Ref. Ares(2025)3526664 - 30/04/2025

# D1.3 Reports on analysis of expectation for training and results of Focus Group meetings

## WP1 - Baseline definition and key drivers' identification

STEMS

April 2025, M12

Funded by the European Union

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| DELIVERABLE INFORMATION | |
|---|---|
| Status (F: final; D: draft; RD: revised draft) | |
| Planned delivery date | 30 April 2025 |
| Actual delivery date | |
| Dissemination level (*) | PU |
| Type: Report, Website, Other | Report |

(*) PU = Public; PP = Restricted to other programme participants; RE = Restricted to a group specified by the consortium; CO = Confidential, only for members of the consortium)

| DOCUMENT HISTORY | | | |
|---|---|---|---|
| **Version** | **Date (DD/MM/YYYY)** | **Created/Amended by** | **Changes** |
| **01** | | STEMS, DATERRA | |
| | | | |

| QUALITY CHECK REVIEW | |
|---|---|
| **Reviewer (s)** | **Main changes** |
| InHort | |
| PCFruit | |
| | |

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## Abstract

This report presents the analysis of responses collected from six focus groups (FGs) conducted in six different European countries — Belgium, France, Italy, Poland, Portugal, and Spain. FGs were organised to gather suggestions, ideas, and proposals from various stakeholders to support the development of the RENOVATE platform. Furthermore, the RENOVATE platform will be designed to facilitate access to training resources, with the aim of enhancing farmers' capacity to implement sustainable crop management practices through the adoption of innovative techniques. This deliverable represents the findings of the first of a series of three planned FGs. This report includes the methodologies used, participants' lists, and results obtained from each country. Then, a summary of key findings is provided, followed by an annex containing supplementary materials.

## 1. INTRODUCTION

Focus group (FG) is currently an established method in qualitative research and has its origins in mid-20th century explorations of structured group interviewing techniques (Merton et al. 1956). Furthermore, it has become a widely recognized valuable tool in social research and evaluation. More specifically, this method can be defined as a "group discussion about a topic under the guidance of a trained group moderator' (Stewart 2018: p. 687).
Such moderator/researcher plays a pivotal role in ensuring the success of the focus group discussion, since it is responsible not only for managing the flow of conversation and maintaining balanced participation, but also for establishing a welcoming and inclusive atmosphere. This can be particularly true when participants are unfamiliar with each other (Nyumba et al., 2018).
Thus, in contrast to individual interview that leads a one-on-one dialogue, FG is a more dynamic and interactive meeting. It is usually planned to engage participants pushing them to express their experiences, beliefs, and attitudes through direct interaction and discussion with the other participants involved (Agar & MacDonald, 1995; Nyumba et al., 2018). In addition, the presence of unfamiliar participants may encourage more spontaneous and uninfluenced contributions, helping to break down existing social hierarchies and group dynamics.

FGs offer some other several advantages that enhance the quality of data collection. First, one key strength lies in the ability to bring together mixed group, characterized by different gender, socio and economic background and expertise (Freitas, 1998). FGs are flexible in terms of group size, ranging from four to fifteen participants, depending on the specific aims and context of the research (Nyumba et al., 2018). They are flexible also in terms of time, since discussions are typically scheduled to last between one and two hours, avoiding the risk of participant fatigue. In cases of longer sessions, due to the complexity of the topic and/or number of questions, planned breaks are essential to maintain the focus and ensure the quality of contributions.
When considering the ethical aspects, one of the FG strengths is that participants are ensured a degree of privacy and have the right to withdraw from the discussion at any time. These conditions help create a safe and respectful space for open conversation (Sim & Waterfield, 2019). On the other hand, this option may represent a relevant difficulty in FG organization and recruitment phase (Chase & Alvarez, 2000.

In addition, more recently even virtual (or online) FGs are increasingly promoted as research tool, since they allow faster recruitments (Rupert et al., 2017). Online FGs is not different from in-person FG in terms of methodology and in terms of fundings, but rather it represents an adaptation of chat and virtual rooms (Matthews et al., 2018; Kamberelis & Dimitriadis, 2005; Rupert et al., 2017).

This methodology is particularly valuable in the context of agriculture, where systems are also shaped by the interplay between ecological/environmental and social dimensions (Tey et al., 2012). Understanding how farmers and other stakeholders respond to, interpret, and influence these systems is fundamental for promoting sustainable practices and adopting innovative solutions and technologies (Surendran et al., 2024). Thus, focus group discussions provide a helpful platform to explore individual perceptions and these complex interdependencies in depth, offering insights that are difficult to capture through purely quantitative approaches.

