



Report on key factors of success for value chain and society supported organic plant breeding

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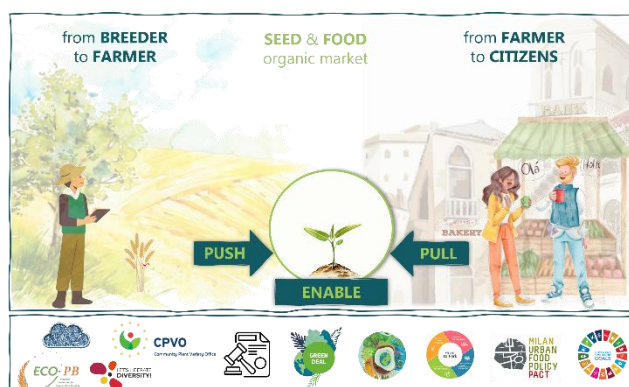
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LiveSeeding - Organic seed and plant breeding to accelerate sustainable and diverse food systems in Europe is a 4-year Innovation Action funded by the European Union, the Swiss State Secretariat for Education, Research and Innovation (SERI) and UK Research and Innovation (UKRI). The project started in October 2022 and brings together 37 organisations operating in 16 European countries. LiveSeeding provides science-based evidence and best practice solutions to help achieve 100 % organic seed.

*LiveSeeding contributes to the transition towards environmentally friendly, climate-neutral, healthy and fair food systems through a **PUSH-PULL-ENABLE** strategy to*

- enhance the availability and adequacy of organic seeds of cultivars appropriate to organic farming (PUSH),
- increase and stabilise the market demand for organic seeds of cultivars appropriate to organic farming (PULL),
- foster an enabling policy and regulatory environment where both demand and supply can harmoniously and productively negotiate without irrelevant constraints due to legal restrictions and/or regulatory fragmentation (ENABLE).



*LiveSeeding addresses the topics in a **holistic multi-actor, multi-stakeholder, participatory approach** involving stakeholders along the value chain in 17 local **Living Labs** (LLs) and 3 established networks of organic breeders (**ECO-PB**), seed savers (**ECLLD**) and Milan Urban Food Policy Pact (**MUFPP**). 15 European countries cover the different pedoclimatic zones and socio-economic contexts, including countries with a low level of development in organic seed and breeding in East and South Europe.*

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List of abbreviations

LLs	Living Labs
ALLs	Agroecology-oriented Living Labs
QH	Quadruplex Helix Model
LLs	LiveSeeding Living Labs
OHM	Organic Heterogenous Material
OV	Organic Varieties

Summary

Organic plant breeding is a key component of the transition towards agroecology-oriented resilient, and sustainable food systems. However, its development and uptake remain constrained by low awareness, limited market demand, and insufficient engagement of actors across the value chain and society. Deliverable 6.3 analyses the role of Living Labs (LLs) as enabling environments for value-chain- and society-supported organic plant breeding within the LiveSeeding project. Based on the experience of 17 Living Labs operating across diverse European pedoclimatic, institutional and socio-economic contexts, the report identifies the main challenges affecting their functioning, the key success factors that support their effectiveness, and their perceived impacts on organic seed systems and related value chains. The deliverable contributes to the project's PUSH–PULL–ENABLE strategy by providing evidence on how participatory, multi-actor innovation ecosystems can strengthen the availability, uptake and societal support of organic seeds and organic varieties.

The objective of this deliverable is to identify and assess the key enabling factors and structural barriers influencing Living Labs engaged in organic breeding and organic value chain development, and to evaluate their perceived environmental, research, market, social and policy impacts. The scope covers all 17 LiveSeeding Living Labs, representing different maturity levels, crops, governance structures and territorial scales. The analysis addresses the entire organic breeding ecosystem, from participatory on-farm trials and seed production to market development, stakeholder engagement and policy interaction. The methodological approach is based on a mixed-methods design combining literature review, a participatory workshop, an online survey, semi-structured interviews and a final validation workshop. Data were analysed through descriptive statistics and qualitative content analysis within an analytical framework structured around seven dimensions: governance; stakeholder engagement and commitment; knowledge exchange and training; research–policy interface; horizontal proliferation and cultural change; monitoring and impact; and economics and infrastructure.

The deliverable is organised into four main chapters: Chapter 1 presents the conceptual and theoretical background of the study, positioning Living Labs as socio-technical niches within sustainability transition frameworks and outlining their relevance for participatory organic breeding and value chain development. Chapter 2 describes the methodological approach, including the analytical framework and the multi-step data collection process combining literature review, workshops, survey, interviews and co-validation. Chapter 3 reports the results of the analysis, presenting both descriptive findings and the validated identification of key challenges and

success factors across the seven analytical dimensions. Chapter 4 presents the main findings, formulates operational recommendations, and discusses the main limitations and future perspectives.

Main findings confirm that **Living Labs can act as effective innovation niches to support organic plant breeding and promote crop diversity, provided that specific enabling conditions are met**. Governance emerges as a central determinant of effectiveness, requiring trust-based collaboration, a shared long-term vision, clearly defined roles and sufficient resources for coordination. Stakeholder engagement is strong among farmers and researchers but remains weaker among downstream value chain actors and policymakers, limiting scaling potential. Knowledge exchange and peer-based learning mechanisms significantly enhance adoption and ownership when adapted to local contexts. Policy impact is more likely to occur where Living Lab activities are strategically aligned with existing regulatory and biodiversity frameworks. Monitoring systems remain underdeveloped in several cases, indicating the need for structured feedback mechanisms and dedicated facilitation roles. Economic sustainability and infrastructure constraints, including funding instability and seed supply challenges, represent persistent structural barriers.

Overall, the deliverable provides evidence-based recommendations to enhance the capacity of Living Labs to contribute to the achievement of the EU objective of 100% organic seed use and to support the long-term development of resilient organic breeding systems.

Introduction

1.1 From Lock-ins to Innovation Niches: The Rationale for Living Labs in LiveSeeding

The LiveSeeding project aims to strengthen the evidence base on the role and added value of organic breeding in supporting the sustainability and resilience of European food systems. By addressing economic, environmental and social dimensions, the project contributes to a broader understanding of how organic plant breeding can foster agroecological transitions and support the objective of achieving 100% organic seed use. LiveSeeding promotes organic breeding through a multi-actor approach and highlights the importance of strengthening links with markets and society.

Organic plant breeding is recognised as a key component of resilient and sustainable agri-food systems. However, despite its strategic relevance, its development and uptake remain constrained by low awareness, limited market demand and insufficient engagement of actors along the value chain, including consumers (Petitti et al., 2024). Dominant knowledge and technological pathways originating from conventional agricultural systems create lock-ins that hinder the scaling-up of organic farming and highlight the need for alternative innovation pathways capable of overcoming existing constraints. Lock-ins are defined as “self-reinforcing mechanisms that reproduce the status quo, hinder change, and reduce the perceived feasibility of alternative agricultural practices” (Weituschat et al., 2022).

Box 1: Lock-ins, niches, and socio-technical regimes

A lock-in is a situation in which the historical accumulation of knowledge, skills, infrastructure, institutional rules, and evaluation criteria renders a dominant technological trajectory self-reinforcing, while making the development of alternative paradigms extremely costly or unlikely, regardless of their scientific or social value. According to *Vanloqueren and Baret (2009)*, the dominant technological regime of agricultural research has produced, through processes of path dependence and increasing returns, a situation of institutional and cognitive lock-in that constrains the development of alternative technological paradigms (*e.g. Agroecology transitions*).

Research on sustainable and agroecological transitions emphasizes that a transition requires radical changes toward new types of socio-technical systems (Köhler et al. 2019). The Multilevel Perspective Framework (Figure 1) conceptualizes transition through nested levels of change and interactions between three specific scales: the

socio-technical landscape, the regime, and the niches (Geels et al., 2010; Oliver et al., 2018).

Research on agroecological transitions emphasizes that a transition requires radical changes toward new types of socio-technical systems through a process of reconfiguring the dominant regime under landscape pressures, where niches drive innovation and change the dominant regime (Oliver et al., 2019). Niches can drive changes in the dominant system by promoting innovation, overcoming lock-ins, and transforming socio-technical regimes. According to scientific literature niches have a crucial role in the stimulation of radical innovations to count to balance the consequences of path dependence and lock-in (Vanloqueren et al., 2017).

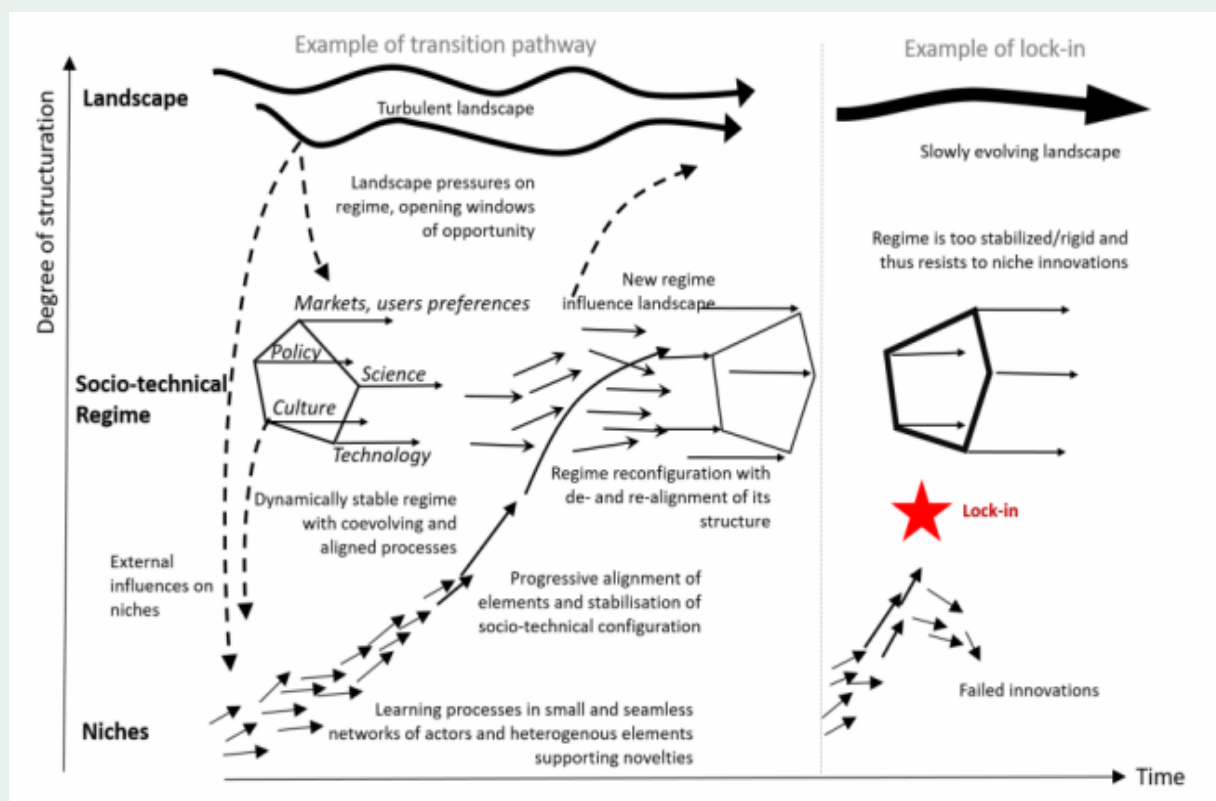


Figure 1 The multilevel view of transitions. Adapted from Geels (2002)

Sustainability transition research conceptualises change in agri-food systems as a multi-level process involving interactions between socio-technical regimes, landscape pressures and innovation niches (Geels et al., 2010; Oliver et al., 2018). Within this framework, niches provide protected spaces where alternative practices can be developed, tested and stabilised before influencing or transforming dominant regimes. In the context of agroecological transitions, niches play a crucial role in stimulating radical innovations and counterbalancing the consequences of path

dependence and lock-in (Vanloqueren and Baret, 2009; Vanloqueren et al., 2017; Köhler et al., 2019; Oliver et al., 2019).

Scientific literature increasingly highlights the importance of integrating different actors and sectors to support the transition of agri-food systems (Van Mil et al., 2014). Collaboration among actors from research, practice, markets, policy and civil society strengthens knowledge exchange, enhances science–policy interfaces and supports more inclusive innovation processes. In this context, citizen engagement and citizen science are gaining increasing recognition for their potential contribution to both scientific progress and social impact.

1.2 Objective and Scope of the Deliverable

Against this background, this deliverable analyses how Living Labs within the LiveSeeding project contribute to strengthening organic plant breeding and organic value chains. The objective is to identify the main challenges encountered by Living Labs, to assess the key success factors enabling their effective functioning, and to evaluate their perceived impacts across environmental, research, economic, social and policy dimensions.

The scope of the analysis covers all 17 LiveSeeding Living Labs operating across diverse European pedoclimatic zones and socio-economic contexts. These Living Labs engage a wide range of actors, from farmers and seed companies to processors, policymakers and citizens, in support of organic plant breeding. They work on different types of cultivars and innovations, including organic heterogeneous material (OHM), organic varieties (OV) and landraces, and integrate participatory breeding methods, on-farm experimentation and value chain development activities.

