

# REPORT

## PARTICIPATORY APPROACHES IN CROP PROTECTION ACHIEVEMENTS, LESSONS AND OPPORTUNITIES

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## 1. INTRODUCTION

The TOP-AGRI-Network (COST Action CA21134 – Towards zero Pesticide AGRiculture: European Network for Sustainability) brings together work aimed at supporting the transition towards agriculture with reduced dependency on synthetic and harmful nature-derived pesticides.

Within this framework, this work focuses on participatory approaches to crop protection and on the involvement of farmers, researchers, advisors, public authorities, producer organisations and other actors in the co-design, testing, implementation and evaluation of crop protection strategies. Particular attention is given to integrated pest management (IPM), agroecological and preventive approaches, and strategies aimed at reducing pesticide dependency. These approaches are increasingly recognised as requiring not only technical innovation but also learning processes that integrate scientific, experiential and locally specific knowledge (Pretty, 1995; Barzman *et al.*, 2015; Utter *et al.*, 2021).

Participatory agricultural research has a long history and encompasses different degrees and forms of involvement, ranging from consultation and knowledge sharing to joint experimentation, co-design and shared decision-making. The literature also emphasises that participation is not inherently beneficial: its value depends on how actors are involved, the extent to which their knowledge and priorities influence decisions, and whether participation is

supported by appropriate resources, trust, transparency and facilitation (Farrington & Martin, 1988; Reed, 2008). In agroecology in particular, co-creation of knowledge is considered important because practices and solutions are strongly dependent on local ecological, social and economic conditions (Lacombe *et al.*, 2018; Maughan & Anderson, 2023).

The aim of this report is to synthesise achievements, experiences and lessons learned from participatory approaches to crop protection, with a primary focus on their relevance to European contexts. It examines the added value generated by participation and co-creation, the conditions that enable these approaches to work, the main barriers encountered, and their potential for transfer and adaptation to other farming systems and contexts.

The report draws on participatory crop protection experiences collected through an online questionnaire and on the subsequent discussion held during a virtual meeting on 15 September 2026. Together, these sources provide the basis for characterising the experiences shared and examining, across different contexts, how participation takes place, what it contributes, what facilitates or constrains it, and what can be learned for future participatory crop protection initiatives.

## 2. METHODOLOGICAL APPROACH

### 2.1. COLLECTION AND CHARACTERISATION OF EXPERIENCES

Prior to the virtual meeting, a short online questionnaire was used to collect participatory experiences in crop protection. Participants were invited to identify an experience and provide information on the context in which it took place, the actors involved and how participants contributed to the process.

The questionnaire allowed respondents to select multiple options for the context, actors involved and forms of participation, reflecting the potentially overlapping characteristics of participatory initiatives. Forms of participation included identifying problems and needs, co-designing solutions, experimentation or testing, knowledge and experience sharing, implementation, monitoring and evaluation, and dissemination or peer-to-peer learning.

A total of 36 responses were received through the online questionnaire. Of these, 33 included a description or identification of a participatory crop protection experience. The questionnaire responses were used to characterise the diversity of experiences submitted and to provide a common starting point for the discussion during the virtual meeting.

### 2.2. VIRTUAL MEETING

An virtual meeting, held in English, took place on 15 September 2026 within the framework of the TOP-AGRI-Network. The meeting brought together participants with experience in participatory approaches to crop protection from different countries and contexts.

At the beginning of the meeting, the main characteristics of the questionnaire responses were briefly presented, including the contexts in which the experiences took place, the actors involved

and the ways in which they participated. Rather than discussing each submitted experience individually, the meeting was designed to support a transversal reflection across experiences.

The discussion was structured around six dimensions: (1) the added value of participation; (2) enabling factors; (3) barriers; (4) lessons learned; (5) transferability and adaptation; and (6) recommendations for future participatory crop protection initiatives.

Participants contributed orally and through the meeting chat. The main points raised during the discussion were recorded in real time on a shared Whiteboard by the facilitation team. The meeting was recorded with the participants' consent to support the subsequent organisation and synthesis of the information.

### 2.3. ANALYSIS AND SYNTHESIS

Information from the questionnaire and the virtual meeting was analysed in two complementary stages. Questionnaire responses were used to characterise the experiences, their contexts, the actors involved and the forms of participation. Contributions from the meeting were organised according to the six dimensions used to structure the discussion.

For the qualitative synthesis, information recorded on the Whiteboard, contributions made through the meeting chat, facilitators' notes and the meeting recording were considered together. Where the same contribution was captured in more than one source, it was treated as a single contribution rather than as independent evidence. The original meaning and context of participants' contributions were retained as far as possible before grouping related contributions into broader themes. Cross-checking the different records of the meeting helped to clarify and consolidate the contributions and provided a more complete and reliable basis for the synthesis of the results.

The synthesis reflects the experiences submitted through the questionnaire and the contributions made during the virtual meeting. It is therefore not intended to provide a representative assessment of participatory crop protection approaches across Europe, but rather to identify experiences, insights and lessons emerging from the contributions collected through this process.

## 3. PARTICIPATORY APPROACHES IN CROP PROTECTION: EXPERIENCES AND ACHIEVEMENTS

The experiences collected through the questionnaire illustrate different participatory approaches to crop protection across a range of geographical and organisational contexts. This section characterises the experiences reported, the contexts in which they took place, the actors involved and their forms of participation.

### 3.1. GEOGRAPHICAL DISTRIBUTION AND OVERVIEW OF THE EXPERIENCES

The experiences reported through the questionnaire covered different geographical contexts, with most located in Europe and additional experiences from outside Europe (Figure 1).