The main objective of this initial FG conducted within the framework of the RENOVATE project, was to foster interaction and collaborative dialogue among various stakeholders with the aim of innovating and adapting the existing and available training materials. Particular emphasis was placed on addressing the specific needs of family-sized farms and young farmers. The insights obtained through this session contribute to the identification of the key challenges and provide a basis for the development of effective training solutions, adapted to the local conditions of different agricultural production systems.

# 2. METHODOLOGY

**A description of the criteria and methodology used for selection Focus Group participants.**

## 2.1. Selection and invitation process

The selection of Focus Group participants was carried out to ensure diverse representation from key stakeholders in agriculture training. Participants' recruitment is acknowledged as one of the most challenging and time-consuming aspects of organizing a focus group (Chase & Alvarez, 2000).
Invitations were sent to organisations involved in professional training, advisory services, agricultural education, regulatory bodies, and industry representatives. Associations representing different crop sectors (vineyard, fruit, citrus, olives, and almonds) were also included. Special attention was given to ensuring diversity among stakeholders, particularly with regard to gender and generational aspects, in order to capture a broad range of perspectives and experiences.
The focus group participants were briefed about the objectives, form and framework (RENOVATE project) of its activities. Indeed, the key questions intended to guide the discussion during the focus group activities were included in the agenda and shared with participants alongside the meeting invitation, which was sent some weeks in advance (usually two weeks). Participants were informed about the possibility of taking part in subsequent focus groups to maintain consistency in attendance throughout the project.
Focus group meetings conducted across the participating countries were held in face-to-face, online, or hybrid formats, depending on the organisational arrangements and the availability of participants. Overall, in each country the date of the meeting was set on the Doodle platform based on the highest participants' availability.

### Details of the participants, including facilitators, moderators, and other stakeholders (e.g., farmers, young farmers, manufacturers, advisors, government services, etc.)

Moreover, an attempt was made to ensure a comparable composition of participants across different countries. However, this objective proved sometimes challenging, and the composition of the groups varied to some extent depending on the country and the session. Organizations were contacted via email, phone, and meetings, requesting the selection of representatives with extensive experience in agricultural training. Overall, a total of 153 stakeholders were involved in the first FG session. Furthermore, a total of 79.7% of males and 20.3% of female participated. Gender imbalance among farmers and female minority participation in agricultural association in some countries (EU, 2024), combined with availability of participants, may have influenced the percentage of female participation.

#### Focus Group composition - Belgium

From a total of 65 participants invited, 11 of them (9% female and 91% male) agreed to be involved in focus group session. Details about composition are reported in Table 1.

**Table 1.** Participants composition. Note that some of the participants may have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 10 |
| Regulatory Authorities | 1 |
| RENOVATE Partners | 1 |

#### Focus Group composition - France

A total of 25 names were directly contacted via email, phone, and meetings, requesting the selection of representatives with extensive experience in agricultural training (24% female and 76% male). Details about composition are reported in Table 2.

**Table 2.** Participants composition. Note that some of the participants have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 2 |
| Advisors/Farmers Associations | 5 |
| Trainers/Education Professionals | 4 |
| Industry (agrochemicals, sprayers, manufactures) | 3 |
| Confederations | 3 |
| Agricultural Services | 6 |

| | |
|---|---|
| Regulatory Authorities | 2 |
| RENOVATE Partners | 5 |

### Focus Group composition - Italy

From a total of 35 participants invited, 32 (6.5% female and 93.5% male) of them agreed to be involved in focus group session. Details about composition are reported in Table 3.

**Table 3.** Participants composition. Note that some of the participants have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 7 |
| Advisors/Farmers Associations | 9 |
| Trainers/Education Professionals | 2 |
| Industry (agrochemicals, sprayers, manufactures) | 3 |
| Agricultural Services | 6 |
| Regulatory Authorities | 4 |
| RENOVATE Partners | 10 |

### Focus Group composition - Poland

From a total of 35 participants contacted, 27 participants (18.5% female and 81.5% male) agreed to be involved in focus group session. Details about composition are reported in Table 4.

**Table 4.** Participants composition. Note that some of the participants have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 2 |
| Advisors/Trainers | 5 |
| Academic/Researchers | 5 |
| Industry (spray application technology; agrochemicals) | 8 |
| Regulatory Authorities | 4 |
| RENOVATE Partners | 3 |

### Focus Group composition - Portugal

From a total of 42 organisations contacted, 27 participants (37% female and 63% male) agreed to be involved in focus group session. Details about composition are reported in Table 5.