To fulfil these objectives, a mixed-methods approach was implemented, involving different stages over the three years of the project. The methodological design combines literature review, participatory workshops, survey data collection, semi-structured interviews and a final validation workshop. Data are analysed through descriptive statistics and qualitative content analysis. The analysis is structured through an analytical framework composed of seven dimensions: governance; stakeholder engagement and commitment; knowledge exchange and training; research–policy interface; horizontal proliferation and cultural change; monitoring and impact; and economics and infrastructure.

Key success factors are factors that enable Living Labs to achieve their objectives.

Challenges and success often overlap. When identified challenges are overcome, they become enablers for success. Consequently, some elements may be challenges in some Living Labs and success factors in others. Based on this, the deliverable outlines both challenges and success factors as elements that, when addressed or implemented, can reinforce the success of LLs.

While the analysis provides structured insights into the challenges and key success factors of Living Labs supporting organic breeding, it is important to clarify its scope and limitations. The findings are primarily based on qualitative and self-reported data collected from Living Lab coordinators and participating actors, and therefore reflect their perceptions and experiences within specific project and territorial contexts. The study does not aim to provide a quantitative impact evaluation nor a comparative performance assessment across Living Labs. Rather, it identifies recurrent patterns, enabling conditions and barriers that emerge across heterogeneous contexts. As such, the results should be interpreted as context-sensitive insights that inform strategic reflection and future action, rather than as universally generalisable conclusions.

1.3 Living Labs as Innovation Niches for Organic Breeding

Living Labs are defined as “user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings” (ENoLL, 2020). Living Labs can be described as innovation ecosystems structured according to the quadruple helix model, bringing together actors from research and academia, civil society and local communities, public institutions at different governance levels, and the private sector, including farmers and other economic stakeholders (Klasnic, 2016).

Box 2: Living Lab: some theoretical considerations

A Living Lab can be described as an innovation ecosystem structured according to the quadruple helix (QH) model (Figure 1), which brings together actors from four key domains: research and academia, civil society and local communities, public institutions at different governance levels, and the private sector, including farmers, value chain actors, and other economic stakeholders. “The quadruple helix model provides an integrated framework for cooperation among diverse actors and sectors, supporting the co-design and co-development of innovative solutions to complex real-world challenges” (Klasnic, 2016)

Interaction among these actors enables a transdisciplinary approach, whereby scientific knowledge, practical expertise, and local experience are jointly integrated into the co-design and development of solutions. This approach is complemented by systematic monitoring and evaluation activities, aimed at assessing the outcomes of field-based research and analyzing the medium- and long-term impacts of innovations developed within the Living Lab framework.

The Living Lab definition highlights four key elements that constitute the pillars of the Living Lab approach:

- Open innovation refers to the development, experimentation, and testing of solutions within open and collaborative innovation processes. These innovations are designed to address complex social, economic, and environmental challenges, including the climate crisis, the increasing uniformity of food systems, and their long-term sustainability. In contrast to closed and linear research and development models, open innovation within Living Labs is conducted directly in real-life contexts rather than in controlled laboratory environments. As a result, experimentation and validation activities take place directly on farms and within real operational settings of agri-food systems, enhancing the relevance and applicability of the solutions developed.

- Co-creation represents a collaborative process in which multi-stakeholder networks and local communities are actively involved throughout all phases of the innovation cycle. This includes the identification of needs and challenges, as well as the design, development, implementation, and refinement of solutions. Co-creation ensures that innovation processes are grounded in local contexts and responsive to stakeholder priorities.

- Transdisciplinary approach that involves farmers, researchers, and other stakeholders in the co-design, monitoring, and evaluation of agricultural practices and technologies in working landscapes (MACS 2019).

- User-centred emphasises the central role of end users and intended beneficiaries within the Living Lab process. Farmers and other actors who directly benefit from the innovations contribute their knowledge, experience, and perspectives, thereby strengthening the relevance, acceptance, and potential uptake of the solutions developed.



Figure 2 Quadruple Helix Innovation model (Paskaleva et al. 2021)

In the context of organic breeding, Living Labs can act as innovation niches that promote the development and scaling of organic seeds and plant breeding, supporting the transition towards sustainable and local food systems (Adam et al., 2025). They enable participatory experimentation, co-creation processes and transdisciplinary collaboration that integrate scientific knowledge, practical expertise and local experience.

The existing literature on how Living Labs foster participatory action research in the field of organic seeds and organic farming remains limited (Kiseleva et al., 2021; Berberi et al., 2023; Colombo et al., 2024). In particular, evidence remains scarce regarding the challenges faced by Living Labs dealing with organic breeding and the conditions under which they succeed. Building on these gaps, this deliverable aims to contribute to existing knowledge by identifying the key success factors experienced within Living Labs operating in organic farming and organic seed sectors.

LiveSeeding Living Labs are agroecology-oriented Living Labs (ALLs) that operate through transdisciplinary collaboration and co-creation processes starting from organic seeds and extending throughout the value chain.

Box 3: LiveSeeding agroecology-oriented Living Labs

Agroecology-oriented Living Labs (ALLs) are recognized as approaches for transformative change in agroecosystems and food systems (Gamache et al. 2020; Stone, 2025; Rastorgueva et al., 2025). Rastorgueva et al., (2025) in their recent study, provide a first definition of *"ALLs as transdisciplinary approaches involving farmers, researchers, and other actors in the agri-food sector in co-learning, co-design, monitoring, and evaluation of agroecological practices in order to develop innovative solutions aimed at promoting agroecological principles in communities and food systems at different levels"*. ALLs should contribute to the 13 principles of agroecology defined by the FAO High Level Panel of Experts (HLPE 2019), with the aim of promoting systemic transformation in all ecological, socio-economic, governance and health aspects of food systems. Liveseeding LLs are agroecology-oriented LLs that operate through transdisciplinary collaboration and co-creation processes, starting with organic seeds throughout the value chain, integrating multiple agroecological dimensions.

Agroecology-oriented Living Labs are increasingly recognised as approaches supporting transformative change in agroecosystems and food systems (Gamache et al., 2020; Stone, 2025; Rastorgueva et al., 2025). In this context, Rastorgueva et al. (2025) provide a definition of ALLs as transdisciplinary approaches involving farmers, researchers and other actors in co-learning, co-design, monitoring and evaluation of agroecological practices aimed at developing innovative solutions that promote agroecological principles.

The heterogeneity of the 17 Living Labs reflects differences in crops, territorial scales, socio-political environments and stages of development. Some Living Labs are embedded in local communities, while others operate at national or cross-border scale. This diversity highlights the importance of cross-fertilisation within the project to support scaling processes and to foster peer learning and the exchange of practices among Living Labs at different stages of development.

Within the LiveSeeding project, these Living Labs operate as practical arenas where the PUSH–PULL–ENABLE strategy is implemented through real-life experimentation, value chain engagement and policy interaction.

1.4 Structure of the Deliverable

This deliverable is structured into four chapters. Chapter 1 provides the conceptual framing and introduces the role of Living Labs in the context of organic breeding. Chapter 2 presents the methodological approach and analytical framework. Chapter 3 reports the results of the empirical analysis. Chapter 4 discusses the findings and formulates conclusions and recommendations.

Against this background, the present chapter provides the conceptual framing necessary to interpret the empirical analysis that follows. By positioning Living Labs as innovation niches capable of addressing socio-technical lock-ins, the chapter clarifies the analytical perspective adopted in this deliverable.

1.5 Living Lab as a path to support organic breeding

The LiveSeeding project aims to advance and promote organic seeds and plant breeding through 17 LiveSeeding Living Labs (LLs) across different European countries (Figure 3), which offer an ecosystem of diverse actors experimenting with innovations such as organic heterogeneous material (OHM), organic varieties (OV), and landraces, using participatory breeding methods and testing agroecology-oriented practices, as well as engaging in the development of new markets and organic food value chains.

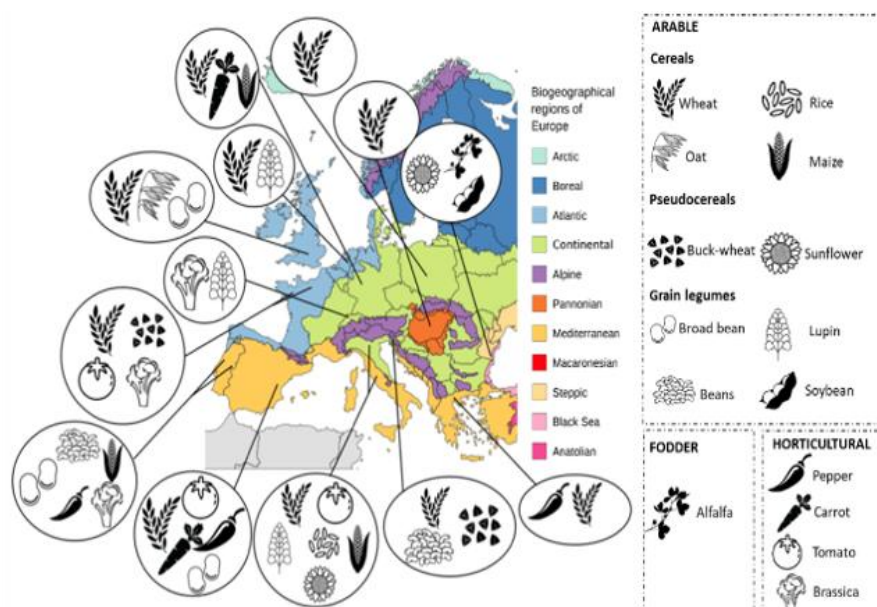


Figure 3 LiveSeeding Living Labs

The 17 Living Labs have provided a pathway to advance organic breeding and the organic sector across different crops, offering an environment in which actors involved

in organic breeding at different stages of the innovation process have been engaged, supporting co-creation and transdisciplinary processes. Each Living Lab has integrated different segments of the project's activities into real-world settings specific to its unique context. Collectively, the Living Labs represent a diversity of European agroecosystems, breeding approaches, and value chains.

The LiveSeeding Living Labs are heterogeneous, differing from each other not only in their main goals, crops, and types of innovation, but also in the socio-political and institutional contexts in which they operate, as well as in the scale at which they work. Some Living Labs are embedded in local communities, while others operate at national or cross-country scales.

The heterogeneity of these Living Labs highlights the importance of cross-fertilisation within the project to support the scaling up of organic seeds and organic plant breeding, as well as the exchange of knowledge and practices among Living Labs at different stages of development and across countries.

LiveSeeding Living Lab

The 17 LiveSeeding Living Labs (LLs) involve a wide range of actors, including seed companies, farmers, breeders, seed producers, bakers, value chain stakeholders, researchers, policy makers, and citizens, in the co-design and co-development of solutions that promote organic seeds and organic plant breeding, as well as the development of related organic supply chains, the increase of market demand for organic products from organic seeds, and the development of policy and institutional frameworks at local, national, and EU levels.

Through cross-fertilization among the Living Labs within the project, the network promotes knowledge exchange, peer-to-peer learning, and the exchange of good practices, contributing to the scaling out and up of organic seeds and achieving 100% organic seeds by 2030.

The table below provides an overview of the different 17 Living Labs involved in the LiveSeeding project. In the first column, the Living Lab name, associated with the crop category (vegetables or arable crops), is provided, while the second column reports the pedoclimatic area. Four main pedoclimatic zones (Continental, Mediterranean, Atlantic, and Pannonian) are identified, reflecting the wide range of agro-ecological conditions addressed by the project.

In the second and third column, the maturity level and the geographic area in which the Living Labs are located are reported. As shown in the table, two levels of maturity have been identified: A = Advanced and E = Emerging, where "advanced" refers to Living Labs with more than four years of experience and "emerging" refers to Living

Labs with one to four years of experience. In addition, three different territorial scales at which Living Labs operate are reported: local level, national level (within the same country), and EU level (including cross-border contexts between two countries).

The fourth column provides an overview of the number of actors involved in each Living Lab (for more details on the main actors involved, see the project website). Each Living Lab deals with different types of cultivars from different crops, including populations/OHM, landraces, conventional varieties, and organic varieties.

Finally, the last column outlines the launch events organized by each LL within the project. These events were designed to present the Living Labs and the overall project to citizens and targeted stakeholder groups in their own contexts. As indicated in the table, the launch events were organised during the first and second years of the project.