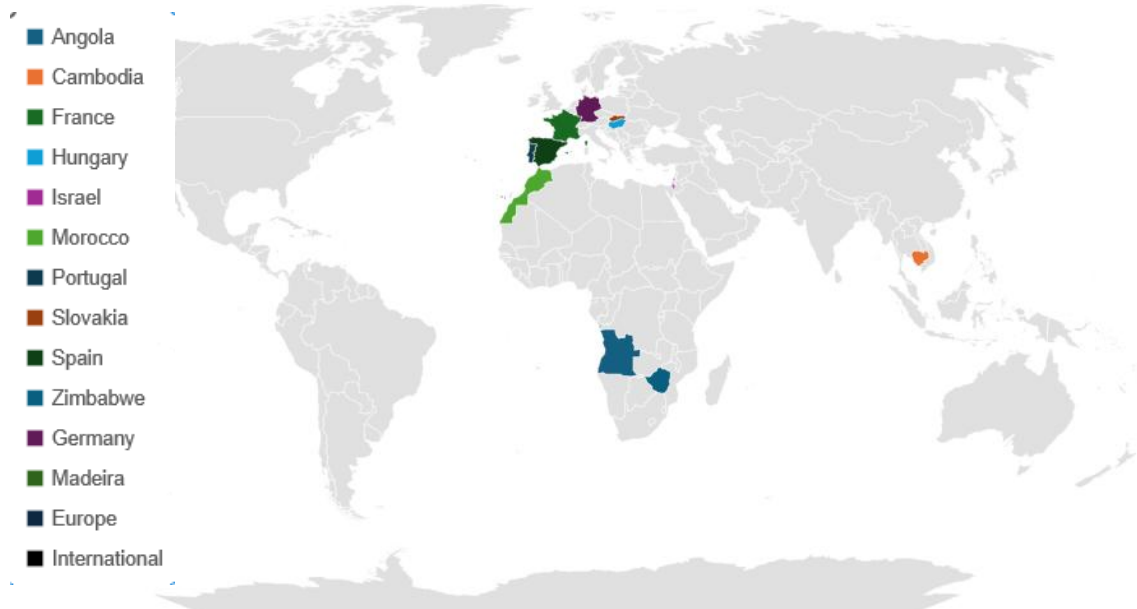


Fig 1. Geographical distribution of the participatory crop protection experiences

The experiences shared were diverse in their scope and approach. Some addressed specific pests and diseases, including fall armyworm, broomrape in faba bean, maize late wilt, cotton charcoal rot and fruit pests, while others focused on broader approaches to crop protection. These included biological control, mating disruption, microbiota-based approaches, plant-based extracts, induced plant resistance, crop and habitat diversification, cover crops and flowering strips, soil health management, functional biodiversity and the conservation and use of locally adapted or traditional seeds.

Several experiences combined crop protection with broader agroecological or preventive approaches, including agroecosystem design, enhancement of beneficial fauna and ecosystem services, biodiversity-based practices, regenerative agriculture and reduction of dependency on external chemical inputs. Other contributions addressed the effects of pesticides on beneficial organisms, particularly pollinators.

The experiences also differed in the way participatory work was organised. They included on-farm experimentation and demonstration, farmer-hosted trials, Living Labs, farmer or producer groups, farmer clusters, participatory evaluation, farmer field schools, community-based initiatives, networks and multi-actor projects. In several cases, farmers and other actors were involved in testing or assessing crop protection strategies under farm conditions, while other experiences focused more strongly on knowledge exchange, participatory assessment or co-design.

### 3.2. IN WHAT CONTEXTS DID THE EXPERIENCES TAKE PLACE?

The experiences reported through the questionnaire took place in diverse and often overlapping contexts (Figure 2). Research projects were the most frequently reported context, selected in 26 of the 36 responses (72.2%), followed by on-farm activities or experimentation, reported in 24 responses (66.7%). Farmer or producer groups and national or international networks were each reported in 15 responses (41.7%). Teaching or education and advisory or extension activities were each selected in 10 responses (27.8%), while eight responses referred to multi-actor initiatives (22.2%). One response referred to development cooperation activities (2.8%).

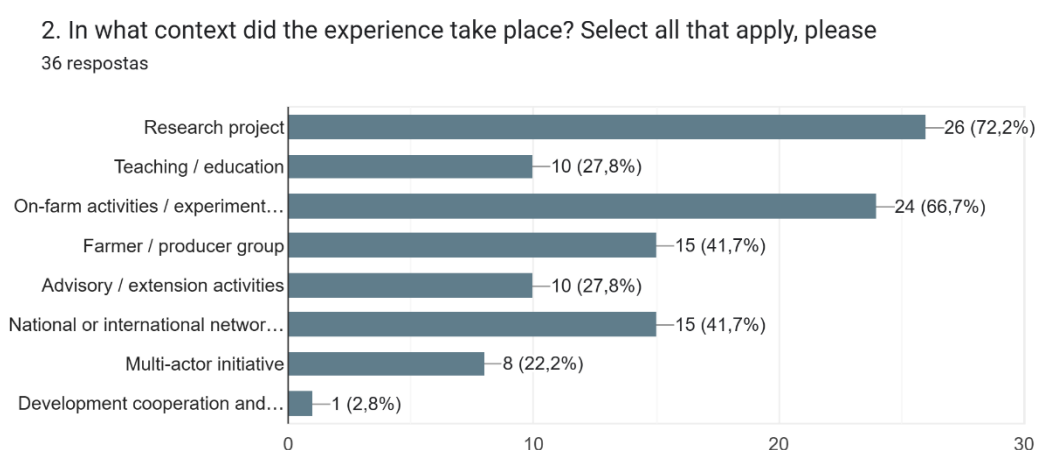


Fig 2. Contexts in which the participatory crop protection experiences took place (n = 36)

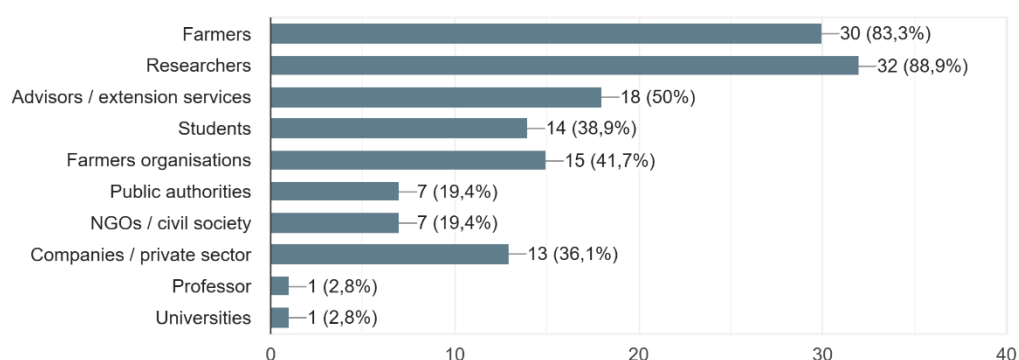
As respondents could select more than one option, the categories are not mutually exclusive. The results therefore show that the experiences were developed across multiple and sometimes overlapping settings, with research projects and on-farm activities or experimentation being the most frequently reported contexts.