**Table 5.** Participants composition. Note that some of the participants have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 2 |
| Advisors/Farmers Associations | 5 |
| Trainers/Education Professionals | 4 |
| Industry (agrochemicals, sprayers, manufactures) | 3 |
| Confederations | 3 |
| Agricultural Services | 6 |
| Regulatory Authorities | 2 |
| RENOVATE Partners | 5 |

### Focus Group composition - Spain

From a total of 45 people contacted, 32 participants (22% female and 78% male) agreed to be involved in focus group session. Details about composition are reported in Table 6.

**Table 6.** Participants composition. Note that some of the participants have more than one role

| Category Represented | Number |
|---|---|
| Farmers | 5 |
| Advisors/Farmers Associations | 10 |
| Trainers/Education Professionals | 3 |
| Industry (agrochemicals, sprayers, manufactures) | 2 |
| Agricultural Services | 1 |
| Regulatory Authorities | 4 |
| Students | 2 |
| RENOVATE Partners | 5 |

## 2.2. Focus group organization

### Key dates and phases of the process of the actual Focus Group session.

The focus groups were organised on different dates across the six participating countries, depending on local schedules, logistical conditions, and participant availability. They were held either in-person, online, or in a hybrid format, depending on logistical feasibility and participant preferences. Localization, dates, and format are summarized in Table 7.

**Table 7.** Localization, dates, and format of the focus group meetings

| Country | Location | Date | Format |
|---|---|---|---|
| Belgium | St. Truiden | 13$^{rd}$ February 2025 | Online |
| France | Montpellier (South West ab South East) | 14$^{th}$ January and 21$^{st}$ January 2025 | In-person |
| Italy | Torino and Cagliari | 6$^{th}$ December 2024 | Hybrid |
| Poland | Skierniewice | 6$^{th}$ March 2025 | Online |
| Portugal | Lisbon | 22$^{nd}$ October 2024 | In-person |
| Spain | Zaragoza | 18$^{th}$ December 2024 | In-person |

Given the different approaches adopted by each working group, the structure and facilitation of discussion groups and plenary sessions varied slightly across the countries. For instance:
in Belgium the FG meeting was additionally supported by the use of an online chat (live chat) to facilitate interaction;
in France in order to ensure better management and allow for the recruitment of a greater number of participants, the focus group was conducted over two separate days;
in Italy to optimize the logistics, the focus group was conducted in two locations simultaneously. Remote connection was established to ensure both sites received the same information and consistent time management. Thus, the two plenary online sessions (opening and conclusions) were held, while the central part of the meeting (discussion within each group) was managed offline;
in Poland a Teams meeting with 3 breakout rooms was organised (3 rooms = 3 discussion groups followed by general discussion during plenary session);
in Portugal and Spain, as already shown in the table, the focus group was conducted exclusively in an in-person format

### Timeline

Preparation for the meeting was carried out in accordance with the guidelines developed within the task T 1.4. Based on this, the session was organised into five main dynamic sections, to ensure the continued engagement of focus group members throughout the process. In particular:

- **Welcome**, participants' registration and welcome coffee (in case of in-person format), to help participants become familiar with one another and feel at ease sharing and discussing ideas,
- **RENOVATE project introduction**, along with an explanation of the Focus Group role in shaping training programs tailored to the farmers' needs,
- **Co-creation sessions** in which participants were divided into smaller groups, with the aim to facilitate discussion and debate. Illustrated card were provided as creative input,
- **Plenary session,** to present the key finding and foster an open debate,
- **End session.**

### Welcome

After participants' registration, each of them was assigned to a smaller working group, generally composed of 6–7 participants, depending on the total number of attendees taking part in the focus group. Each group included representatives from various stakeholder categories, with the aim of enriching the discussion by taking into account multiple points of view. In addition, in the in-person format, the working groups were physically seated at separate tables, while in the online version, they were organised into breakout rooms.

### RENOVATE project introduction

The moderator briefly introduced the aim of the RENOVATE project and the purpose of the focus groups. A clear explanation was provided regarding the structure of the session and the role of each participant. The moderator encouraged participants to share their views and experiences and propose ideas that can be implemented in the innovative training programmes.

### Co-creation sessions

Participants were recommended to reflect and discuss on the challenges they face in their farms related to two main categories:

- **mapping needs and challenges**, which includes crop protection management and technology adoption in accordance with EU legislation, gaps in current training and challenges in implementing training programmes,
- **development of training solutions,** which includes customization of training content and platform development needs.

Each group used discussion cards that guided their conversations, based on several key topics:

- Sustainable use of pesticide
- Dose adjustment and calculation
- Sprayer calibration tool
- Decision Support Systems (DSS)
- Adoption of new technologies
- Drift reduction tool
- Risk mitigation
- Operator safety
- Alternative products
- Crop protection management
- Integrated pest management (IPM)
- Organic farming

Within each group, a spokesperson was elected with the task of taking notes on the most relevant topics that emerged. Key phrases and terms were also noted on a series of colour-coded Post-it notes. This role is expected to play a crucial part in the subsequent phase of the focus group process.