Table 1 Overview of LiveSeeding Living Labs¹

LL name & stage	Climatic area	Maturity / Geographic Area	Number of actors involved	Main crops	Type of cultivar	LL launch event
Vegetables_CH	Continental, Centre (Switzerland)	A / National	>20 actors	Vegetables (multiple species)	Landraces; Organic varieties	November 2023, Zürich, Switzerland
Legumes_CH	Continental, Centre (Switzerland)	A / National	10–20 actors	Lupin; other grain legumes (soybean, pea, chickpea, grass pea, lentils, etc.)	Populations / OHM; Organic varieties; Conventional varieties	July 2024
Vegetables_CH	Continental, Centre (Switzerland)	Local / 1–3 years		Traditional Geneva vegetables (artichoke, cardoon, savoy cabbage, chard, lamb's lettuce, onion, leek, celery, turnip, lettuce, tomato, and others)	Landraces	June 2024

Vegetables_ES1	Mediterranean, South (Spain)	A /National		All type of Vegetables as cabbage and tomatoes	Populations / OHM; Landraces	March 2025
Vegetables_ES2	Mediterranean, South (Spain)	A/ Local	10–20 actors	Peppers; carrots	Landraces; Organic varieties	
Arables_FR1	Atlantic, Centre (France)	A /Local	10–20 actors	Buckwheat; millet; wheat	Populations / OHM	December 2023, Le Rheu, France
Cereals_FR2	Atlantic, Centre (France)	A /National	>20 actors	Cereals		17 June 2024
Cereals_EL	Mediterranean, South (Greece)	E / National	>20 actors	Wheat	Landraces; Organic varieties	22 June 2023, Thessaloniki, Greece
Pepper_EL	Mediterranean, South (Greece)	A / National	>20 actors	Pepper	Landraces	30 September 2023, Kalohori, Thessaloniki
Arables_HU	Pannonian, East (Hungary)	A / EU	>20 actors	Wheat; einkorn; emmer; spelt	Populations / OHM; Landraces; Organic varieties; Conventional varieties	21 June 2023, Szár, Hungary
Rice_IT	Continental, South (Italy)	A / Local	10–20 actors	Rice	Populations / OHM (OHM rice); value chain development	16–17 September 2023, Rovasenda (VC), Italy
Tomato_IT	Mediterranean, South (Italy)	E/ Local	10–20 actors	Tomato		18 April 2023, Viterbo (VT), Italy
Wheat_NL	Atlantic, Centre (Netherlands)	A/National	>20 actors	Wheat; oats; barley; rye	Populations / OHM; Landraces	18 January 2024, Den Bosch, the Netherlands
Vegetables_PT	Mediterranean, South (Portugal)	E/ EU		Vegetables	Populations / OHM; Landraces	28 March 2024, Idanha-a-Nova, Portugal
Arables_SI	Continental, East (Slovenia)	E / National		Wheat		17 June 2024, KIS, Ljubljana
Arables_UK	Atlantic, North (United Kingdom)	A / National	>20 actors	Wheat (mainly); oats; barley; rye	Populations / OHM; Landraces	15 Nov 2022 (Nottingham, UK); 1 Feb 2023 (Radway, UK)

Maize_PT	Mediterranean, South (Portugal)	A / Local	10–20 actors	Maize	Populations / OHM; Organic varieties	15 February 2023, Lousada, Portugal
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A more in-depth overview of each Living Lab, outlining its objectives, outcomes, actors' involvement, and progress in implementing organic breeding and the organic value chain, is provided in Annex II. The Annex II also highlights how each Living Lab promotes and contributes to the achievement of LiveSeeding's objectives throughout the project.

2. Methodology

To identify the challenges and key success factors of Living Labs (LLs) supporting organic seeds, organic plant breeding, and organic value chains, a mixed-methods approach was adopted. The methodology implemented followed several steps, combining qualitative and quantitative methods and different tools to collect primary data. The qualitative data collected were analysed using a content analysis methodology. The methodological steps included literature review, workshops, questionnaires and in-depth interviews. Those steps informed the development of an analytical framework supporting the data collection and analysis process. The analytical framework and all the methodological steps are presented in the following section.

2.1 Analytical Framework

To analyse the success factors and challenges of LLs, the study adopted an analytical framework that guided the data collection and analysis process. The framework identifies seven dimensions that a Living Lab dealing with organic breeding should develop and consider in order to successfully promote solutions and ensure their sustainability. The framework guided our analysis and allowed for an in-depth exploration of these different dimensions, identifying the factors that support or hinder the development of each dimension. The framework identifies seven different dimensions, as presented in **Table 2**. The analytical framework was developed using a combined qualitative deductive-inductive approach (Azungah et al., 2018; Kuckartz et al., 2012;). The combination of deductive and inductive approaches improves the reliability and depth of the analysis, ensuring that both established theoretical constructions and new elements are captured (Azungah et al., 2018):

- First, a review of the literature on organic farming and Living Lab methodologies was conducted to map challenges and success factors, as well as to identify dimensions relevant to Living Labs that promote innovation, particularly in the context of organic breeding;

- Subsequently, the different dimensions were enriched through an inductive approach based on data collected during: (i) the initial workshop; (ii) the survey; and (iii) the in-depth interviews. Using content analysis to analyse the collected data, the framework was enriched inductively by identifying and clarifying additional dimensions, challenges and success factors.

Figure 4 shows the methodological process that led to the development of the analytical framework, illustrating its iterative process.

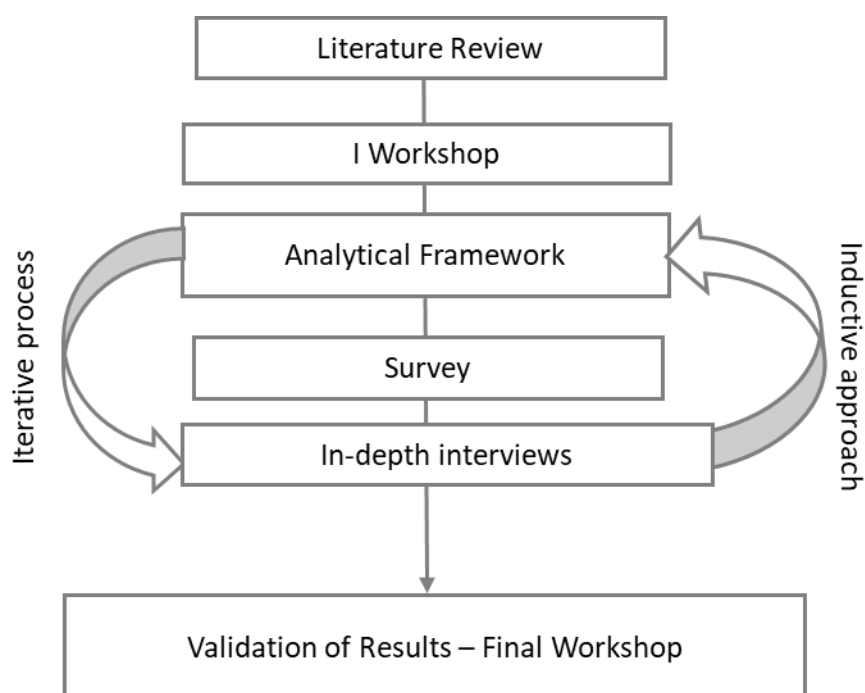


Figure 4 Methodology and data collection process (authors' elaboration)

Table 2 Analytical framework for Living Lab deal with organic breeding

Dimension	Definition
Governance	The set of decision-making structures, vision, coordination, responsibility, and power mechanisms and processes that ensure collaboration, trust, and good governance for the functioning of Living Lab (Adam et al., 2026; Barberi et al., 2026).
Stakeholder Engagement & Commitment	Capacity to ensure long-term commitment and active participation of different actors, as well as open and flexible access to new stakeholders, supporting co-creation, co-validation of innovation, and knowledge exchange (Colombo et

		al., 2025; Petitti et al., 2024; De Santis et al., 2024; Mazé et al., 2024).
Knowledge Exchange & Training		Processes and mechanisms enabling the sharing, building, and transfer of different types of knowledge and transdisciplinary knowledge, such as scientific knowledge, local knowledge, and frugal knowledge, including formal and informal training activities related to organic breeding (Guzmán et al., 2013; Archibald et al., 2021; Adam et al., 2026; Wezel et al., 2020).
Economic & Infrastructure		Availability and adequacy of financial resources, funding models, and physical and digital infrastructure supporting trials and participatory breeding.
Horizontal Proliferation – Cultural Attitude		The Living Lab's ability to promote the horizontal diffusion (scaling out) of solutions implemented through organic farming, as well as to increase the acceptance of organic seeds, spread new values, new practices and cultural changes among local actors and beyond (Colombo et al., 2025).
Research–Policy Interface		The interactions between research and policymaking, including the Living Lab's ability to inform policy processes, co-develop policies, and translate regulatory frameworks and strategies supporting organic breeding and cultivated biodiversity at different levels (local, regional, and national) (Bocci et al., 2020; Hainzelin, E. et al. 2021; Ragasa, et la., 2025).
Monitoring & Impact		Systems and methodologies to enhance feedback loops, monitoring, and evaluation of the achievement of Living Lab goals, as well as the social, environmental, economic, and innovation-related impacts generated by the Living Lab over time (Forbat et al., 2025). However, these dimensions remain among the least explored from literature and most challenging aspects of Living Labs (Barberi et al., 2025).

2.2 Mixed-Methods Approach and Data collection

The study implemented a mix-method approach:

1. Literature review: A review of scientific and grey literature was conducted on organic breeding and Living Lab methodologies. The literature review aimed to identify key elements, characteristics, and dimensions of Living Labs and organic plant

breeding. This step aimed to develop an analytical framework that served as the basis for identifying the data collection process and analysis.

2. Participatory workshop: One workshop was organized during the Third LiveSeeding General Annual Meeting (September 2024, Noverello, Italy). The workshop aimed to map the initial steps in identifying challenges and key success factors emerging during the early phases of Living Lab activities. The scope of the workshop was exploratory. This exploratory approach is important for providing preliminary insights into previously unexplored topics (Yin, 2009). Different participatory methodologies, including dynamic presentations in a Pecha Kucha format and interactive working groups involving multiple Living Lab actors, were implemented

I Workshop:

The workshop was organised in three parts.

1. The first part introduced the structure and objectives of the workshop. It clarified key definitions (e.g. challenges, lock-ins, success factors, and enabling factors) and provided guidelines for the activities of the working groups.

2. The second part focused on sharing goals, challenges, main outputs, and positive elements of the Living Labs. Presentations followed a Pecha Kucha format to keep the session dynamic. Each Living Lab coordinator presented four slides, each lasting three seconds. The presentations described the Living Lab activities and addressed the questions “who, where, and why”, while highlighting one positive element and one challenge that emerged during implementation.

3. The third part was dedicated to working group activities and lasted 40 minutes. Participants were split into four heterogeneous groups, reflecting the diversity of actors present at the AGM. Each group included around fifteen participants, including stakeholders directly involved in Living Labs working on different crops, as well as other project partners with different roles, such as seed companies and breeders.

The groups aimed to:

(i) to identify barriers, problems, challenges, and key success factors experienced in Living Labs in the field of organic breeding, considering different system dimensions and the value chain.

(ii) to encourage discussion among different actors to exchange knowledge, advice, and information, share barriers and success factors, and identify common elements.

Each group was supported by a facilitator and a rapporteur, responsible for collecting and presenting the results. Groups were provided with a sheet of paper and green and

yellow *Post-it* notes to map key success factors and barriers, respectively. Participants had 10 minutes to identify challenges, 10 minutes to identify positive elements, and 10 minutes for discussion. The final 10 minutes were dedicated to presenting the results in the plenary session.

3. Survey: A questionnaire was designed to collect information aimed at capturing the diversity and heterogeneity of Living Labs in terms of objectives, network dynamics, governance structures, and stakeholder engagement strategies. The survey consisted of five sections addressing different dimensions (general information, governance, motivation, stakeholder engagement, and perceptions of how the Living Lab is functioning) and included a total of 18 open and closed questions, providing insights into the organizational and operational characteristics of the Living Labs. The survey was launched through the “LimeSurvey” app in May 2025 and remained active until September 2025.

4. Semi-structured in-depth interviews: In-depth semi-structured interviews were conducted after the survey to further explore different dimensions such as the objectives and evolution of the Living Lab, governance, research–policy interface, horizontal proliferation, and stakeholder involvement. The semi-structured format allowed the interview protocol to be adapted to the different Living Labs, focusing on gathering success factors and challenges related to these dimensions. Each interview lasted approximately one hour and was recorded and transcribed. The interviews included 10 questions, which were first internally validated and then conducted with Living Lab coordinators and, in some cases, with other key actors involved in Living Lab activities. The interviews were conducted from July 2025 to the end of September 2025.

5. Final validation workshop: A final workshop was organized to co-validate the data collected during Steps 2, 3, and 4, thus co-validate the identified challenges and key success factors together with all Living Labs. The final workshop was held during the Fourth Annual General Meeting (Einbeck, Germany, September 2025) and lasted two hours. The next section focuses on the workshop methodology and its explanation.

The data collection methods were complementary and jointly enabled an in-depth analysis of the barriers and key success factors for value chains and society supported of organic plant breeding. Table 4 summarizes the data collection steps.

Table 3 Data collection process

Data collection process	Goal	Actor targeted
1st Participatory workshop (Novara, September 2024)	Brainstorming and initial mapping of challenges and success factors experienced by the LLLs	LLL actors and all LiveSeeding partners
Survey (April 2025 – June 2025)	Exploration of specific challenges and success factors of the LLLs	LLL actors
In-depth semi-structured interviews (June 2025 – September 2025)	In-depth collection of challenges and success factors related to different dimensions (e.g. governance, research-policy interface)	LLL actors
Final Workshop (Einbeck, September 2025)	Validation of collected data and identification of priority key success factors experienced by the LLLs	LLL actors and all LiveSeeding partners

2.2.1. Final Validation Workshop

The final step of the data collection process consisted of a workshop aimed at validating the challenges and key success factors identified in Living Labs (during the previous workshop, survey, and interviews) in promoting organic seeds, organic plant breeding, and organic value chains.

During the workshop, a dedicated session focused on assessing the perceived impacts of Living Labs across social, economic, and environmental dimensions. The assessed dimensions and the corresponding results are presented in **Annex I**.

The workshop was organized to foster cross-fertilization among Living Labs, as well as the co-validation of results and the identification of shared barriers and key success factors.