### 3.3. WHO WAS INVOLVED?

The experiences involved a broad range of actors (Figure 3). Researchers were the most frequently reported group, involved in 32 of the 36 responses (88.9%), closely followed by farmers, reported in 30 responses (83.3%). Advisors or extension services were involved in 18

3. Who was involved? Select all that apply, please.

36 respuestas



responses (50.0%), and farmers' organisations in 15 (41.7%). Students were reported in 14 responses (38.9%) and companies or private-sector actors in 13 (36.1%). Public authorities and NGOs or civil society organisations were each involved in seven responses (19.4%). One response additionally identified a professor and one identified universities (2.8% each).

Fig 3. Actors involved in the participatory crop protection experiences (n = 36)

As respondents could select more than one option, the categories are not mutually exclusive. The results show that, although farmers and researchers were the predominant actors, the experiences also involved advisory services, farmers' organisations, education, the private sector, public authorities and civil society.

### 3.4. HOW DID PARTICIPANTS CONTRIBUTE?

Participants contributed at different stages of the experiences (Figure 4). Knowledge and experience sharing was the most frequently reported form of participation, selected in 32 of the 36 responses (88.9%). Identifying problems or needs and experimentation or testing were each reported in 26 responses (72.2%). Co-designing solutions and monitoring or evaluation were each selected in 20 responses (55.6%), while implementation and dissemination or peer-to-peer learning were each reported in 19 responses (52.8%). One additional response referred to farmers offering agroecology services (2.8%).

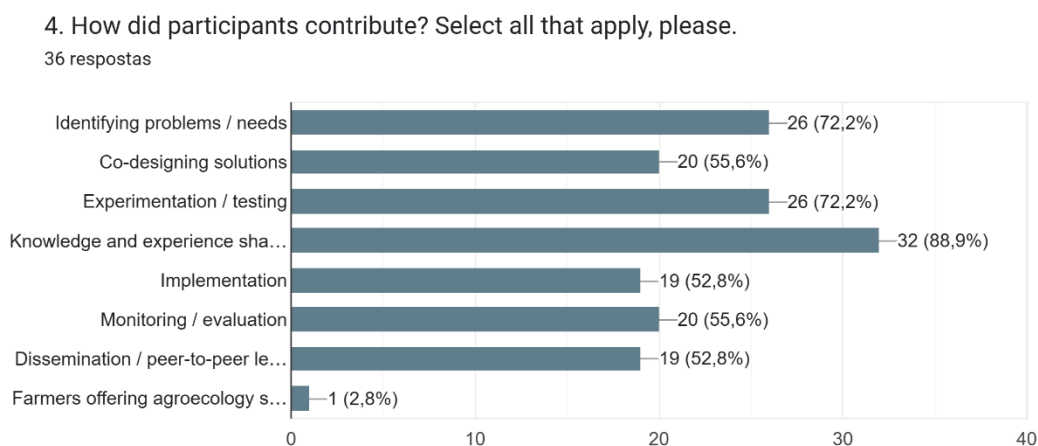


Fig 4. Forms of participation in the participatory crop protection experiences (n = 36)

As respondents could select more than one option, the results indicate that participation occurred across different stages of the experiences, from identifying problems and co-designing solutions to experimentation, implementation, monitoring and dissemination. Knowledge and experience sharing was particularly prominent across the experiences reported.

## 4. INSIGHTS FROM THE VIRTUAL MEETING

#### 4.1. ADDED VALUE OF PARTICIPATION

Participants identified several ways in which participation added value to crop protection initiatives. One aspect highlighted during the discussion concerned the relevance and robustness of research and proposed solutions. Participation was associated with obtaining a broader understanding of the context, producing more robust results, testing solutions under real farming conditions, and working more closely with stakeholders' priorities.

Participation was also associated with more bottom-up and co-created approaches. Examples discussed during the meeting included farmers participating in the design, testing and monitoring of crop protection strategies under real farm conditions. In one experience, for example, farmers were involved in choosing and monitoring measures such as flowering strips, bat boxes and bird nests in apple orchards.

A further contribution concerned interaction and exchange between different actors. Participants referred to the value of sharing research findings directly with producers, consumers and wider society, while receiving feedback on those findings. Participation was also described as helping to soften institutional boundaries, increase farmers' interest in solutions proposed by researchers, and strengthen engagement and a sense of belonging.

The discussion therefore highlighted added value not only in the technical or research outcomes of participatory initiatives, but also in the relationships and exchanges created through the participatory process itself.

#### 4.2. ENABLING FACTORS

Participants identified several conditions that supported effective participation. Simplicity and accessibility were emphasised, including keeping participation straightforward for farmers, reducing administrative burden and paperwork, establishing clear goals, and using understandable language rather than overly technical terminology. The need to adapt communication tools and, where necessary, translate them into appropriate languages was also raised.

Time and financial conditions were also identified as important. Participants stressed the need for sufficient time to meet, exchange knowledge and develop relationships, as well as financial compensation for the time dedicated by farmers to participatory activities.

Trust and the recognition of different forms of knowledge emerged as another important dimension. Participants highlighted trust between farmers and researchers and the importance of recognising academic knowledge and farmers' experiential knowledge on an equal basis. Dialogue was also considered important for identifying problems and developing solutions that are locally adapted, useful and less costly for farmers.

Direct involvement of farmers and on-farm interaction were also highlighted. In one experience, for example, collaboration with farmers made it possible to test cover crops and flowering strips under farm conditions and obtain farmers' first-hand assessments of the tested mixtures.