### Plenary session

Each elected spokesperson had 10-15 minutes to share the group ideas and experiences to the moderator and the rest of the members. Then, in in-person focus group format, he/she placed the post-it notes in each category of a white board. In this final step of the process, the moderator promotes open dialogue between all the participants, encouraging questions, suggestions and even disagreements were welcome to be discussed.

### End session

At the end of the focus group session, the moderator thanked the participants for their input ad active contribution and provided a brief introduction of the upcoming meeting, to foster engagement and anticipation.

#### Notes took into account by the organisers:

Mobile pictures were taken by the facilitator or other members of RENOVATE project. The session was also recorded (video or audio), as recommended, with prior consent explicitly requested by the moderator from all focus group participants.

#### Data analysis and reporting

In case of audio/video recording, discussions were transcribed. Following a content analysis methodology, data were then categorised.

## 3. RESULTS

### An overview of the responses provided during the session.

### 3.1. Overall responses

Table 8 presents the main findings for each country (Belgium, France, Italy, Poland, Portugal and Spain), categorized into the five identified macro-areas: 1) Adoption of Technologies and EU Legislation, 2) Training Gaps, 3) Customization of Training Content, 4) Priority Training Areas, and 5) Platform Development Needs.

**Table 8.** Summary of responses

| Country | Key-points emerged |
|---|---|
| **1) Adoption of Technologies and EU Legislation** | |
| Belgium | **1)** Participants showed openness to adopting innovative spraying technologies, provided costs are controlled and there is sufficient technical understanding.<br>**2)** The focus was placed on promoting sustainable plant protection practices supported by innovation and digital tools, shifting attention from regulatory compliance to practical implementation in the field.<br>**3)** Belgian fruit growers are willing to integrate digital solutions but require practical validation and alignment with field realities. |
| France | **1)** There is a clear demand for technology and app-based tools to support understanding and compliance with EU regulations implemented at the national level. Both vine |

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| | growers and advisors' express interest, though some confusion remains between EU and national rules.<br>**2)** It is important to comply with regulations and controls are welcome, however some regulations are considered as an overregulation, with a risk that producers reject all kind of regulation.<br>**3)** Viticulture faces a major crisis due to market changes, higher costs (fuel, manpower) and bad yields due to bad weather (and higher levels of plant protection needed).<br>**4)** Currently, a national regulation aims at the splitting PPP advisory and PPP sales.<br>**5)** Difficulties to organize an individual advisory service on regulatory aspects but also technical issues. |
| Italy | **1)** Limited regional infrastructure (e.g., no field Wi-Fi) and perceived high costs associated with technologies implementation, especially for small farms, reduce technology adoption.<br>**2)** Technologies are perceived as complex and difficult to adopt. Similarly, labels are seen as overly complex and information-dense. Farmers need support to independently use tools like the Farm Book<br>**3)** Complex and overlapping EU, national, and regional rules hinder practical application. Simplifying regulations with clear, accessible language is key to reducing barriers and encouraging adoption.<br>**4)** Clear guidance on available technologies and their use is lacking. Mandatory training and post-sales support are often insufficient. Better training outreach and centralized, user-friendly platforms are needed to improve information dissemination and ensure quick and easy access. |
| Poland | **1)** The level of implementation of new technologies is strictly dependent on the awareness and qualifications of growers and the benefits resulting from their use.<br>**2)** A clear and unambiguous message from suppliers of new technologies is necessary regarding the potential economic and ecological benefits of their implementation.<br>**3)** The costs incurred in implementing new technologies are currently not sufficiently compensated by economic benefits for the growers.<br>**4)** Polish farmers do not go into the details of the SUD Directive, which is not a directly implemented legal regulation, but is establishing a framework for common actions in the EU Community, constituting a source of national legal regulations. Polish legal acts developed in accordance with SUD translate the guidelines of the Directive into practical and relatively clear legal regulations, which sometimes leave too |