In this context, validation refers to:

- verifying that the results accurately reflect real conditions and lived experiences;
- identifying potential errors, gaps, or omissions;
- translating the results into concrete actions and good practices grounded in real-life experiences that can support Living Labs and contribute to turning challenges into success factors.

Target group: The workshop targeted coordinators of the 17 LiveSeeding Living Labs, together with other LiveSeeding actors involved in organic plant breeding.

I part:

CHALLENGES

1. Do these challenges reflect your personal experience?
2. What is missing? What remains unclear?
3. Select three priority challenges from the list or from those just identified/modified (Each participant put a dot for their three priorities)
3. What actions/strategies should be taken to overcome these challenges?

II SECTION

KEY SUCCESS FACTORS

1. Which success factors reflect your personal experience?
2. Are there other success factors that should be added?
3. Which enabling factor can support the success factors?
(each participant put a dots for their three priorities)
4. Good practices Example

III Section

What is your perception of the impact that LL activities have had on different dimensions? (Annex I)

A total of 45 participants attended the workshop. Participants were divided into four heterogeneous working groups, ensuring the integration of experiences from different Living Labs and diverse geographical, organizational, and operational contexts. Each group focusing on one or two specific Living Lab dimension. This allowed for in-depth discussion of the key challenges and success factors identified within each dimension and emerging from the previous survey.

The workshop implemented facilitation and participatory methodologies (Bertella et al.; Reed et al., 2014). In particular, the workshop aimed to gather concrete feedback on the results provided and possible paths forward.

The four groups addressed one or two categories:

- Group 1: Governance;
- Group 2: Stakeholder Engagement, Knowledge Exchange and Training;
- Group 3: Research–Policy Interface and Horizontal Proliferation;
- Group 4: Economics & Infrastructure, and Monitoring and Impact.

A rapporteur was selected for each group to report back during the plenary session and discussion. The role of the rapporteur was to facilitate the group discussion, ensure that all viewpoints and experiences were integrated, and present a synthesis of the discussion during the plenary session.

In particular, each rapporteur documented and presented during the plenary session:

- the priority challenges and success factors identified by the group;
- concrete examples of good practices and enabling actions;
- participants perceived impacts of Living Lab activities across different project dimensions (Annex I)

The tools used to facilitate and manage the group discussions included dot voting and Post-it notes. All discussions took place in front of a flipchart.

2.3 Data Analysis

Data analysis combined descriptive statistics with qualitative content analysis. Challenges and success factors were identified through the analysis of data collected during workshops, survey questions, and in-depth interviews. To identify the themes and perspectives that emerged during the data collection process, a content analysis guided by the analytical framework was conducted (Braun & Clarke, 2006).

Qualitative data were manually coded and organised into a codebook based on the analytical framework. Seven codes were identified: (i) Governance; (ii) Stakeholder Engagement and Commitment; (iii) Knowledge Exchange and Training; (iv) Economic and Infrastructure; (v) Horizontal Proliferation and Cultural Attitude; (vi) Research–Policy Interface; and (vii) Monitoring and Impact.

This approach enabled concepts and recurring themes, to be systematically grouped within each code, and distinguished between challenges and key success factors. The

analysis was conducted manually to ensure continuous critical reflection throughout the process (Anastasiei & Georgescu, 2020).

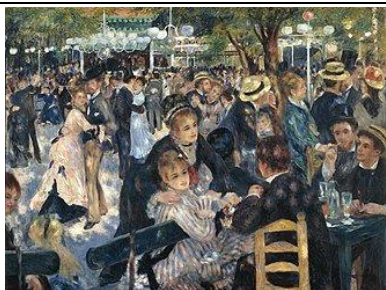
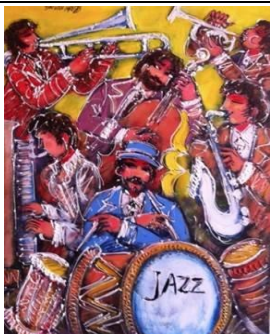
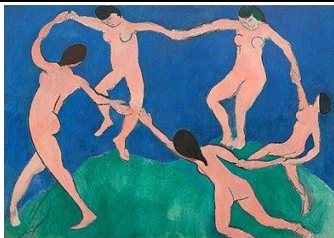
3 Results

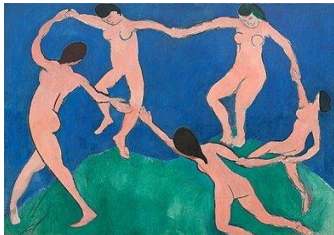
.This chapter presents the results. Sections 3.1 and 3.2 report the preliminary findings from the survey, while Section 3.3 presents the final results validated during the final workshop, including the main challenges and key success factors across the different Living Lab dimensions.

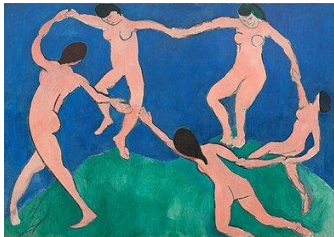
3.1 Perceptions and Self-Representation of Living Labs

One question in the survey was “Which picture best represents your Living Lab?”. The aim was to identify how participants describe and perceive their Living Lab. Table 5 summarises the Living Labs’ responses.

Table 4. Which picture best represents your Living Lab?

Living Lab	Pictures	Explanations
Vegetables_CH1		<i>People know us, they love us, but they're rarely overrunning us</i>
Legumes_CH1		<i>A nice jam session of grain legumes for the food system transformation</i>
Vegetables_CH2		<i>I like the representation of horizontal and harmonious collaboration</i>

Vegetables_ES1		<i>Trust among SME and cities; A network of SME is starting; LL members are participating in the cultivated biodiversity</i>
Vegetables_ES2		<i>Humans are social beings Take advantage of that!!! Funny/gastronomic in local festivals and recreational days are improving the situation and involving local citizens, consumers, authorities and small food processors (restaurants, bakeries).in local festivals and recreational days are improving the situation and involving local citizens, consumers, authorities and small food processors (restaurants, bakeries).</i>
Arable_FR1		<i>The Breton Living Lab is a space for coordination and exchange on on-farm trials for the selection and multiplication of population seeds (derived from farm-saved seed). All actors collaborate; there is no leader in the group, and decisions are made collectively. The aim is to</i>

		<i>help one another and share trial methods and results</i>
Cereals_EL		<i>Jazz music (community oriented, drew on national, regional, and local cultures) played by different instruments; improvisation plays a role" and contains a "sonority and manner of phrasing which mirror the individuality</i>
Pepper_EL		<i>We bring diversity in to the market in efficient way!</i>
Arables_HU		<i>Meetings, communication between actors, motivated actors, clear goals</i>
Rice_IT		<i>We are trying to build something new together, even when it isn't easy. We strive to move in sync, even when staying hand in hand feels difficult. We stand exposed, revealing our strengths and weaknesses, both professional</i>

		<i>and human, and we do our best to embrace them.</i>
Tomato_IT		<i>Let's grow our organic seed system one tomato at the time!</i>
Wheat_NL		
Arables_SI		
Arables_UK		<i>A joyful and collective ...revolution!</i>
Maize_PT		

3.2 Descriptive results from the survey

This section presents the descriptive statistical analysis of the survey regarding stakeholder commitment and other elements regarding LLs characteristics. Respondents were asked to list the actors involved in their Living Lab and to rank them according to their level of commitment, from the most to the least engaged actors.

Figures 5 and 6 show both actors' involvement and their level of commitment. **Figure 5** shows the distribution of commitment strength by actor category, distinguishing between actors most frequently ranked in the top three positions, those placed in intermediate positions, and those appearing most often in the bottom three positions. The results show that small-scale farms exhibit the highest level of commitment in the LL, followed by researchers/academics, breeders, and seed companies. In contrast, actors such as large-scale farms, small-scale food processors, policy makers, and small/alternative retailers show consistently low scores and rarely appear among the most engaged actors. **Figure 6** shows the same results by combining a Borda score (normalised on a 0–100 scale) with the frequency of appearance in the top three positions. These two figures highlight a strong concentration of commitment among actors directly involved in production, research, and breeding activities, while downstream market actors and institutional actors appear less engaged.

The involvement of small-scale farmers, researchers, seed companies, and value-chain actors such as bakers and millers are perceived as a key success factor for Living Labs promoting organic breeding. These actors play a crucial role in fostering innovation and enhancing acceptance along the value chain, including among farmers in the adoption of organic seeds, seed companies in their development and supply, and market actors in supporting the uptake of final products.

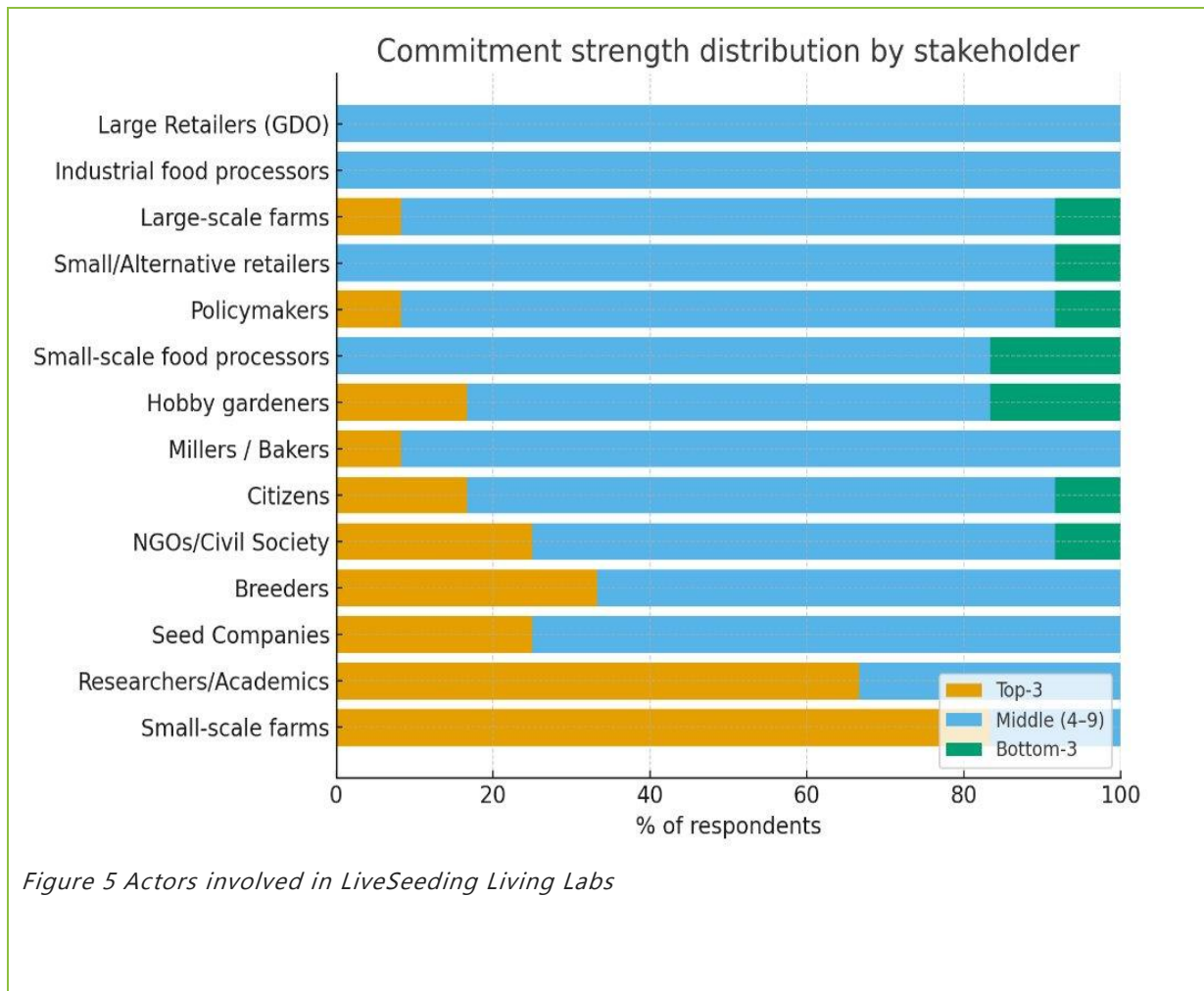
The strong commitment of farmers at the core of Living Lab activities, together with researchers and breeders, represents a major success factor for Living Labs working on organic breeding.

In a subsequent question, respondents were asked to indicate whether additional actors should be involved in Living Labs but are currently missing. The responses highlight important gaps in actor representation, particularly with respect to policy-related and downstream market actors, reinforcing the patterns observed in the ranking analysis. The main actors identified as missing include:

- Food processing industries
- Retailers/supermarkets/food processors
- Traders
- Retailers/supermarkets
- Small specialized retail chains

- Policy-makers
- Citizens
- High-end gastronomy/chefs

These actors, although currently underrepresented in Living Labs, are perceived as important actors whose involvement could represent an additional success factor, particularly by strengthening acceptance, market development, and the creation of alternative value chains for organic breeding outcomes.