Participants also referred to willingness to participate, connections with innovative farmers and, in some cases, access to the technological means required to undertake the proposed activities.

#### 4.3. BARRIERS TO PARTICIPATION

Participants identified time and workload as important barriers to participation. Lack of time, the risk of overloading farmers and stakeholder fatigue were raised during the discussion. One participant noted that repeated involvement in investigations or questionnaires that farmers perceive as having little relevance to their own needs may contribute to participation fatigue over time.

Financial constraints were also highlighted. These included lack of funding or compensation for participation, delays in payments, limited financial capacity to advance project-related expenses, and difficulties in accessing credit for this purpose. An imbalanced distribution of risk among those involved was also identified as a barrier.

Administrative and practical constraints could further restrict participation. Participants referred to administrative requirements and concerns about scrutiny or possible consequences associated with project eligibility requirements. Difficulties related to reporting costs were also mentioned. In some experiences, lack of appropriate machinery or reliance on older equipment constrained farmers' ability to engage with proposed activities. Digital approaches were not always considered suitable for engaging farmers, with face-to-face contact identified as necessary in some contexts.

The relevance of project activities to farmers' priorities was another concern. Participants cautioned against externally defined, time-consuming or costly activities that may not address farmers' priorities, as these can discourage engagement and contribute to participation fatigue.

Finally, the discussion raised questions concerning knowledge sovereignty. In particular, participants questioned whether farmers retain ownership of the knowledge and information they contribute, especially in projects involving the development of digital tools.

#### 4.4. LESSONS LEARNED

Several lessons emerged from participants' experiences regarding how participatory processes should be designed and conducted. Respect, horizontality and transparency were highlighted as important principles, together with the time and trust needed to build common goals between those involved.

Meaningful farmer involvement emerged as an important lesson from the discussion. Participants cautioned against developing research or field trials without farmers' involvement, noting that solutions developed outside farming conditions may not be appropriate for farms. Approaches such as Living Labs were mentioned as ways of developing and testing solutions more closely with farmers and under real farming conditions.

Reciprocity in knowledge exchange was another important lesson. Participants stressed the value of farmer-to-farmer learning and the need to share results that are relevant to farmers. Where farmers contribute data or samples, feedback should also provide information that is useful to them, including individual results where relevant, rather than limiting communication to broader project or national-level reports.

Participants also highlighted the importance of reducing unnecessary documentation and adapting communication to farmers, avoiding overly academic or research-oriented language. Activities that are perceived as irrelevant by farmers may contribute to participation fatigue, reinforcing the importance of keeping participatory activities connected to their needs and priorities.

Finally, the discussion highlighted the importance of preserving agricultural and traditional knowledge, learning from mistakes and failures, and recognising social and community dimensions such as mutual care and community resilience. The involvement of a diversity of actors, including advisors able to engage with farmers, was also identified as valuable.

#### 4.5. TRANSFERABILITY AND ADAPTATION

Participants highlighted the difficulty of directly transferring crop protection solutions between regions and farming contexts. Differences in local conditions were seen as limiting the possibility of identifying a single solution that could be applied in the same way across different settings.

Rather than simply replicating specific solutions, participants suggested that greater attention should be given to transferring approaches and ways of working, with solutions adapted to local conditions. One experience indicated, for example, that a technical approach could potentially be reproduced in other regions with comparable conditions, while the specific practices would still need to respond to the local context.

Local networks involving farmers and other stakeholders were identified as relevant to this adaptation process. Participants also highlighted the importance of demonstrating clear results and benefits to farmers and considering their perceptions of proposed solutions. Effectiveness and economic viability were also identified as factors influencing whether solutions are likely to be adopted.

Knowledge exchange was another dimension of transferability raised during the discussion. Participants referred both to drawing on knowledge from previous generations and to Participatory Action Research (PAR) as an approach that can support farmers' participation as co-creators of knowledge and experience.

#### 4.6. RECOMMENDATIONS FOR FUTURE PARTICIPATORY CROP PROTECTION INITIATIVES

Participants recommended involving farmers and other non-research actors from the design stage of future projects, building initiatives with them rather than involving them only after the main objectives and activities have been defined. More broadly, the involvement of relevant stakeholders throughout the process was encouraged.

The way farmers are approached and represented was also emphasised. Participants recommended avoiding approaches that make farmers feel guilty for their current practices or that demonise conventional farmers. Instead, engagement should recognise farmers' knowledge, constraints and contributions, including their role in supporting biodiversity.

Fair conditions for participation were also considered important. Participants recommended compensating farmers for the land, labour, time and risk associated with their participation. On-farm advisory and technical support were encouraged, together with local focal points able to maintain contact with farmers, provide support and help build trust.

Transparency and appropriate communication were also highlighted. This included communicating results openly, including when outcomes are not positive, and using dissemination and knowledge-exchange formats that are accessible and useful to farmers. Demonstration fields and other practical forms of exchange were suggested as alternatives or complements to presentations.

Participants also recommended recognising traditional knowledge, including its potential contribution to climate adaptation, and approaching crop protection systemically rather than focusing on individual components in isolation.

The role of consumers was also raised. Participants recommended increasing consumer awareness and providing clear information about what is happening on farms, including through clear metrics and labelling. Strengthening the connection between farming practices, consumer choices and market demand was also identified as relevant to supporting changes in crop protection practices.

Overall, the recommendations point to participatory initiatives that involve relevant actors from the outset, create fair conditions for participation, recognise different forms of knowledge, strengthen local support and exchange, and connect changes in farming practices with consumers and the wider food system.

## 5. CONCLUSIONS

This work brought together diverse participatory crop protection experiences and used them as the basis for a transversal reflection on what participation contributes, the conditions that enable or constrain it, the lessons emerging from practice, and its potential for adaptation to different contexts. The findings reflect the experiences and contributions collected through this process and are not intended to represent participatory crop protection approaches across Europe as a whole.