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| | much room for interpretation, thus giving rise to the possibility of abuse. |
| Portugal | **1)** Ensure that technologies transparently present their value, applicability, and real practical benefits, fostering greater trust in their adoption and reducing fear of risk.<br>**2)** The complexity of European and national standards, often perceived as confusing and difficult to interpret, is a significant obstacle to the practical application of technologies in the agricultural sector.<br>**3)** Accessible and well-organised information platforms are necessary to centralize data and legislation in a reliable, intuitive, and thematic platforms, reducing dispersion, and facilitating quick access. |
| Spain | **1)** Legislation should focus on practical objectives rather than complex bureaucracy. Clear communication of legal obligations helps farmers understand and comply more willingly.<br>**2)** Consistency across administrative regions is essential.<br>**3)** Technologies must be easy to use, affordable, and relevant to daily tasks. |
| **2) Training gaps** | |
| Belgium | **1)** There is a clear demand for practical, applied training, particularly on the correct use of precision spraying equipment.<br>**2)** Training content should be aligned with orchard practices, particularly in relation to sustainable and precise application techniques.<br>**3)** The importance of early involvement in the testing of new tools was stressed, allowing farmers to learn through doing. |
| France | **1)** Regulation and practical consequences for individual farms,<br>**2)** Dosage setting, dosage adjustment to the vegetation,<br>**3)** More clear, tested and robust information on bio-PPP. |
| Italy | **1)** Increase number of training courses, facilitate the transfer of knowledge from theory to practice, and engage farmers in initiatives that promote the use of technologies.<br>**2)** Continuous professional traini1ng for trainers to ensure up-to-date knowledge, particularly in emerging technologies.<br>**3)** Provide continuous and targeted practical training for farmers with programmes focused on how to draft electronic records and the correct registration of information in the Farm Book. |

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| | **4)** Training focused on label interpretation, optimal quantities of PPP, and appropriate spray volumes.<br>**5)** Provide clear and concise information on regulations and standards from European to regional level, tailored to different agricultural crops. |
| Poland | **1)** The need to carry out practical exercises using efficient and up-to-date technical equipment and, if possible, using new technologies (perhaps in cooperation with the suppliers).<br>**2)** It is necessary to constantly improve the qualifications of trainers in order to ensure high-quality, interesting training.<br>**3)** New training tools can improve the attractiveness of training and thus increase the interest of growers. |
| Portugal | **1)** Strong demand for “hands-on” and practical training with on-field demonstrations, rather than theoretical learning.<br>**2)** Need for continuous development of trainers to keep up with new technologies. and technological literacy, to better address trainees’ needs effectively.<br>**3)** Aligning curriculum content with current technological and regulatory realities, focusing on practical applicability and tailored to different agricultural crops. |
| Spain | **1)** Training communication channels need to meet farmers' needs, such as social media or flyers in places farmers visit daily. Courses need to be better promoted so that more farmers can participate.<br>**2)** Strong demand for hands-on, practical training rather than theoretical learning.<br>**3)** There is a need to update basic training, offer specialized programs for higher levels, and ensure continuous training. |
| **3) Customization of training content** | |
| Belgium | **1)** Training content must be tailored to fruit growing contexts, especially for crops like pears which are a focus in Belgium.<br>**2)** Tools and methods explored in the group focused on adapting spraying techniques to tree shapes, orchard structure, and technical machine aspects, as demonstrated in the GreenSpray project, while RENOVATE supports the integration of these innovation into digital training platforms.<br>**3)** Training discussions were closely tied to the technical and agronomic conditions in fruit orchards, particularly addressing the calibration of equipment and adaptation to tree structure. |
| France | **1)** Customisation is a key to a faster understanding and adoption |

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| | **2)** There is a need to adapt to farm manager or simple operator, SME or big wine estates<br>**3)** Time limitations require instantaneous answers |
| Italy | **1)** Developing training content tailored to the specificities of regions, weather conditions and crops, with tools that allow for the customisation of technological solutions.<br>**2)** Adoption of simple and practical language to facilitate users' understanding and application of concepts, avoiding redundant and repetitive content. Information should be provided through daily updates in 'pills'. External links and databases should be used.<br>**3)** Have a personalised and multidisciplinary technical support. |
| Poland | **1)** Conformity of the message with the realities and conditions of Polish agriculture.<br>**2)** Examples of procedures for farms with different levels of technological advancement and different investment potential.<br>**3)** Necessary links to supporting materials for more deeply interested training participants. |
| Portugal | **1)** Developing content tailored to the specificities of regions and crops<br>**2)** Content should be in clear and accessible language.<br>**3)** Personalised technical support should be available. |
| Spain | **1)** Content should be adapted into engaging formats like videos and interactive media to make learning easier and more appealing to farmers, helping them to see training as a benefit rather than an obligation.<br>**2)** Regional and cultural adaptation is essential.<br>**3)** Content should be useful, clear, accessible in a common language, and aligned with current regulations. |
| **4) Priority Training Areas** | |
| Belgium | **1)** Sustainable plant protection practices, especially linked to water quality (e.g. drift reduction, correct filling/cleaning).<br>**2)** Sprayer calibration, including nozzle choice, travel speed, and pressure.<br>**3)** Dose calculation and expression were identified as key training needs, particularly in the context of improving precision in spray applications.<br>**4)** Integration of digital tools, such as task maps from drone imaging, for targeted application. |