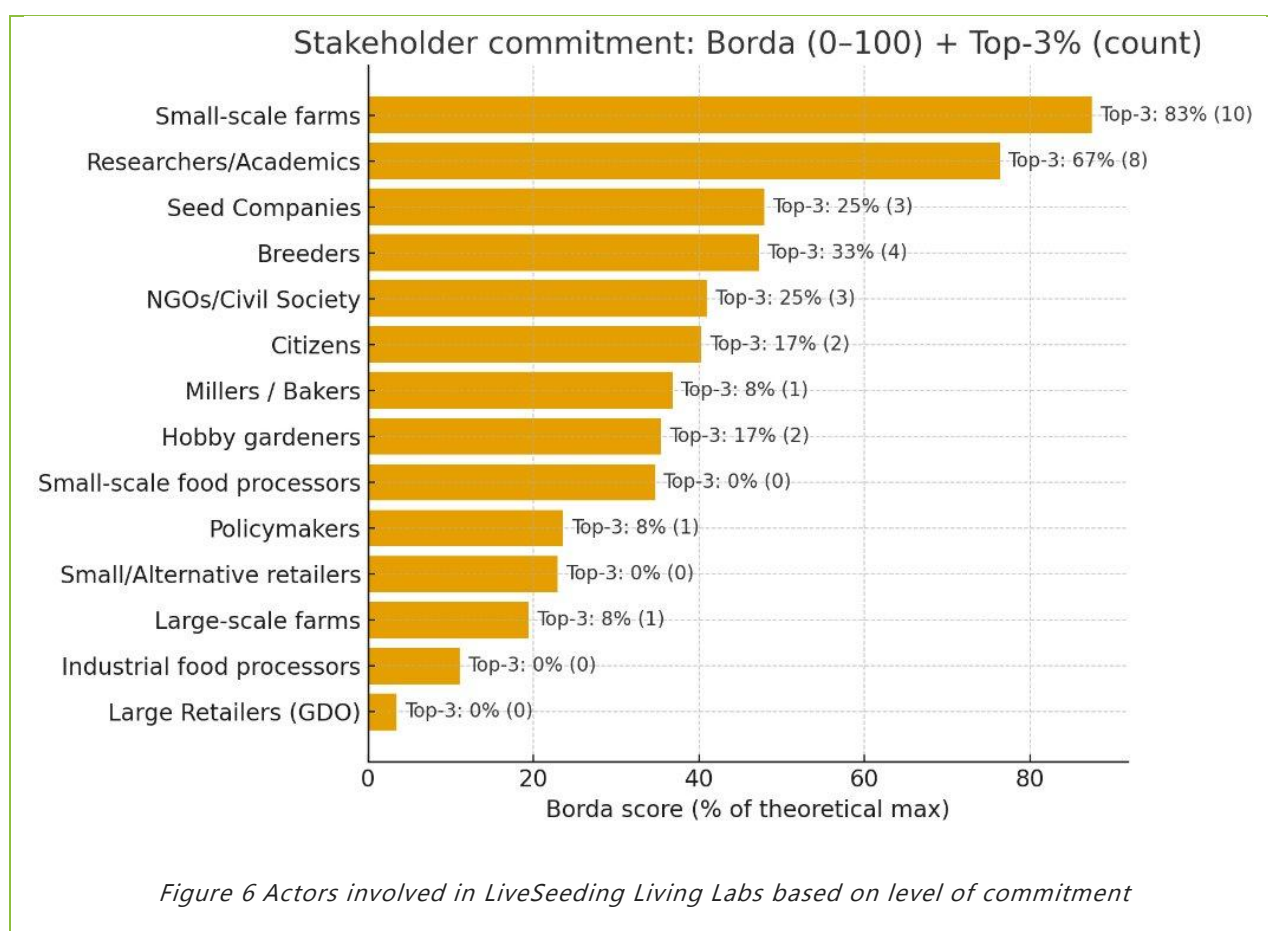


Figure 7 shows how different areas are developing within the Living Labs. Respondents were asked to assess a set of predefined general dimensions by rating, on a scale from 1 to 4, the extent to which each dimension represents a challenge (1) or a success factor (4) for their Living Lab. The results are presented in the radar chart (**Figure 7**). Overall, the analysis indicates that the most critical challenges are related to the lack of clear Living Lab governance, insufficiently diversified financial resources, and limited access to high-quality organic seeds and a stable seed supply. These dimensions received lower average scores, highlighting the presence of structural and operational constraints that affect the functioning of the Living Labs. In contrast, more positive assessments emerge for dimensions related to a shared vision and trust among actors, clearly defined common objectives, the presence of diversified and collaborative multi-actor networks, and awareness and knowledge regarding organic breeding, which are perceived as relative strengths. These findings suggest that while the social and relational aspects of Living Labs are generally well developed, governance, financial, and infrastructural conditions remain key areas requiring further attention.

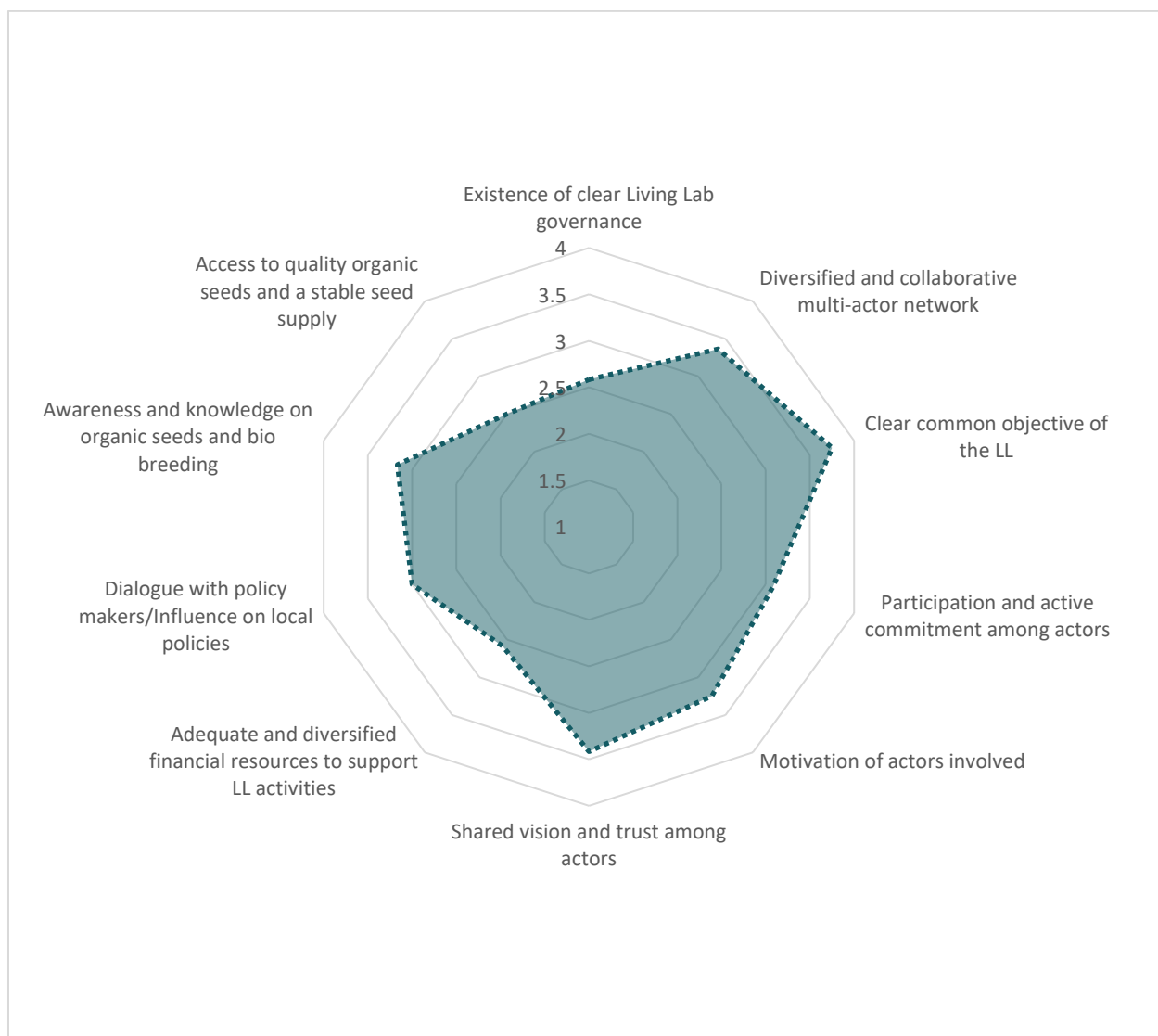


Figure 7 To what extent is each of the following elements established in your Living Lab?

3.3 Key success factors of Living Labs supporting organic breeding

The following sections present the results co-validate during the final workshop. These results identify the common and priority challenges and success factors of Living Labs across the different categories identified by the analytical framework. (*Annex III provides the complete set of results, challenges and key factors collected prior to co-validation during the final workshop*).

3.3.1 Governance

Challenges

Table 5. Governance challenges

Challenges	Examples
Lack of structure	The needs of the various actors are not always aligned, which creates governance challenges in terms of a lack of motivation, participation, and involvement. This, in turn, leads to difficulties in defining a clear structure for the Living Lab, including how it operates and the roles and responsibilities of the actors involved. For example, it is difficult to identify leading farmers who drive the Living Lab forward with a high level of commitment.
Lack of real motivation	The limited interest in organic seeds and organic varieties challenges farmers' involvement and motivation. This obstacle was explicitly highlighted as a key issue by actors, who noted that organic seeds are still little-known outside "niche" and that further efforts are needed to motivate actors beyond researchers (for example breeders). In several cases, farmers initially participated in LL activities but withdrew once they obtained the varieties suitable for them, compromising the long-term activities of the Living Lab. Furthermore, farmers may question the usefulness of Living Labs if tangible benefits are not clearly demonstrated. All these elements reduce the level of motivation and weaken the long-term strategy of Living Labs.
Time and resource constraints	Actors, particularly farmers, often lack the financial resources, time and energy needed to participate consistently in Living Lab activities. For example, in France (<i>LL_FR2</i>), this challenge has intensified in recent years due to the economic crisis. Effective participation, coordination and implementation of activities, as well as leadership skills, require sufficient time and human and financial resources.
Artificial structure of the Living Lab	In some cases, Living Labs were created specifically for the project and were not based on a pre-existing collaboration network. This affected the participants' sense of belonging, shared goal and motivation. When Living Labs are perceived as project-oriented rather than process-oriented, commitment tends to be weaker and lacking in long-term vision and strategies.

Key Success Factors

Table 6 Governance Key Success Factors

Success Factor	Example
Building Trust, shared strategy and goals	A long-term shared vision based on the needs of farmers and other actors involved in the Living Lab is essential for creating common ground and avoiding conflicts. The activities of the Living Lab should be aligned primarily with the needs of farmers, while also considering the interests of other actors. However, it is necessary to listen to all actors, moderate the different interests, and avoid power imbalances or technocracies, especially from breeders, companies, and researchers.
Engagement in European projects and Fundings	Engagement and support not only in European projects but also in local and national processes can support the creation of a shared sense of belonging, provide a common framework, and offer resources and opportunities to build cohesion and foster collaboration among participants.
Coordinator and Power Dynamic	The importance of the facilitation and coordination role was emphasized, as those who fill this role must be aware of power dynamics. Researchers or project staff often hold positions of power, for example due to their control over project funding. It is therefore necessary to be aware of these power dynamics within the group and to act accordingly in the role of facilitator.

The following elements provide governance recommendations, based on participants' experiences, to support the success of Living Labs dealing with organic breeding:

- **Build trust and motivation through shared language and clear communication.** It is recommended to adopt a common and accessible language that can be understood by all participants. Clearly communicating the opportunities and benefits of participating in the Living Lab for each actor helps to foster engagement, motivation, and mutual trust.
- **Bring together isolated groups of actors.** Living Labs should actively mix different types of actors, as this has emerged as a key factor in improving collaboration and motivation. This enables participants to better understand each other's roles and to recognise the value gained through collaboration.
- **Secure dedicated funding for governance activities.** Living Labs should actively seek and allocate specific financial resources for coordination and

governance. Governance is a resource-intensive process and cannot be sustained without targeted and long-term support.

- **Prioritise the support of existing Living Labs.** Rather than creating new initiatives, it is recommended to strengthen and ensure continuity for Living Labs that are already active and producing results. This includes involving existing Living Labs in EU, national, and local projects to build on established experience and outcomes.

Insights from the workshop about the governance structure:

The group acknowledged that Living Lab governance is resource-intensive, requiring time and financial resources, particularly when governance structures are participatory and collaborative. The more participatory the governance, the more time and resources are needed to support it effectively.

Concerning governance structures, different approaches have been identified, including top-down, bottom-up, and sociocratic approaches, depending on the context and the specific Living Lab. For example, for Living Labs involving a large number of actors, top-down governance structures with clearly defined roles and responsibilities have been identified as a success factor. In other contexts, sociocratic or bottom-up approaches have proven to be more effective. In other cases, it has emerged that bottom-up approaches generate motivation, respond to farmers' needs and encourage involvement.

It is important to define roles and responsibilities, but there is no single governance structure that is valid for all cases.

3.3.2 Stakeholder Engagement

Challenges

Table 7 Challenges related to stakeholder engagement

Challenges			Example
Stakeholder fatigue/lack of resources			Insufficient human, time, and financial resources

Lack of concrete problem definition	Actor engagement is challenged when problems are not defined in a concrete and specific way, making it difficult for actors to understand what they are collectively trying to address.
Limited sharing of resources among actors	Engagement is weakened when shared resources are not equally accessible to all actors involved, and when resources mainly remain with researchers rather than being distributed across the actors participating in the Living Lab.