The experiences show that participation can occur at different stages, from identifying problems and co-designing solutions to experimentation, implementation, monitoring, evaluation and knowledge sharing. Farmers and researchers were the most frequently represented actors, alongside advisors, farmers' organisations, students, private-sector actors, public authorities and civil society. However, the discussion showed that the value of participation depends not simply on the number or diversity of actors involved, but on **how they participate and influence the process**. Meaningful participation was associated with a better understanding of farming

contexts, more relevant and robust results, testing under real farming conditions, greater alignment with stakeholders' priorities, and stronger knowledge exchange and relationships between actors.

For this participation to be meaningful, appropriate conditions are required. Time, trust, clear goals, accessible language, dialogue, recognition of academic and experiential knowledge, financial compensation and reduced administrative burden were identified as important. Conversely, lack of time and funding, workload and participation fatigue, delayed payments, administrative requirements, unequal distribution of risk, practical and technological constraints, and activities poorly aligned with farmers' priorities can restrict participation. The discussion also raised concerns about knowledge sovereignty and farmers' ownership of the knowledge and information they contribute.

An important lesson emerging from the discussion is that participation needs to be reciprocal.. Farmers should not participate only as providers of land, time, data or knowledge; participatory processes should also return useful results, support farmer-to-farmer exchange and recognise traditional and experiential knowledge. Respect, horizontality, transparency and trust are therefore central, as are learning from failures and recognising social and community dimensions.

The discussion also showed that transferability should not be understood as simply replicating solutions across territories or farming systems. Participatory approaches and ways of working may be transferable, but specific solutions need to be adapted to local conditions, taking into account farmers' perceptions, demonstrated benefits, effectiveness, economic viability, local networks and existing knowledge.

Future initiatives should therefore involve farmers and other relevant actors from the design stage, ensure fair conditions for participation, provide local advisory and technical support, communicate results transparently and use practical and accessible forms of exchange. They should avoid stigmatising farmers, recognise their knowledge, constraints and contributions, and approach crop protection systemically. The role of consumers and markets was also raised, particularly through consumer awareness, clear information, metrics and labelling, and the relationship between farming practices, consumer choices and market demand.

Overall, the work indicates that there is no single participatory model or crop protection solution that can simply be reproduced across contexts. The contribution of participatory approaches lies in creating conditions in which farmers, researchers and other relevant actors can combine different forms of knowledge, identify relevant problems, develop and test responses under real conditions, and adapt them to local contexts. For these approaches to contribute to crop protection strategies aimed at reducing pesticide dependency, participation needs to be meaningful, reciprocal, adequately supported and locally grounded.

## **6. DISSEMINATION AND FOLLOW-UP**

As part of the follow-up to the Virtual Mobility, a short synthesis of the main conclusions of the virtual meeting was prepared to provide feedback to participants and share the main insights, lessons and recommendations emerging from the discussion. This feedback contributes to the reciprocity of the participatory process by returning the results of the collective reflection to those who contributed to it.

As a further dissemination activity, a poster presenting the initiative and its main findings was submitted to the 6th National Colloquium on Organic Horticulture (VICNHB). The poster draws on the experiences collected through the questionnaire and the main insights emerging from the virtual meeting, contributing to disseminating the work to a wider scientific and professional audience.

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## **ANNEXES**

**Annex 1. Online questionnaire**

**Annex 2. Participatory crop protection experiences submitted through the questionnaire**

**Annex 3. Virtual meeting – Whiteboard record**

**Annex 4. Synthesis of the virtual meeting conclusions for participants**

## Annex 1. Online questionnaire

### VIRTUAL MEETING | Participatory approaches in crop protection – achievements, lessons and opportunities

Thank you for contributing to this meeting on **Participatory Approaches in Crop Protection – Achievements, Lessons and Opportunities**.

This short form will help us prepare the meeting and organise the experiences to be shared. It should take only a few minutes to complete.

The information collected through this form and during the meeting will be used to identify and synthesise experiences, achievements and lessons learned from participatory approaches to crop protection, contributing to the final report of the TOP-AGRI-Network. By submitting this form, you consent to the use of the information you provide for these purposes.

**If you have more than one experience to share, please complete a separate form for each experience.**

Email \*

Email válido

Este formulário está a recolher emails. [Alterar definições](#)

Name \*

Texto de resposta curta

#### 1. Please briefly identify the participatory crop protection experience you would like to share.

Name/project/initiative and country (if applicable).

Texto de resposta longa

#### 2. In what context did the experience take place?

Select all that apply, please

- ☐ Research project
- ☐ Teaching / education
- ☐ On-farm activities / experimentation
- ☐ Farmer / producer group
- ☐ Advisory / extension activities
- ☐ National or international network / working group
- ☐ Multi-actor initiative
- ☐ Outra: \_\_\_\_\_

#### 3. Who was involved?

Select all that apply, please.

- ☐ Farmers
- ☐ Researchers
- ☐ Advisors / extension services
- ☐ Students
- ☐ Farmers organisations
- ☐ Public authorities
- ☐ NGOs / civil society
- ☐ Companies / private sector
- ☐ Outra: \_\_\_\_\_

#### 4. How did participants contribute?

Select all that apply, please.

- ☐ Identifying problems / needs
- ☐ Co-designing solutions
- ☐ Experimentation / testing
- ☐ Knowledge and experience sharing
- ☐ Implementation
- ☐ Monitoring / evaluation
- ☐ Dissemination / peer-to-peer learning
- ☐ Outra: \_\_\_\_\_