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|---|---|
| France | **1)** Regulation (national)<br>**2)** Dosage adjustment<br>**3)** Inventory of new technologies and benefits<br>**4)** Inventory of BioPPP with robust information on use cases |
| Italy | **1)** The relevance of the majority of the thematic areas was unanimously recognised, including Integrated Pest Management, Organic Farming, Operator Safety, New Technologies, Sprayer Calibration, Dose Expression and Calculation. Data management for DSS (Decision Support Systems), costs and funding raised as additional themes.<br>**2)** It is recommended to structure training content into module |
| Poland | **1)** Precision plant protection<br>**2)** Drift reduction<br>**3)** Plant protection equipment based on new technologies<br>Insufficient Training Areas:<br>**1)** New technologies.<br>**2)** Mitigation of point source pollution.<br>**3)** Mitigation of diffuse source pollution |
| Portugal | **1)** The relevance of all thematic areas was unanimously recognised, including Integrated Pest Management, Organic Farming, Operator Safety, New Technologies, Sprayer Calibration, Dose Expression and Calculation, Risk Reduction Measures, and How to Reduce Pesticide Use.<br>**2)** It is recommended to structure training content into modules that follow a logical progression, such as learning dose calculation before advancing to Integrated Pest Management. |
| Spain | **1)** New technologies.<br>**2)** Sprayer Calibration.<br>**3)** Dose expression.<br>**4)** Risk reduction measures. |
| **5) Platform Development Needs** | |
| Belgium | **1)** A digital training platform should offer interactive content, including polls and chat-based feedback, as used during the focus group.<br>**2)** Interactive tools, such as polls and guided questions used during the session, were employed to encourage participation and could inspire the structure of digital training formats.<br>**3)** The importance of strengthening the focus on precision agriculture and sustainable crop protection is emphasised, as |

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| | reflected in related initiatives such as GreenSpray and RENOVATE. |
| France | **1)** Intuitive interface with audio-visual content and easy to use platform.<br>**2)** Advisors require targeted training to effectively support digital adoption, while less advanced farmers show resistance to training, highlighting the need for simulation and/or playful, gamified approaches to enhance engagement.<br>**3)** Strong content validation processes.<br>**4)** Knowledge about drones is probably a less important priority than other new technologies (sensors, DSS, accurate weather data…).<br>**5)** Needs may be different for a farm manager and for the operator.<br>**6)** There is need to rapidly retrieve regulatory information.<br>**7)** The app should provide information about many other projects (EU and national levels) that are not known. |
| Italy | **1)** Implementation of self-assessment tools such as tests, quizzes, or games organized into multiple levels of increasing difficulty, designed to evaluate the user's knowledge.<br>**2)** Ensuring credibility of information, using a simple and practical language, to encourage users to stay updated with minimal effort. Concise data repositories, supplemented by external links, facilitate deeper exploration of topics of interest.<br>**3)** Ensure the platform’s maintenance and relevance in the medium and long term, ensuring continuous support.<br>**4)** Integration of simulators to enable users to replicate real-world scenarios, simulating activities from planting to crop management, how to determine the optimal application rates of phytosanitary products and select treatments based on severity of diseases, and damage caused by pests.<br>**5)** Integration of gamified components such as points, badge, levels and rewards makes learning more engaging. Implementation of alert system that act as reminders for training sessions or certification renewals.<br>**6)** Real incentives such as credits, rewards, or certificates to encourage ongoing application adoption by users.<br>**7)** Filtering the proposed content based on user profile, interests, crops, and geographical area.<br>**8)** Possibility of communication with public administration platforms and the ability to download satellite and GIS data from these websites. |
| Poland | **1)** Recognition and universal accessibility.<br>**2)** Maximum audio-visual communication and minimum text. |

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| | **3)** Simple, intuitive operation with an easy action's rewind/ reverse function |
| Portugal | **1)** Availability of a user-friendly platform with graphic and audio-visual content for an engaging experience.<br>**2)** Ensuring the presented information is reliable and validated to increase credibility among farmers.<br>**3)** Incorporating simulators that allow farmers to evaluate practical scenarios and calculate the cost-benefit ratio of different technologies, helping them make more informed strategic decisions.<br>**4)** Integration of interactive tools such as educational games and simulations can make learning more engaging, practical, and effective, while facilitating the understanding of the real impact of technologies in the agricultural context.<br>**5)** Planning to ensure the platform's maintenance and relevance in the medium and long term, ensuring continuous support.<br>**6)** Implementation of AI systems on the platform to monitor user interactions, searches, and behaviours, automatically identifying priority thematic areas and specific needs of each registered user.<br>**7)** Implementation of a direct user feedback system and a dedicated community section where farmers can share experiences, questions, and solutions directly on the platform. |
| Spain | **1)** Integrate innovative technologies, such as competitive video games and mobile apps, to enrich learning experiences and increase accessibility.<br>**2)** Access to tutors or advisors, even after training sessions, to address real-time challenges and ensure technology integration |

