across thematic areas rather than clear distinctions based on experience level. Consequently, each scenario represents a self-contained learning pathway, allowing participants to progress within the module according to their interest.

2.1 Training Scenario 1: Remote Sensing Technologies and Applications

Questionnaire responses indicate a consistently high level of interest in Earth Observation and remote sensing technologies, particularly in relation to crop monitoring, productivity assessment, and climate-related decision support. This training scenario is designed to respond directly to this demand by introducing advisors to the practical use of satellite-based data in agricultural advisory services.

The scenario focuses on real-world advisory use cases, such as identifying crop stress, monitoring phenological stages, assessing soil characteristics (e.g. soil moisture and organic matter), and interpreting weather and climate indicators. Emphasis is placed on translating remote sensing outputs into actionable insights that can be effectively communicated to farmers and incorporated into advisory recommendations.

Learning objectives

Upon completion of this scenario, participants will be able to:

- Understand the core principles of remote sensing and Earth Observation in agriculture;
- Interpret key indicators related to crop health, productivity, phenology, and soil conditions;
- Apply EO-based information to support evidence-based advisory recommendations.

Delivery format

The module is delivered through structured video presentations supported by applied examples. Interactive quizzes are used to assess knowledge acquisition, and a certificate is awarded upon successful completion.

2.2 Training Scenario 2: Tools and Data for Smart Farming

The questionnaire highlights strong interest in smart farming tools, data integration, and decision support systems. Advisors expressed particular motivation to better understand how different data sources can be combined to improve farm-level decision making and advisory effectiveness.

This scenario addresses these interests by focusing on the practical use of digital tools such as GIS and remote sensing platforms, farm management information systems, and decision support systems. Participants are guided through the process of integrating EO data with soil, weather, and climate data, enabling a more holistic and data-driven advisory approach.

Learning objectives

After completing this scenario, participants will be able to:

- Gain familiarity with key digital tools and platforms used in smart farming;
- Understand how multiple data sources can be combined within advisory workflows;
- Support farmers with data-informed recommendations aimed at improving efficiency and resource management.

Delivery format

The scenario is implemented through video demonstrations and applied examples, followed by interactive quizzes. Successful completion of the quizzes leads to certification for this module.

2.3 Training Scenario 3: Green and Soft Skills

Responses to the questionnaire show a clear and growing interest in sustainability-related topics, communication skills, and advisory competences beyond purely technical knowledge. Advisors highlighted the importance of effectively communicating sustainability concepts, regulatory requirements, and environmental objectives to farmers.

This training scenario focuses on strengthening green and soft skills, including communication strategies, Environmental, Social and Governance (ESG) concepts, EFRAG (European Financial Reporting Advisory Group) sustainability standards, and circular economy principles. The module supports advisors in bridging the gap between policy-driven sustainability objectives and practical farm-level implementation.

Learning objectives

By the end of this scenario, participants will be able to:

- Improve communication skills for engaging farmers on sustainability and environmental topics;
- Understand ESG concepts and relevant sustainability reporting standards;
- Apply circular economy principles within agricultural advisory practices.

Delivery format

Learning content is delivered through video presentations combined with scenario-based questions and interactive quizzes. A certificate is provided upon successful completion.

2.4 Training Scenario 4: Business Development

The questionnaire results also reveal significant interest in business and economic aspects of digital agriculture, particularly regarding the financial viability of new technologies and advisory services. Advisors expressed the need for tools that support economic decision making alongside technical and environmental considerations.

This training scenario addresses these needs by focusing on business development skills relevant to agricultural advisors. Topics include cost-benefit analysis of digital agricultural tools, SWOT analysis, and the use of financial indicators such as Return on Investment (ROI) and Return on Equity (ROE). The scenario equips advisors to support farmers in making economically sound investment and management decisions.

Learning objectives

Upon completion of this scenario, participants will be able to:

- Conduct basic cost-benefit analyses for digital agricultural solutions;
- Apply strategic tools such as SWOT analysis in an advisory context;
- Support business-oriented decision making using key financial indicators.

Delivery format

The module is delivered through video-based lectures and applied financial examples, followed by interactive quizzes. Certification is granted upon successful completion.

3. Pedagogical Approach and Learning Pathways

The DigiFarm training programme adopts a modular, learner-centred and fully online pedagogical framework, in line with the best practices identified in Deliverable D2.1 and the requirements of vocational and adult education in the agricultural sector. The approach prioritises flexibility, practical relevance and scalability across partner countries.

3.1 Modular and Self-Paced Learning

Training is organised into standalone modules, allowing participants to select content based on their individual interests and professional needs, as identified through the learners' questionnaire. This interest-driven design reflects benchmark evidence showing higher engagement and completion rates when adult learners can directly link training content to their advisory activities.

All modules are delivered through self-paced video presentations, ensuring accessibility for advisors with varying time availability and supporting participation across diverse geographical and professional contexts.

3.2 Scenario-Based and Applied Learning

Consistent with D2.1 best practices, all modules integrate scenario-based learning and applied examples derived from real farm and advisory contexts. Content focuses on practical interpretation of data, tools and sustainability concepts, enabling learners to translate knowledge into concrete advisory recommendations rather than abstract theory.

3.3 Interactive Assessment and Certification

Each module includes interactive quizzes aligned with the defined learning objectives. The quizzes support self-assessment, reinforce key concepts and ensure learning outcome achievement. Module-specific certificates are awarded upon successful completion, responding to benchmark evidence highlighting the motivational value of micro-credentials in professional training.

3.4 Flexible Learning Pathways

DigiFarm does not impose a fixed progression path based on prior experience. Instead, progression occurs within each module, from introductory concepts to more advanced applications. Participants may follow individual modules or combine multiple modules over time, supporting continuous professional development and heterogeneous learner profiles.

3.5 Accessibility and Scalability

The modular, online and interest-based structure ensures accessibility, scalability and transferability, enables effective integration into the Cultivate e-platform. The framework as described here also adheres to the requirements of the Electronic Platform for Adult Learning in Europe (EPALE) in the following thematic areas:

- Digital agency & EO literacy, by enhancing the capacity of advisors to master EO data and AI tools, promoting their "agency" over automated farming systems.
- Green transition competencies, by aligning advisory models with European Sustainability Competence Framework standards, focusing on the ability to translate green and digital tools into practical climate-smart farming actions.
- Professionalization of educators, by strengthening advisors' pedagogical skills to effectively transfer complex technical knowledge to adult learners (farmers).
- Life-cycle business support, by integrating digital datasets into farm business models to improve long-term economic resilience and competitiveness.
- Micro-credentials & validation with portable, verified learning units to document the specific digital and environmental skills.
- Community of Practice engagement, by increasing the level of participation in cross-border knowledge exchange to scale sustainability-oriented advisory models.

This pedagogical framework operationalises WP2 findings and directly supports the development, deployment and assessment of the WP3 training programme.

4. Expected Impact

The defined training scenarios and learning objectives provide:

- Clear alignment between learners' needs and training content
- A structured competence development pathway for diverse advisory profiles
- A solid methodological foundation for WP3 training material development

By addressing digital skills, smart farming competences and sustainability-oriented advisory innovation, D2.3 ensures that DigiFarm training will generate long-term impact on advisory quality and the digital and green transition of European agriculture.