Success factors

Table 8 Key success factors related to stakeholder engagement

Success Factors	Example
Long-term engagement and stability	Stability and long-term continuity emerge as key factors for the success of effective actor engagement. Initiatives that go beyond short project cycles allow for the building of trust and a strong position within the community, the establishment of solid relationships, and the promotion of shared visions and needs. Long-standing experiences demonstrate that sustained engagement over time enables the gradual development of a cohesive and committed actor community.

Some recommendations to support actor engagement in Living Labs include:

- **Have fun!” with participatory activities.** It is recommended to organise activities such as on-farm events, participatory culinary breeding initiatives, open days and fairs to actively engage and motivate new actors, including community and/or innovation facilitators, beyond researchers, farmers and breeders. This is essential as organic breeding activities often remain technocratic and mainly involve researchers, farmers, and seed users. Such participatory events are relevant for reaching and motivating actors outside this group, such as citizens, bakers, millers and other actors in the supply chain.

- **Ensure an open and collaborative approach.** Living Labs should be promoted as spaces for mutual problem-solving, where different actors bring their own issues and skills to the table, thereby improving active and sustained participation.
- **Focus on concrete, shared problems.** It is recommended to involve actors around specific and clearly identified problems that are co-defined and respond to the real needs and challenges of the actors involved.
- **Promote resource sharing.** Ensuring that resources are shared equitably among all actors is recommended, as this strengthens engagement, fosters trust, and enhances a sense of ownership within the Living Lab.

3.3.3 Knowledge Exchange & Training

Challenges

Table 9 Knowledge exchange challenges

Challenges	Example
No time for training	Economic and market pressures, such as pricing and technical constraints, tend to shift attention away from training and knowledge exchange towards short-term economic survival.
English language	Language barriers limit participation in training, and training materials and resources are often only available in English, which limits access to new knowledge and training for different actors.
Different training for different issues	Unequal access to training opportunities and challenges related to issues specific to the organic seed sector and different contexts would require tailored training approaches specific to each context. Furthermore, rigid project structures and their limited duration further constrain the ability to carry out continuous and effective capacity building activities differentiated according to context.

Success factors

Table 10: Success factors for knowledge exchange

Key factor of success	Example
Bidirectional and peer-based knowledge exchange	The one-way flow of knowledge from researchers to farmers limits the learning potential. An essential element is the enhancement of peer-to-peer learning, for example, between farmers.

An important element of the Living Lab is its conceptualisation as a learning environment for different actors, functioning as a collaborative knowledge-sharing system. Recommendations supporting knowledge exchange and training include:

- **Adopt interactive and participatory learning approaches.** It is recommended to prioritise interactive and participatory learning approaches, including organic and participatory breeding activities, as they support effective training.
- **Ensure context-specific and accessible training.** Training activities should be designed to address real and concrete problems and be accessible to all participants, including through the appropriate use of language. The provision of training materials and activities in local languages is strongly recommended, as the lack of materials and information in local languages reduces accessibility and limits effective participation in knowledge exchange.
- **Strengthen peer-to-peer learning mechanisms.** While knowledge exchange is often researcher-to-farmer oriented, it is recommended to further promote peer-to-peer learning, particularly farmer-to-farmer exchange. Such approaches are critical for scaling knowledge, fostering mutual learning, and strengthening participants' sense of belonging to the Living Lab.
- **Promote shared resources and equitable participation.** Ensuring that resources for training and knowledge exchange activities are shared equitably among all involved actors is recommended, as this enhances engagement, effectiveness, and inclusiveness within the Living Lab.

3.3.4 Research-Policy Interface

Challenges

Table 11 Policy - Research interface challenges

Challenges	Example
Limited policymakers' engagement	Policymakers and public institutions are not actively involved in the Living Lab, as they are difficult to engage. This limits opportunities for co-creation, reduces the potential to support scaling-up processes, constrains influence on policy frameworks, and ultimately can reduce Living Lab impact.
Research-policy misalignment	Policy and national frameworks are not aligned with Living Lab activities on organic breeding and organic seeds, limiting the relevance and uptake of Living Lab outcomes in policy processes.

Factors of success

Table 12 Key Success factors for Policy - Research interface

Success factor	Examples
Policy alignment with existing strategies and legal basis	"The most important aspect identified was policy alignment." A clear alignment between Living Lab objectives and existing policy priorities at the national or regional level was identified as a key element in overcoming research-policy misalignment and fostering effective dialogue with public decision-makers. Alignment with biodiversity strategies enables Living Labs to anchor their activities within recognised policy agendas, facilitating more concrete engagement with policymakers. In addition, the existence of formal policy and legal frameworks was identified as a critical success factor, as such a legal basis creates favourable conditions for policy support.

Overall, the discussions highlighted that the limited involvement of policy makers cannot be overcome by "forcing" their involvement, but rather through a strategic approach. The key success factor lies in strategically aligning Living Lab activities with existing policy priorities, anchoring them in a recognized legal and institutional framework, and involving policy makers at an appropriate stage of Living Lab maturity.

Some recommendations emerged from participants to enhance the policy-research interface:

- **Plan the involvement of policy makers strategically.** The involvement of policy makers may be most effective when planned at an appropriate stage of Living Lab development. Participants stressed the importance of first consolidating the Living Lab community, building a shared voice, and generating evidence before involving policy makers in a structured way.
- **Develop concrete and targeted recommendations in the early phases.** It is recommended to develop concrete and targeted recommendations (e.g. on OV & OHM). These outputs serve as an effective entry point for policy engagement, as they translate research findings into policy-relevant messages and pave the way for more structured policy dialogue over time.

Insights from the Workshop:

Not all LL Living Labs engage in dialogue with policymakers, either because it does not fall within the scope of their activities or because such engagement is not a strategic priority. Some LLLs focus primarily on other dimensions, such as business development or strengthening relationships between researchers and farmers, rather than on policy interaction.

3.3.5 Horizontal Proliferation, Dissemination, and Cultural Change

Challenges

Table 13 Challenges for Horizontal Proliferation, Dissemination, and Cultural Change

Challenges	Example
Conservative mindset and fear of change	Resistance to organic seeds and OHM/landrace varieties due to risk perception and low acceptance, both from consumers and from producers and other value-chain actors.
Lack of knowledge of international and national regulations	Limited knowledge of policies and the regulatory framework among farmers, citizens, and various groups limits awareness of possibilities and opportunities, hindering dissemination and cultural change.
Lack of tailored communication	Communicating effectively with different target groups remains a challenge when communication strategies and language are not adapted to diverse audiences, limiting understanding, engagement, and replicability beyond core actor groups.

Success factors

Table 14 Key success factors for Horizontal Proliferation, Dissemination, and Cultural Change

Success factor	Explanation
Close collaboration with farmers	Building trust and strong relationships within the territory ensures embeddedness, relevance, and long-term participation. Stimulating farmers' awareness acts as a

	market pull factor, indirectly encouraging the adoption of organic seeds.
Increased awareness	In contexts characterised by conservative mindsets, increasing farmers and consumer awareness and demand was identified as a key action to support and push the adoption of organic seeds and overcome resistance.
Shared databases and open tools	Citizen science tools such as Seedlinked ² strengthen the dissemination of knowledge, as well as the credibility and legitimacy of organic varieties, by supporting the dissemination of evidence from field trials and variety tests, quality assessments by citizens, and post-harvest analyses.
Social media campaigns and local dissemination channels	The use of digital and social platforms for advertising and communication increases visibility and awareness.

Insights from the Workshop:

Resistance to the adoption of organic seeds was, in some cases, linked to limited consumer awareness and interest, as reported by several Living Labs. However, this pattern was not uniform. In the Dutch Living Lab, citizen behaviour showed the opposite dynamic, with a strong interest in innovation, change, and specific quality products acting as a clear driving factor that supported and reinforced Living Lab activities.

Recommendations:

- **Leverage actor diversity to develop tailored communication strategies.** Living Labs should leverage the presence of different actor groups to develop communication strategies tailored to different audiences and profiles. The use of differentiated and accessible language, adapted to each audience, is necessary to support cultural change and improve the dissemination and adoption of these practices. By actively involving a wide range of actors, Living Labs can strengthen and diversify their communication approaches, thereby increasing the effectiveness and scalability of these practices.

3.3.6 Monitoring and Impact

Challenges

Table 15 Challenges for monitoring

Challenges	Example
Lack of feedback mechanisms	The absence of a structured feedback system makes it difficult to evaluate the results of Living Labs, adapt processes and effectively communicate objectives and results.
Limited evidence of impact	Post-registration trials on organic varieties are scarce, leaving farmers uncertain about yield stability or market advantages.

Key factors of success

Table 16 Key Factors of success for Monitoring

Key Success Factors	Example
Neutral Monitoring facilitator	A key success factor is the presence of a clearly defined role responsible for regularly collecting feedback to support continuous monitoring, including the assessment of progress of objectives and milestones, as well as the adaptive management of Living Lab activities.

With regard to challenges related to the monitoring system and the importance of having a person responsible for monitoring results, the following points highlight recommendations that can improve the effectiveness of monitoring systems and feedback loops:

- **Use quantitative feedback tools for monitoring.** It is recommended to integrate quantitative feedback tools to systematically monitor progress in terms of results, outputs, and outcomes, thereby supporting a structured assessment of Living Lab progress.
- **Complement quantitative data with qualitative feedback tools.** The use of qualitative tools is recommended to capture participants' perceptions and experiences. These may include simple instruments such as a "mood rating" system, allowing participants and stakeholders to assess whether the Living Lab is progressing positively (e.g. good, average, less good) and to express their level of satisfaction with participation. In addition, a limited set of guiding

questions is recommended to identify potential dissatisfaction related to co-creation processes, network cohesion, or the overall direction of the Living Lab.

- **Appoint a neutral facilitator for monitoring and care.** It is recommended to assign a monitoring role to an independent facilitator, with a clear mandate to support coordination, feedback collection, monitoring, and process facilitation. The independence of this role is essential to avoid conflicts of interest and maintain trust among participants; therefore, the facilitator should not simultaneously act as a farmer, processor, or other operational actor within the network. Ensuring sustainable funding for this role is strongly recommended, either through external funding sources or, where appropriate, through revenues generated by Living Lab activities (e.g. marketable products).
- **Include social impact assessment in monitoring frameworks.** Monitoring systems should include the assessment of social impacts, alongside technical or economic results. Living Labs generate important social benefits, such as stronger links between actors and a reduced feeling of being “left alone” within the network. Measuring these impacts, including changes in behaviour and collaboration beyond the practices implemented, is recommended, despite the recognised methodological challenges.

3.3.7 Economics and Infrastructure

Challenges

Table 17 Economic and logistical challenges

Challenges	Example
Lack of financial resources to develop solutions	Dependence on short-term project funding, lack of support from regional and national governments, and high costs associated with testing plot sizes
Farmers under economic pressure	The structural difficulties faced by European farmers place them under economic pressure that hinders their participation in collective processes due to a lack of time and resources.
Difficulties in making the investment required for tools and machinery	Expensive machinery, such as seed cleaners.
Problems with stable organic plant reproductive material/seed supply	An important challenge is the stable supply of organic seeds and continuity of supply. This aspect concerns long-term supply stability and the ability to maintain the involvement of actors in Living Labs over time. When sufficient seed material is produced and the supply is stable, stakeholders are more likely to remain involved. Developing a nursery could be an

	excellent way to promote a more stable supply of organic seeds/plants, but it is a costly and time-consuming initiative
Funding Uncertainty	Small breeders face significant risks, particularly in project-based contexts with limited funding periods (e.g. three years). Committing to organic breeding activities can be challenging when there is uncertainty about the long-term involvement of seed processors after project funding ends. This was identified as a potentially controversial but important underlying issue related to addressing funding challenges.

Success factors

Table 18 Economic and logistical success factors

Success Factor	Example
Financial support from the National or Local/Regional government	Access to public funding ensures long-term sustainability of the LL activities, covering operational costs and enabling innovation.
Sharing tools and machinery within the LL network	Collective use of equipment reduces individual costs, optimizes resource use, and strengthens collaboration among participants".

4. Conclusions and Recommendations

4.1 Main Findings

This study assessed how Living Labs can support the growth of organic seeds and organic plant breeding by acting as innovation niches for socio-technical change. Based on evidence collected from the 17 LiveSeeding Living Labs, the results confirm that Living Labs can effectively promote organic breeding and crop diversity by enabling participatory experimentation in real-life conditions and by connecting actors across research, farming, value chains and society.

The findings show that Living Labs strengthen organic seed development through collaborative field trials, co-learning processes and the integration of practical and scientific knowledge. At the same time, their capacity to generate long-term impact depends on their ability to extend engagement beyond farmers and researchers and to better involve seed companies, processors, retailers and citizens.

Across all Living Lab dimensions, governance emerged as the most critical success factor. Effective Living Labs require trust-based collaboration, clear roles and responsibilities, and a shared long-term vision aligned with farmers' needs. The results also highlight that participatory governance needs dedicated resources, including time, funding and coordination capacity. A recurring gap identified in several Living Labs is the lack of clearly defined facilitation roles, which limits balanced participation and reduces the ability to manage power dynamics and long-term commitment.

Knowledge exchange and training are key drivers of success when implemented through inclusive and peer-based learning processes. Training activities need to be adapted to local contexts and languages in order to be accessible to different actor groups. Monitoring is another key dimension requiring further development. The results show that Living Labs need monitoring systems capable of capturing not only technical progress and outputs, but also social and relational aspects such as collaboration, participation and actor empowerment.