Enviar

Limpar formulário

## Annex 2. Participatory crop protection experiences submitted through the questionnaire

Responses are reproduced as submitted by respondents, with no substantive editing

| 1. Please briefly identify the participatory crop protection experience you would like to share.<br>Name/project/initiative and country (if applicable).                                                                                                                                                                                                                                                                                                                                                                                                       | 2. In what context did the experience take place?<br>Select all that apply, please                                                                                                                                | 3. Who was involved?<br>Select all that apply, please.                                                                                 | 4. How did participants contribute?<br>Select all that apply, please.                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| My experience focuses on the design and planning of agroecosystems managed under ecological and agroecological principles, integrating functional diversity and beneficial fauna to strengthen ecosystem services. A key aspect of this work is the use of multifunctional plants to enhance biodiversity, support natural pest regulation, improve soil health, and contribute to more resilient and sustainable farming systems.                                                                                                                             | Research project, Teaching / education, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, National or international network / working group, Multi-actor initiative | Farmers, Researchers, Advisors / extension services, Farmers organisations                                                             | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning |
| Participatory on-farm testing of biochar-based soil amendments for healthier and more resilient vegetable production within the V-BIOCHAR project, Pursat Province, Cambodia (2025–2026). The approach combined farmer-hosted demonstration plots, locally adapted training, peer learning and joint assessment of agronomic and economic results. Although the project focused primarily on soil health rather than pesticide reduction, it provides practical lessons for the participatory implementation of preventive and agroecological crop protection. | Teaching / education, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, Multi-actor initiative, Development cooperation and capacity-building project               | Farmers, Researchers, Advisors / extension services, Farmers organisations, Public authorities, NGOs / civil society                   | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning |
| Ally Harari, mating disruption of insect pests, effect on mating behavior, Israel                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Research project, On-farm activities / experimentation, Multi-actor initiative                                                                                                                                    | Farmers, Researchers, Students, Companies / private sector                                                                             | Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning                         |
| Diversification for both pest and disease control and the environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Research project, On-farm activities / experimentation, Advisory / extension activities, National or international network / working group                                                                        | Farmers, Researchers, Advisors / extension services, Companies / private sector                                                        | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning |
| Microbiota-based approaches for sustainable crop protection: recent achievements and future perspectives – Virtual Mobility activity within T0P-AGRI-Network (CA21134)                                                                                                                                                                                                                                                                                                                                                                                         | Research project, National or international network / working group                                                                                                                                               | Researchers                                                                                                                            | Identifying problems / needs, Knowledge and experience sharing, Dissemination / peer-to-peer learning                                                                                             |
| Exploring nettle ( <i>Urtica dioica</i> L.) extracts as a sustainable, plant-based alternative for crop pest and pathogen management                                                                                                                                                                                                                                                                                                                                                                                                                           | Research project, Teaching / education                                                                                                                                                                            | Researchers, Advisors / extension services                                                                                             | Experimentation / testing, Knowledge and experience sharing                                                                                                                                       |
| WARLOP/Framework/Bats to control pests, France                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Research project, On-farm activities / experimentation, Farmer / producer group                                                                                                                                   | Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, NGOs / civil society, Companies / private sector | Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Monitoring / evaluation                                                                                |
| Plant protection in a holistic approach by increasing soil health. Long term work!<br>Create a resilient agroecosystems enhancing soil functions and plant resilience to better support crop enemies and avoid control methods. A case study in Ribatejo with annual crop systems.                                                                                                                                                                                                                                                                             | Research project, On-farm activities / experimentation                                                                                                                                                            | Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, Public authorities, Companies / private sector   | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning |

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| <p>I have to main ideas:</p> <p>1- Development and participatory evaluation of broomrape-resistant faba bean breeding lines – DIVICIA PRIMA project, Morocco</p> <p>Within a PRIMA project “DIVICIA”, Moroccan partners developed and participatively evaluated new faba bean breeding lines with improved resistance to <i>Orobanche crenata</i> (broomrape). The experience presented here focuses specifically on the Moroccan component and results of the project. The first resistant breeding lines developed in Morocco were presented to farmers, who expressed strong interest and enthusiasm, particularly because these lines offer a promising alternative to chemical control of broomrape. Their use could help reduce reliance on herbicides, including glyphosate-based approaches, while providing a more sustainable and farmer-oriented solution for broomrape management in faba bean production.</p> <p>2- Participatory assessment of farmer and consumer perspectives on reducing chemical use in agriculture – INTOMED PRIMA project, Morocco</p> <p>Within a PRIMA project “INTOMED”, a participatory approach was implemented across several Mediterranean countries to better understand stakeholder perceptions and barriers related to reducing chemical inputs in agriculture. The study combined a structured online survey targeting consumers, focusing on their attitudes, beliefs, and concerns regarding the use of chemicals in agriculture, with face-to-face visits and in-depth interviews with farmers to explore their perspectives and willingness to adopt less chemical-intensive crop-protection alternatives. For this contribution, we will specifically present the Moroccan results of this Mediterranean-wide study. Both Moroccan consumers and farmers showed moderate to high awareness of the potential risks associated with chemical use in crop production and expressed a positive inclination toward more sustainable agricultural practices. However, the study also revealed important barriers to adoption, particularly skepticism about the effectiveness of available alternatives and concerns regarding their economic viability. These findings highlight the importance of participatory approaches that bring together farmers, consumers, and researchers to identify practical, effective, and economically viable pathways toward more sustainable crop protection.</p> | <p>Research project, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, National or international network / working group</p>                         | <p>Farmers, Researchers, Advisors / extension services, Students, Farmers organisations</p>                                                 | <p>Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Monitoring / evaluation, Dissemination / peer-to-peer learning</p>                 |
| <p>Living Labs/AGROSOIL/EU AGROECOLOGY Partnership funded project</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Research project, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, National or international network / working group, Multi-actor initiative</p> | <p>Farmers, Researchers, Advisors / extension services, Farmers organisations, Public authorities</p>                                       | <p>Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning</p> |
| <p>Apolarion</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Research project</p>                                                                                                                                                                            | <p>Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, Public authorities, Companies / private sector</p> | <p>Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing</p>                                                                                 |
| <p>I would like to share my experience leading participatory field research in Israel on the integrated management of maize late wilt and cotton charcoal rot. In collaboration with growers, extension advisers, regional R&amp;D teams, and industry partners, we evaluated molecular diagnostics and combined biological, chemical, and agronomic protection strategies under commercial field conditions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Research project, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities</p>                                                                            | <p>Farmers, Researchers, Advisors / extension services, Farmers organisations</p>                                                           | <p>Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation</p>                                                                |
| <p>The isolation, identification, in vivo production, and virulence of entomopathogenic nematodes against agricultural pests.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Research project, Teaching / education, On-farm activities / experimentation</p>                                                                                                                | <p>Farmers, Researchers, Students</p>                                                                                                       | <p>Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation</p>                                                                |