### 3.2. Summary: Contrasting opinions and Common Responses

**Highlights of any recurring or contrasting themes or opinions shared by the participants across different countries.**

The FGs conducted across the six European countries did not reveal any noteworthy contrasting opinion; Instead, several recurring themes and shared concerns emerged across the various categories examined. However, some key issues were mentioned in multiple thematic areas. Therefore, this section, presents a summary of stakeholders' feedback, highlighting the most common themes and points of convergence.

### 1) Adoption of Technologies and EU Legislation

- In all countries, the decision to invest in precision spraying technologies is strongly influenced by economic considerations, with cost-effectiveness, operational efficiency and practical usability and trust in digital tools. Cost remains a central factor, especially for small-scale farms.
- The complexity and overlap of European, national, and regional regulations are consistently seen as obstacles to practical implementation of technologies and innovations. Stakeholders emphasized the need for clearer and more accessible regulatory information; Specifically, Belgium and France draw attention to the need to find a balance between agronomic efficacy and regulatory compliance, highlighting key concerns including spray drift reduction, application frequency, and resource efficiency.
- Farmers and advisors alike call for better support, especially in interpreting and comprehend labels, using digital tools, and managing sustainable spraying practices.

### 2) Training gaps

- There is a shared need to organize on-field demonstrations, hands-on sessions, and practical exercises using real equipment and scenarios. This may include the use of modern equipment and simulation tools, where possible (emphasized in Spain, Italy, Poland, Portugal and Belgium).
- Ongoing professional training for both farmers and trainers is widely seen as essential. In nearly all countries, participants stressed the need for continuous training to keep pace with technological advances, as well as to strengthen knowledge in dosage adjustment and bio-PPP knowledge.
- Italian and French participants both highlight the need for clear, concise and easily accessible information on EU and national regulations and improve training on bio-based PPPs, dosage setting, and the calculation of optimal spray volumes to reduce overuse.

### 3) Customization of training content

- There is a strong consensus on the need to adapt training materials to local contexts (including geographic and climatic conditions) and tailor such training to different user profiles (i.e., farm managers vs. operators).
- Training content should reflect real-world farming practices and be fully aligned with current regulatory frameworks to ensure relevance and practical applicability.
- Content must be presented in an understandable manner, thorough a simple, comprehensive and non-redundant language.
- Countries highlighted the need for innovative and varied formats to enhance the attractiveness and effectiveness of training, including video sessions, step-by-step guidance, interactive media, link to external resources, and possibility to provide short information in “pills”.
- A recurring theme among the participating countries (i.e. France, Italy, Portugal, and Poland) is the requirement for context-specific and customized training materials. Respondents emphasized the importance of adapting training materials to regional conditions, specific crop types, weather patterns, and the levels of technological advancement among farms. Furthermore, customization should account for the user profiles within the agricultural sector (e.g. advisors or farmers).

### 4) Priority Training Areas

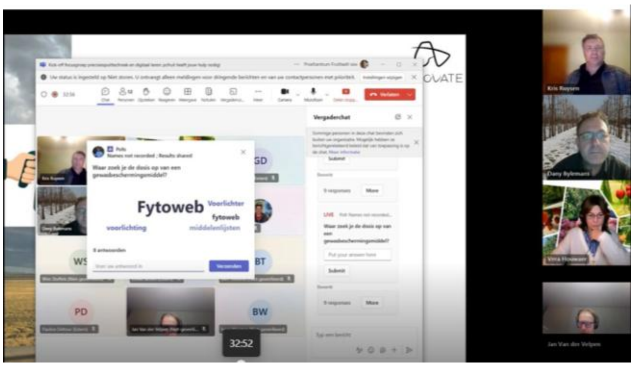
- Nearly all thematic areas were recognised as important content for training. The more considered are: Sprayer Calibration (BE, IT, PT, SP), Dose Expression and Calculation (BE, FR, IT, PT, SP), Drift Reduction (BE, PL), Integrated Pest Management and Organic Farming (IT, PT), Operator Safety and Risk Reduction (IT, PT, SP), Modular Training Structure (IT, PT)