Overall, the analysis confirms that Living Labs represent an effective pathway to overcome structural lock-ins affecting organic breeding by redistributing knowledge production, enabling context-specific experimentation and strengthening value chain collaboration. Living Labs therefore contribute to the development and uptake of organic varieties, landraces and organic heterogeneous material (OHM), supporting the broader objective of increasing organic seed use in Europe.

4.2 Recommendations

To strengthen the effectiveness and long-term sustainability of Living Labs supporting organic breeding, the following operational priorities should be considered.

First, Living Labs should invest in governance and facilitation capacity. Clear internal roles, decision-making processes and coordination mechanisms are essential to sustain participation and avoid unbalanced power relations. Dedicated resources for facilitation and coordination should be ensured, as participatory processes require long-term continuity.

Second, Living Labs should strengthen stakeholder engagement strategies across the entire value chain. While farmers and researchers remain central actors, stronger involvement of seed companies, processors, retailers and citizens is necessary to increase market uptake and societal support. Engagement activities should be built around concrete shared problems and should include accessible formats such as on-farm events, demonstrations and participatory initiatives.

Third, knowledge exchange and training activities should be reinforced through peer-to-peer learning approaches. Training materials and communication tools should be adapted to local needs and languages. Open access to data and the use of digital tools and citizen science platforms can support wider dissemination and replication of innovations.

Finally, monitoring systems should be strengthened in order to capture both technical results and social dynamics. Monitoring should include indicators related to collaboration, actor engagement and learning processes, and should support adaptive management of Living Lab activities over time.

4.3 Limitations and Future Perspectives

The findings of this study should be interpreted considering that Living Labs are heterogeneous and context-specific structures, differing in maturity, governance models, crops and territorial scope. As a result, some challenges identified in one Living Lab may represent success factors in another. The study therefore does not provide a comparative performance assessment but identifies recurring patterns and shared enabling conditions observed across the LiveSeeding Living Labs.

In addition, while a transdisciplinary approach emerged as a key underlying dimension of Living Lab functioning, it was not explored in depth. Future work should further assess how different forms of knowledge are integrated in Living Labs, how power relations influence participation, and how transdisciplinary collaboration can be operationalised and monitored more systematically.

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Annex I - Impact of Living Lab

During the final workshop, a participatory assessment was also carried out of the impact of Living Labs on different dimensions. The impacts assessed were also aligned with those identified in the LiveSeeding project. **Table 20.** presents the different impacts assessed.

Table 19 Perception of LL's impact

Category	Type of Impact	
 Environmental	Increase and manage crop diversity	Benefits from research/organic breeding on genetic diversity for organic food systems
 Research	Advancing organic cultivar testing Seed production, sourcing, quality, and health	Improvements in scientific knowledge, investigation methods, and research infrastructure. Research/Living Lab works can inform a wide range of individual, group, and organizational behaviors, advancing the testing of organic cultivars and the strengthening of seed production and quality
 Horizontal proliferation	Exploitation, initiative proliferation, and scaling up/out	Living labs promote the replicability of innovation at local level and beyond
 Cultural, Attitudinal, and Behavioural Change	Market and society-supported organic breeding	A change in attitudes, typically of a group of people who share similar views, towards a new attitude that brings them, or others, benefits. Through both direct and indirect effects, such as increased understanding and awareness, Living Labs can influence individual, group, and organisational behaviours and decisions. These changes can lead to impacts that go beyond economic, environmental, health, well-being, or

		policy outcomes. When values, beliefs, attitudes, and everyday practices change, whether formally through rules and regulations or informally through shared norms, these shifts can generate benefits for organisations, social groups, and the wider community.
Understanding and awareness  10	Dissemination and exploitation	People understand an issue better than they did before
Policy  3	Research–policy interface	Research contributes to policy when it informs the creation, revision, or implementation of laws, regulations, or other policy instruments designed to address specific needs or objectives and to generate public value. A key aspect of this contribution lies in assessing the extent to which research has influenced policy outcomes, while acknowledging that policy development is typically shaped by multiple interacting factors. If a policy measure would have achieved similar results without the insights or evidence produced by the research, the claim of impact becomes weak. Demonstrating the relevance and added value of the research contribution is therefore essential to substantiate that research has achieved policy impacts.

Table 20 shows the different types of impact that Living Labs have had across different dimensions. The green dots indicate the number of participants who perceived this type of impact through their Living Lab during the LiveSeeding project. As shown in the table, the main impacts that emerged are

- **Research** is considered the most significant impact of the Living Lab activities. Research has played a key role in experimenting with multiple crops and in providing empirical evidence to farmers and other stakeholders on the benefits of organic seeds and organic plant breeding. It has supported improved seed selection, advanced the testing of organic cultivars promoting crop diversity,,

and contributed to better management, supply, quality, and health of seeds across different crops, as well as to organic variety tasting.

- **Environmental** impact follows as the second most assessed impact. Participants highlighted improvements in on-farm crop diversity, for example, through the increased “use of heirloom varieties”.
- **Horizontal proliferation** is the third most perceived impact. Living Lab activities have supported the creation of new market niches and the development of local and short value chains as alternatives or additions to longer value chains. Several farmers have launched new business ventures; new farmers have started experimenting with new crops and participating in Living Lab activities. In addition, LLs have supported the testing of new cultivars and contributed to the market introduction of landraces.
- **Cultural change & awareness and understanding** also emerged as impacts of the LLs. The LL activities involved multiple actors and strengthened social connections between actors in the supply chain, ensuring that no one felt alone in facing challenges. Through participatory activities, demonstrations on farms, and knowledge exchange initiatives, awareness was raised among all public and private actors in the supply chain. In addition new knowledge has been acquired among farmers.
- Finally, the **policy dimension** is perceived as the area that has had the least impact. This is in line with previous findings, where the question of how research influences policy, and how to influence and engage policy-makers within Living Labs, remains a challenging issue. However, three Living Labs highlight how they have managed to influence and engage policy-makers within Living Labs.

Annex II - Monitoring the progress of Living Labs within LiveSeeding

As mentioned above, LLLs work in line with the objectives of the LiveSeeding project, implementing a push-pull-enabling strategy aimed at improving the availability and suitability of organic seeds, increasing and stabilizing market demand, and promoting a favourable policy framework. For this reason, a key need identified within **Task 6.3** was to monitor how the activities carried out within the LLLs contributed to the fulfilment of the project's goals, with the ultimate purpose of assessing how Living Labs can be an effective pathway to promoting the growth of organic seeds and the promotion of the organic sector.

For this reason, in order to monitor the progress of LLs within LiveSeeding, 15 indicators (**Figure 8**) have been identified, linked to the various Work Packages (WPs) and project objectives. These indicators address multiple dimensions to provide a holistic and transdisciplinary assessment of the contributions of LLs across the entire organic supply chain, ranging from on-farm trials to market systems and policy frameworks, and integrating a comprehensive view of the key dimensions necessary to promote the organic sector.

The identification of indicators was based on experiences from previous projects, a review of scientific and grey literature on organic breeding, the Living Lab approach, and LiveSeeding's WP goals. The indicators were validated internally before being shared among LiveSeeding LL partners and were considered feasible indicators for monitoring progress in a comprehensive and integrated manner.

The chart presented in **Figure 8** shows the indicators and the different dimensions they address. Specifically, the dimensions assessed are: (1) Advance on-farm organic cultivar trials; (2) Increasing and managing crop diversity; (3) seed production and sourcing, seed quality and health; (4) market and societal supported organic breeding. The indicators identified aim to monitoring the advance on: (1) varieties and populations, (2) species and crops, (3) farming systems; (4) involvement of policy makers, (5) training; (6) culinary breeding, (7) value chain processors, (8) marketing and awareness raising; (9) organic product markets; (10) organic seed markets; (11) links to urban food policies; (11) citizen involvement; (12) legal status of seeds; (13) public-private partnerships; (14) cultivation tools for diversity. The table below provides definitions and clarifies the objectives of each indicator (Table 21).

A template containing all the indicators was developed and shared with the LL coordinators during the third annual general meeting (September 2024, Italy). The template (Annex II) is divided into three sections.

The first section is qualitative and collects general information on each Living Lab, including the country, crops involved, launch events, actors involved, history of the initiative, and activities carried out within the LiveSeeding project. It also includes information on the seed system and market, labels, and stakeholder involvement. This section was useful for providing an overview of the Living Labs and contextual information that makes them heterogeneous.

The second section covers the qualitative part, relating to the indicator framework. For each indicator, data was collected for **year 1 (baseline)** and **year 3** of the project, allowing for comparison over time and thus monitoring of progress and objectives achieved. A final open section aimed to gather additional information that needed to be highlighted.

All templates are included in Annex I and provide in-depth information on the 17 Living Labs involved in the project. As mentioned above, the collection of baseline data for the first year of the project took place between September and December 2024, while the second phase of data collection for the third year was carried out between September 2024 and January 2025. The template was completed by the Living Lab coordinators together with the actors directly involved in the LLs.

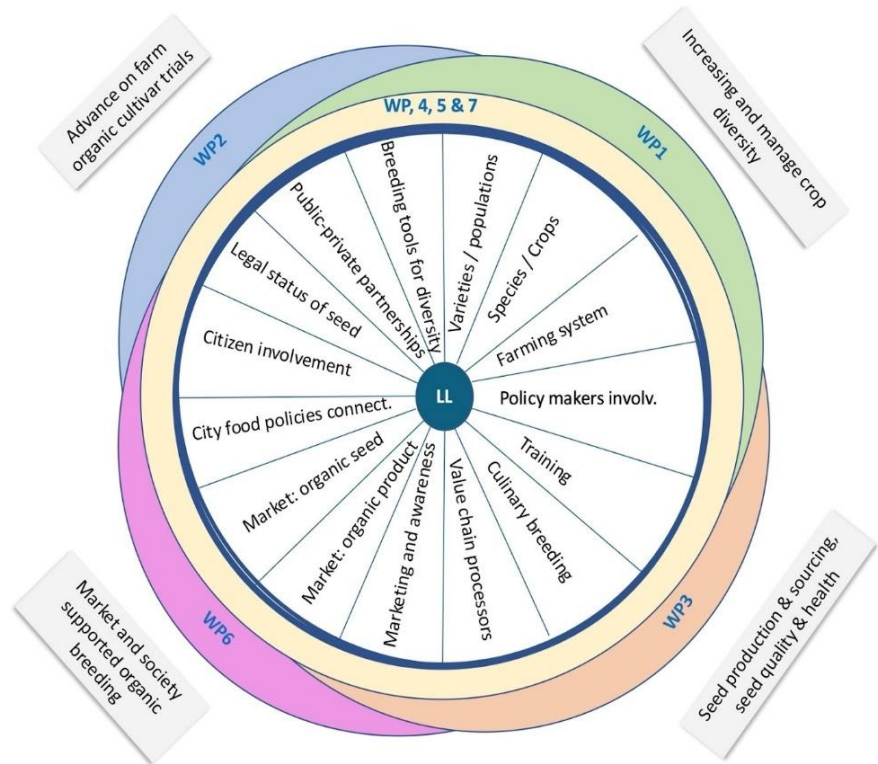


Figure 8 Indicators for monitoring LLs collected during the first and second years of the project (authors' elaboration)

Table 20 Living Lab indicators

Indicator Name	Indicator Definition/Goals
Farming System:	This indicator aims to capture the diversity of farming management practices within the LL (<i>e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.</i>)
Species / Crops	This indicator aims to collect information on the number of main species/crops involved
Number of Varieties and Population	This indicator aims to collect information on the number of varieties and populations developed for the different species/crops.
Breeding for diversity	Number of experiments, trials, or breeding activities conducted for organic farming.
Public-private partnerships and links for breeding	This indicator aims to monitor whether public-private partnerships and collaborations are established between different actors involved in breeding (e.g., partnerships between universities, seed companies, farmers, and third sector organisations).
Legal status of seed / PRM flow within the LL	This indicator aims to monitor which types of seed systems supply farmers involved in the Living Lab during the project (e.g. informal/on-farm seed, research seed, certified seed, notified seed, organic certified seed, OHM notified seed)
Market: sale of organic seeds	This indicator aims to identify seeds for sale (e.g. OV, OHM).
Market: sale of organic products	This indicator aims to collect information on how many organic products derived from OV, OHM or landraces are sold on the market

Culinary breeding activities	This indicator aims to collect information on how culinary breeding activities have been carried out.
Processors in the value chain	This indicator aims to collect information on the involvement of processors within the LL (e.g. millers, bakers, chefs, etc.).
Training	This indicator aims to identify the number of actors reached through training or knowledge-sharing activities.
Marketing / awareness raising	Number of marketing and awareness-raising initiatives (e.g. communication campaigns, narratives).
Citizen involvement	Number of activities involving citizens.
Policy makers involvement	This indicator aims to monitor the number of policymakers involved at different levels (e.g. municipal, regional, national, EU).
Connection with city food policies	This indicator aims to monitor whether the Living Lab is working with municipalities to support the development of local food policies.

The next section provides an overview of all Living Lab goals, characteristics, and activities.