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| WARLOP/Framework/Bats against fruit pests, France                                                                                                                                                                                                                                                                                                                                    | Research project, On-farm activities / experimentation, Farmer / producer group                                                                                                                                   | Farmers, Researchers, Advisors / extension services, Students, NGOs / civil society, Companies / private sector                                                          | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Monitoring / evaluation                                                                                                                                 |
| PRIMA ASTER, Portugal                                                                                                                                                                                                                                                                                                                                                                | Research project                                                                                                                                                                                                  | Farmers, Researchers                                                                                                                                                     | Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Implementation                                                                                                                                |
| We faced the problem of Fall Army worm and we had no successful remedies to the challenge. We later monitored the way the worm feeds during the night and discovered that it stays in the maize crop pith during the day and feeds during the night. We tested feeling the pith of affected plants with our soil. The results were positive, we managed to kill the worm using soil. | On-farm activities / experimentation, Farmer / producer group                                                                                                                                                     | Farmers, Farmers organisations                                                                                                                                           | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning                                        |
| TAGAIDA project (Innovation Tracking for Glyphosate Phase-out by Innovative Farmers), France                                                                                                                                                                                                                                                                                         | Research project                                                                                                                                                                                                  | Farmers, Researchers, Advisors / extension services                                                                                                                      | Knowledge and experience sharing, Dissemination / peer-to-peer learning                                                                                                                                                                  |
| Mirtilos Lobão da Beira/ HARVEST/RESTORE/ Portugal                                                                                                                                                                                                                                                                                                                                   | Research project, Teaching / education, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, National or international network / working group, Multi-actor initiative | Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, Companies / private sector                                                         | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Monitoring / evaluation, Dissemination / peer-to-peer learning                                                        |
| Processes for the protection of traditional crops and traditional seeds in irrigated areas (with the arrival of new female landowners who are immigrants from Latin America) in peri-urban agricultural settings in the city of Granada.                                                                                                                                             | Teaching / education                                                                                                                                                                                              | Farmers, Farmers organisations                                                                                                                                           | Knowledge and experience sharing                                                                                                                                                                                                         |
| As COSPE ecological transition lead, Cospe has extensive experience in agroecological crop protection, particularly through crop diversification, soil health management, locally adapted seed systems, farmer field schools, biodiversity-based practices and the reduction of dependency on external chemical inputs, in different countries, worldwide.                           | Research project, Teaching / education, On-farm activities / experimentation, Farmer / producer group                                                                                                             | Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, Public authorities, NGOs / civil society, Companies / private sector, Universities | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning, Farmers offering agroecology services |
| Systemic acquired and induced resistance (SAR and ISR)/ekolive/Slovakia                                                                                                                                                                                                                                                                                                              | On-farm activities / experimentation                                                                                                                                                                              | Farmers, Researchers, Companies / private sector                                                                                                                         | Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning                                                                |
| Pest control/RE-FARM Project/DeSIRA Programme in Angola                                                                                                                                                                                                                                                                                                                              | Research project, On-farm activities / experimentation, Farmer / producer group                                                                                                                                   | Farmers, Advisors / extension services, Students                                                                                                                         | Experimentation / testing, Knowledge and experience sharing, Implementation                                                                                                                                                              |
| EIP AGRI OG - GOS ACCESO                                                                                                                                                                                                                                                                                                                                                             | National or international network / working group                                                                                                                                                                 | Farmers, Researchers, Advisors / extension services                                                                                                                      | Co-designing solutions, Monitoring / evaluation                                                                                                                                                                                          |
| Smallholder farmers in the Shashe Agroecology School, ward 33, Masvingo district in Zimbabwe successfully control of Fall Army worm in maize crop using soil a living soil.                                                                                                                                                                                                          | On-farm activities / experimentation, Farmer / producer group                                                                                                                                                     | Farmers, Farmers organisations                                                                                                                                           | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation                                                                                                        |
| Agroecological Crop Protection Initiative (ACPI), ACROPICS project, international network with co-design activities in a set of agroecological place-based systems in 10 countries.                                                                                                                                                                                                  | Research project, On-farm activities / experimentation, Farmer / producer group, Advisory / extension activities, National or international network / working group, Multi-actor initiative                       | Farmers, Researchers, Advisors / extension services, Students, Farmers organisations, Public authorities, NGOs / civil society, Companies / private sector               | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning                                        |
| At the Hungarian Research Institute of Organic Agriculture (commonly referred to as ÖMKI) we are testing seed mixtures for perennial cover cropping in vineyards and orchards and evaluate the ecosystem services they provide. Our results also showed that sowing of these mixtures can contribute to plant protection in case of certain pests.                                   | Research project, On-farm activities / experimentation, National or international network / working group                                                                                                         | Farmers, Researchers, NGOs / civil society, Companies / private sector                                                                                                   | Experimentation / testing, Knowledge and experience sharing, Implementation, Dissemination / peer-to-peer learning                                                                                                                       |

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| At the Hungarian Research Institute of Organic Agriculture (commonly referred to as ÖMKI) we are testing seed mixtures for perennial cover cropping in vineyards and orchards and evaluate the ecosystem services they provide. Our results also showed that sowing of these mixtures can contribute to plant protection in case of certain pests.                                                                                                                                                                                                                                                         | Research project, On-farm activities / experimentation                                                                          | Farmers, Researchers, Companies / private sector     | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Monitoring / evaluation, Dissemination / peer-to-peer learning                 |
| My experience in crop protection is rather the impact of it on beneficial fauna. I have been working with pollinators in agrienvironment and reaction of bees on pesticides.                                                                                                                                                                                                                                                                                                                                                                                                                               | Research project, Teaching / education, On-farm activities / experimentation, National or international network / working group | Farmers, Researchers, Students                       | Identifying problems / needs, Co-designing solutions, Experimentation / testing, Knowledge and experience sharing, Implementation, Monitoring / evaluation, Dissemination / peer-to-peer learning |
| "Mãos na Terra" (Community Garden) and the University Seed Bank. Madeira, Portugal.<br>This initiative is a volunteer-led community garden situated on a university campus. It serves as a practical, participatory bridge between the academic community and the local neighborhood. Our focus is on raising awareness for endemic plants and applying regenerative agriculture principles. Furthermore, the project is closely connected to the university's seed bank, which actively collects, preserves, and protects old, local plant varieties to ensure regional biodiversity and crop resilience. | Teaching / education, On-farm activities / experimentation, Multi-actor initiative                                              | Farmers, Researchers, Students, NGOs / civil society | Co-designing solutions, Knowledge and experience sharing, Implementation, Dissemination / peer-to-peer learning                                                                                   |
| Toader Maria/SUPPORT - Supporting uptake Integrated Pest Management and low-risk pesticide use /ID-101084527/Romania                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Research project, Teaching / education, National or international network / working group                                       | Researchers, Professor                               | Identifying problems / needs, Experimentation / testing, Knowledge and experience sharing, Dissemination / peer-to-peer learning                                                                  |