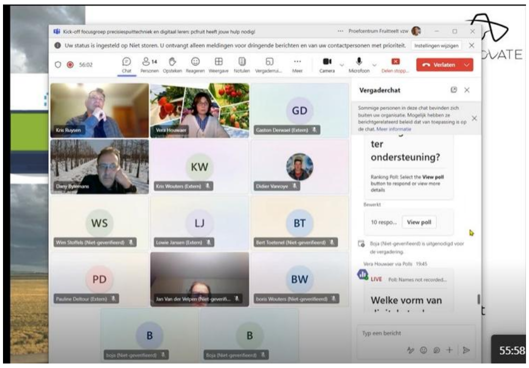
### 5) Platform Development Needs

- Need to develop user-friendly, intuitive, and easily accessible platforms.
- Include elements to enhance engagement such as audio-visual content, simulators and gamified features that should replicate real-life tasks.
- There is consensus on the importance of content validation and credibility, particularly for building trust among farmers.
- Platform should allow for content filtering contents and personalisation based on user needs.
- Several countries highlight the importance of ensuring platform relevance in the medium and long term and maintaining user engagement after initial training.
- Digital tools must offer practical, problem-solving features that address day-to-day needs such as spraying parameter optimisation, drift classification, and dose calculation and fast retrieval of regulatory information and visibility of ongoing EU/national projects.
- Despite the digital focus, the importance of human connection and community remains significant.

## Annex A

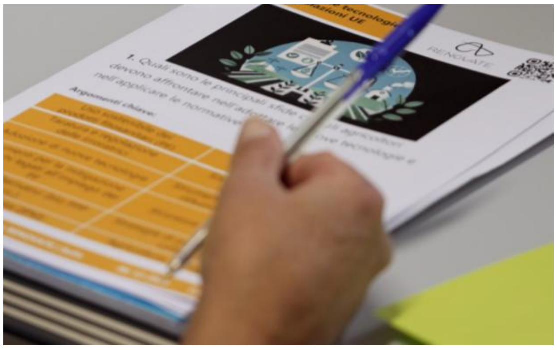
### Pictures took during FG sessions




Belgium


France

Italy

Portugal


Spain

## Sources


Agar, M., MacDonald, J. (1995). Focus groups and ethnography. Hum. Organ. 54(1), 78–86.

Chase, L., & Alvarez, J. (2000). Internet research: The role of the focus group. Library & Information Science Research, 22(4), 357-369.

EU. European Commission (2024). Seed of change: women's role in greening European agriculture. https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine/seeds-change-womens-role-greening-european-agriculture#:~:text=Only%20around%2030%25%20of%20European,development%20of%20innovative%20rural%20businesses.

Freitas, H., Oliveira, M., Jenkins, M., & Popjoy, O. (1998). The focus group, a qualitative research method: reviewing the theory, and providing guidelines to its planning. 1–22.

Kamberelis, G., & Dimitriadis, G. (2005). Focus groups: Strategic articulations of pedagogy, politics, and inquiry. In N. K. Denzin, & Y. S. Lincoln (Eds.), The Sage Handbook of Qualitative Research, 3rd ed. (pp. 887–907). Thousand Oaks, CA: Sage Publications Inc.

Matthews, K. L., Baird, M., & Duchesne, G. (2018). Using online meeting software to facilitate geographically dispersed focus groups for health workforce research. Qualitative Health Research, 28(10), 1621-1628.

Merton, R. K., Fiske, M., & Kendall, P. L. (1956). Focused Interview: A Manual of Problems and Procedures, 2nd ed. A division of Macmillan Inc, New York, NY, USA: The Free Press.

Nyumba, T., Wilson, K., Derrick, C. J., & Mukherjee, N. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. Methods in Ecology and evolution, 9(1), 20-32.

Rupert, D. J., Poehlman, J. A., Hayes, J. J., Ray, S. E., & Moultrie, R. R. (2017). Virtual versus in-person focus groups: Comparison of costs, recruitment, and participant logistics. Journal of Medical Internet Research, 19(3), e80.

Sim, J., & Waterfield, J. (2019). Focus group methodology: some ethical challenges. Quality & quantity, 53(6), 3003-3022.

Stewart, D.W. (2018). Focus groups. In: Frey, B.B. (ed.) The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation, vol. 2, pp. 687–692. Sage Publications, Thousand Oaks.

Surendran, A., McSharry, J., Meade, O., Meredith, D., McNamara, J., Bligh, F., & O'Hora, D. (2024). Barriers and facilitators to adopting safe farm-machine related behaviors: a focus group study exploring older farmers' perspectives. Journal of Safety Research, 90, 19-30.

Tey, Y. S., Li, E., Bruwer, J., Abdullah, A. M., Cummins, J., Radam, A., ... & Darham, S. (2012). Qualitative methods for effective agrarian surveys: a research note on focus groups. American-Eurasian Journal of Sustainable Agriculture, 60-66.