## Whiteboard



### 1. ADDED VALUE

**1. ADDED VALUE**  
What does participation make possible that would be difficult to achieve without it?

## 21

## 2. ENABLING FACTORS

### 3. BARRIERS

### What makes participation difficult?

#### 4. LESSONS LEARNED

**What should we keep doing? What should we do differently?**

## 5. TRANSFERABILITY / ADAPTATION

**What could be transferred to other farming systems or European contexts? What would need to be adapted?**

## 5. RECOMMENDATIONS

What should be strengthened or done differently in future participatory crop protection initiatives?

[illegible]

## Annex 4. Synthesis of the virtual meeting conclusions for participants

### Synthesis of the Virtual Meeting Conclusions

#### Participatory Approaches in Crop Protection – Achievements, Lessons and Opportunities

The experiences shared and the discussion showed that the value of participation depends not simply on who is involved, but on how people participate and influence the process. Meaningful participation can help research and proposed solutions respond more closely to farming realities and stakeholders' priorities, bring together different forms of knowledge, and allow solutions to be developed and tested under real farming conditions. It can also strengthen knowledge exchange, feedback and relationships between the actors involved.

However, meaningful participation requires the right conditions. Time, trust, clear goals, accessible communication, dialogue, recognition of different forms of knowledge, adequate financial support and reduced administrative burden were identified as important. Conversely, lack of time and resources, participation fatigue, bureaucracy, financial and practical constraints, unequal distribution of risk, and activities that do not respond to farmers' priorities can discourage participation. The discussion also raised questions of knowledge sovereignty, particularly regarding ownership of the knowledge and information contributed by farmers.

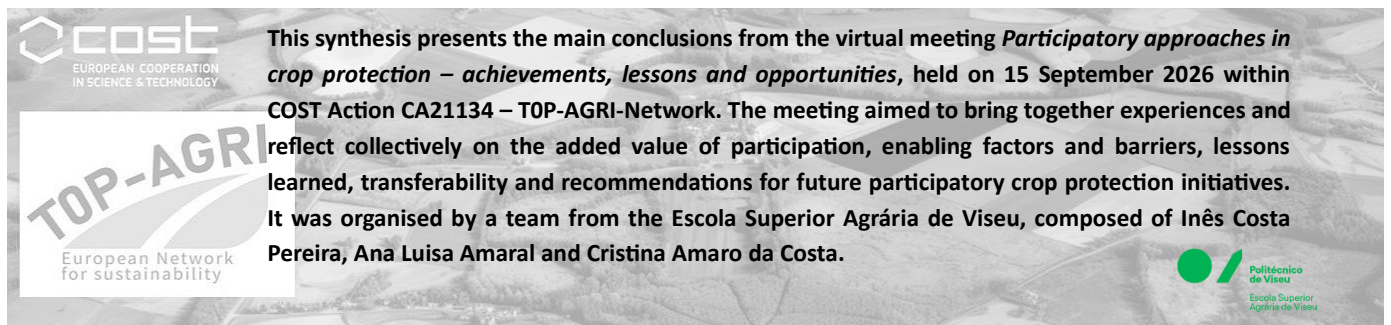
An important lesson was the need for reciprocity. Farmers should not participate only as providers of land, time, data or knowledge. Participatory processes should also return useful results, support farmer-to-farmer exchange and recognise experiential and traditional knowledge. Respect, horizontality, transparency and trust are therefore important foundations for participation.

The discussion also showed that transferability should not mean simply copying solutions from one context to another. Participatory approaches and ways of working may be transferable, but specific solutions need to be adapted to local conditions, taking into account farmers' perceptions, demonstrated benefits, effectiveness, economic viability, local networks and existing knowledge.

For future initiatives, participants highlighted the importance of involving farmers and other relevant actors from the design stage and throughout the process, ensuring fair conditions for participation, providing local advisory and technical support, and communicating results transparently through practical and accessible forms of exchange. They also stressed the importance of avoiding the stigmatisation of farmers, recognising their knowledge, constraints and contributions, and approaching crop protection systemically rather than through isolated technical interventions. The role of consumers and markets was also raised, particularly in relation to awareness, clear information, labelling and the connection between farming practices, consumer choices and market demand.

Overall, there is no single participatory model or crop protection solution that can simply be reproduced across contexts. Participatory approaches are most valuable when they create the conditions for farmers, researchers and other relevant actors to bring together different forms of knowledge, identify relevant problems, develop and test responses under real conditions,

learn from the process and adapt solutions to local contexts. Participation therefore needs to be meaningful, reciprocal, adequately supported and locally grounded.



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European Network  
for sustainability

This synthesis presents the main conclusions from the virtual meeting *Participatory approaches in crop protection – achievements, lessons and opportunities*, held on 15 September 2026 within COST Action CA21134 – TOP-AGRI-Network. The meeting aimed to bring together experiences and reflect collectively on the added value of participation, enabling factors and barriers, lessons learned, transferability and recommendations for future participatory crop protection initiatives. It was organised by a team from the Escola Superior Agrária de Viseu, composed of Inês Costa Pereira, Ana Luisa Amaral and Cristina Amaro da Costa.

 Politécnico  
de Viseu  
Escola Superior  
Agrária de Viseu