1. Living Lab Rare Vegetables CH1

General information

Country	Switzerland
Region	North of the Alps (Swiss Midlands)
Climatic area	Cfb oceanic climate
Geographical and agro-ecological features	Hilly to partly plane
Living Lab launching event	6/11/2023 Zurich

Living Lab description

Actors (type of actors involved, number of farmers and other actors)

Seed Saver organisation (PSR)

Seed Savers (400 gardeners and growers)

research institutions (FiBL, HAFL)

organic seeds and breeding company (Sativa Rheinau)

farmers and nurseries (five aware of participation in case studies, about 110 in the PSR network growing rare vegetables or offering seedlings and not being Seed Savers, many organic)

retailer (supermarket, Coop)

commercial companies (vegetable trade, Terraviva, Bio Partner Schweiz)

restaurants and chefs (ten regular workshop participants, twelve PSR label users, 450 in loose connection)

other gardeners and growers (hundreds to thousands, not yet Seed Savers but PSR donators)

media (food bloggers, journalists)

citizens/consumers

Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry)

Vegetables of all species, also rare crops like salsify (main crops)

Mainly organic partners. Some producers with alternative practices as permaculture or regenerative agriculture.

Seed system and seed market

Organic vegetable seed market for gardeners and specialty producers (with niche varieties):

- Swiss organic vegetable seed producer Sativa Rheinau (public offer)
- Jumbo garden centers (public offer)
- PSR offers to the farmers and nurseries of the PSR network (informal offer)

Products and products markets *(including market channels used)*

- Direct selling (market stands, selling from farms)
- Coop Supermarket
- Solidary agriculture
- Restaurants
- Plants for hobby gardeners from nurseries and Jumbo garden centers

Labels and communication

- PSR-label

- On the PSR website, available varieties and seeds/plants are accessible. Also vegetable produces of certain varieties can be communicated. See "Sortenfinder" (Variety Finder).
- The supermarket Coop uses the label in its communication strategy of their sustainable engagement, as well as on the PSR products
- Farmers sometimes use the labels on the PSR products, but less often than wished. Some farmers use the label in their farm's communication, e.g. on their website, but also less often than wished (mainly due to the not so clear definition of a PSR farm, as we don't ask them to only produce PSR varieties, but to only label the ones that are in accordance with our label; so mostly farms will produce also more or less none-PSR varieties)
- Restaurants in a few cases use the label in their communication strategy, but almost never in their menu

Connections outside the LL experience (*other networks, other fields of action...*)

- PSR is part of a seed saver network of Switzerland: there are some five other organisations caring also for the conservation and promotion of rare vegetables, and who also multiply seeds for the Swiss Genebank.
- The seed saver network also includes many other players of different crops, who meet on a yearly base at a Genetic Resources Experts Day ("Fachtagung"), and who share inspiring experiences and know-how
- PSR is active in all the other fields of genetic resources as well (arable crops, fruits, animal breeds, ornamentals) and therefore can profit from these fields' experiences internally

Brief description and history of the initiative

- PSR is a seed saving organisation that was founded in 1982 as a response to the activities of WWF, but for the cultivated range of plants and animals.
- The NGO managed to build up a big network of seed savers from the beginning up to now, as well as of market partners (Coop Supermarket), farmers and nurseries, and some restaurants, from the early 2000's onward.

- PSR works on variety description, know-how and selection that is shared with the society, gardeners, farmers, chefs.
- As the NGO managed to save the genetic resources in the early stage (first 20 years), then to build up and spread know-how of genetic resources among more and more people and partners (second 20 years) it is now aiming in the third stage of its development to set the genetic resources into the agroecological contexts of locations, farms and environment.
- Since 2012 PSR started also breeding projects as a new means to secure genetic diversity in the agriculture

Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project?

- To unlock rare vegetables varieties for specific growing systems and markets
- ...with the help of participatory breeding projects
- ...by testing the same varieties among different farming systems and marketing systems
- ...by promoting varieties via tasting workshops to chefs and market partners

Living Lab assessment: please enter data relating to the beginning of the project/LL launch event (year I) and the third year of the project (to date) *(enter the correct number or an X when necessary for each indicator)*

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator Year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)			<i>e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.</i>
	Farms in the LL use at least 2 different farm management system (2)			
	Farms in the LL use at least 3 different farming management (3)			
	Farms in the LL use at least 4 different farming management (4)	X	X	
Species / Crops	Number of Main Crops	119	119	Vegetable categories in use by the PSR network according to participants' checklists by 2023 / 2025
	Number of Complementary Crops	n/a	n/a	<i>i.e. crops in the rotation and/or cover crops, please specify</i>
Number of Varieties and Population	Number of cultivars	755	774	Vegetable varieties in use by the PSR network according to participants' checklists by 2023 /2025
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	10	12	2023: - Breeding work on tomato, root parsley, kale, carrot and three

				different turnip types by Sativa Rheinau (7) - agronomic trial and case study by FiBL (2) - radish selection by PSR (1) 2025: - Breeding work on tomato, root parsley, carrot, radish, salsify, onion, leek and zucchini by Sativa Rheinau (8) - agronomic trial and case study by FiBL (2) - radish and salsify selection by PSR (2)
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)			
	Occasional (3)			
	Well-established (4)	X	X	
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	X	X	
	Research (2)	X	X	
	Certified Seed (3)			
	Organic Certified Seed (4)			
	Number of Crops			Assortment of Sativa Rheinau by 2023 /2025

Market: sale of organic seeds	Volume (per crop – add rows)	n/a	n/a	
Market: sale of organic products	Number of Products	n/a	n/a	
	Volume (per product, add rows)	n/a	n/a	
Culinary breeding activities	Number of tasting events / sensory evaluations	16	21	2023 / 2025: - internal tastings by PSR (13 / 18) - tastings by PSR & FiBL (2 / 1) - tasting workshop with farmers and chefs (1 / 1) - public tasting on a market (- / 1)
Processors in the value chain (add rows if required)	Number of millers	-	-	
	Number of bakers	-	-	
	Number of chefs	13	10	restaurants registered for the PSR label by 2023 (there are 490 contacts of restaurants that used to show interest at one point, and in some cases show up to our workshops, but most of them without any obligations or an assured PSR-assortment)
	Number of vegetable logistic partners	2	2	
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	50	40	2023: - melon field demo by FiBL (ca. 30)

				- onion tasting workshop by FiBL & PSR (ca. 15) - radish participatory meeting by PSR (ca. 7) 2025: - sweet corn field demo by FiBL (15) - red cabbage tasting workshop by FiBL & PSR (18) - radish participatory meeting by PSR (9)
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	1	1	pflanzdasrare.ch
Citizen involvement	Number of activities with citizens	49	69	2023 / 2025 - markets by PSR (9) - tasting events in COOP supermarkets (60)
Policy involvement makers	Number of policy makers involved at the local level (e,g Municipality)	0	0	
	Number of policy makers involved at the regional level	0	0	
	Number of policy makers involved at the national level	X	X	It's rather about political activities than about numbers of people, in best case you reach many with your activities but you can't know for sure. In some years, political

				activities are in the public, in others, there's more going on in the background...
	Number of policymakers involved at the EU/international level	0	0	
Connection with city food policies	Non-existing (1)			
	Aspiration (2)	3	3	Collaborations with the cities of Berne and Zurich on concrete plant activities in the cities' nurseries, but even informal exchange on politics is few and far between. A better perspective is to be expected with the city of Basel, as the PSR director is sitting there only recently in the parliament of Basel, though concrete collaborations have not yet been realised. (excluded the Geneva activities, which should be referred to in LL CH3)
	Occasional (3)			
	Well established (4)			

Are there any additional information to highlight?

2023:

It is yet to be seen, how PSR and FiBL will manage to find out about the many varieties' suitability to different growing and marketing systems. We start with some case studies and projects. But the actual success cannot be measured by numbers of experiments, nor by numbers of varieties in use, nor by numbers of varieties with description available. It will be rather about the quality of information gathered, about crucial insights in the systems from which we increasingly learn to find possibly suited varieties. This is especially true as climate and systems are changing; and even if a newly available variety emerges from our activities it might end up not in large use, but could be used for exactly one specific farm, and still such a case could be seen as success...or not. – So in short: the case of evolving agrobiodiversity is not very easily put into numbers

3. LL__Vegetables_CH2

Country	<i>Switzerland</i>
Region	<i>Geneva</i>
Climatic area	<i>Continental Tempéré Océanique Cfb</i>
Geographical and agro-ecological features	<i>Plane, 400 m</i>
Living Lab launching event	<i>Geneva, June the 1st 2024</i>

Living Lab description

Actors (type of actors involved, number of farmers and other actors)

Seed company

Several farmers (8 aware of participation, 20 in the network, more to come)

Seedling producers

Local authorities (State and City)

Research institute

Retailers

Public and consumers

Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry)

Vegetables, local Landraces

Mostly organic In small structures, but not only

Seed system and seed market Organic certified local seed producing company, small to medium scale (5 half-time workers)
Products and products markets <i>(including market channels used)</i> Vegetables, all possible value chains
Labels and communication National organic Label (Bourgeon BioSuisse) Regional local agriculture Label guaranteed by the State (GRTA) National Heirloom variety Label (ProSPecieRara) Probable creation of a specific product range for marketing
Connections outside the LL experience <i>(other networks, other fields of action...)</i> Future dissemination of the varieties into other markets, regions, networks (including PSR Seed-saving network)
Brief description and history of the initiative

PSR spotted a cantonal legal basis for the protection and promotion of local varieties, and assaulted the State to establish a survey an inventory of the varieties, which resulted into a public strategy, involving local seed production and participatory selection
Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project? Local production and propagation of organic certified and locally selected seed for the local market + dissemination into other markets

Section 2 – Indicators to map the progress of each LL

Living Lab assessment: please enter data relating to the beginning of the project/LL launch event (year I) and the third year of the project (to date) *(enter the correct number or an X when necessary for each indicator)*

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator Year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)			<i>e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.</i>
	Farms in the LL use at least 2 different farm management system (2)	x	x	
	Farms in the LL use at least 3 different farming management (3)			

	Farms in the LL use at least 4 different farming management (4)			
Species / Crops	Number of Main Crops	5	9	
	Number of Complementary Crops			
Number of Varieties and Population	Number of cultivars	6	11	
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	6	11	
Public-private partnerships and links for breeding	Not desired (1)			<i>I don't understand the indicator</i>
	Non-existing but desired (2)			
	Occasional (3)			
	Well-established (4)			
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	x	x	
	Research (2)			
	Certified Seed (3)			
	Organic Certified Seed (4)			
Market: sale of organic seeds	Number of Crops	0	5	<i>In the state of description/selection we want to reach</i>
	Volume (per crop – add rows)			
Market: sale of organic products	Number of Products	0	0	<i>With the description we want to reach</i>
	Volume (per product, add rows)			
Culinary breeding activities	Number of tasting events / sensory evaluations	0	0	<i>At what time ? achieved, in progress ?</i>
Processors in the value chain (add rows if required)	Number of millers			
	Number of bakers			
	Number of chefs			
	Other _____(Specify)			

	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	6		
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	0	x	
Citizen involvement	Number of activities with citizens	1	x	
Policy makers involvement	Number of policy makers involved at the local level (e,g Municipality)	1	2	
	Number of policy makers involved at the regional level	1	1	
	Number of policy makers involved at the national level			
	Number of policymakers involved at the EU/international level			
Connection with city food policies	Non-existing (1)			
	Aspiration (2)	x	x	Exisiting collaboration, but not on this precise topic
	Occasional (3)			
	Well established (4)			

4. LL Vegetables_ ES1

General information

Country	<i>Spain</i>
Region	<i>Catalunya-València-Mallorca</i>
Climatic area	<i>Mediterranean</i>
Geographical and agro-ecological features	<i>Hilly, plane</i>
Living Lab coordinator	<i>RMAe</i>
Living Lab launching event	<i>11-03-2025, Carlet (València)</i>

Living Lab description

Actors (type of actors involved <i>e.g.</i>, farmers, processors, researchers, and other actors) • <i>Farmers association: Unió Llauradora I Ramadera (València)</i> • <i>Seed enterprise: Les Refardes Coopertive (Catalunya)</i> • <i>Seed Enterprise+CSB: Associació de Varietats Locals de Mallorca (Mallorca)</i>
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Vegetables and organic farming.
Seed system and seed market Seeds enterprises are using local and national markets. Farmers are using conventional seeds mainly
Products and products markets (including market channels used)

Seeds and vegetables
Labels and communication No
Connections outside the LL experience <i>(other networks, other fields of action...)</i> The LL is pivoting mainly around the articulation between the two artisanal initiatives and their collaboration with RMAe (focused on supporting municipal policies for cultivated biodiversity, T6.2). The participation of La Uni6's farmers needs to be strengthened: their 400 organic farmers are not using organic seeds and not very interested in changing their seed use. That is why we will try to change this dynamic and La Uni6 is organising the next LL meeting in 2026 with a high participation of organic farmers and of course the rest of the LL members.
Brief description and history of the initiative The organisations have known each other for years but have not worked in a coordinated way. This LL is helping to create a collaborative workspace.
Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project? <i>Reinforce the use of organic seeds in organic farming through the dialogue between seed providers and producers in a region that has cultural elements in common</i> Increase the use of organic seeds in organic agriculture

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description (information by AVL, first, and LR, second)	Indicator year 1 (enter X or number) AVL+LR+U NIO	Indicator year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)	185	289	<i>e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.</i>
	Farms in the LL use at least 2 different farm management system (2)	22	43	<i>conventional/organic or organic/biodynamic</i>
	Farms in the LL use at least 3 different farming management (3)	0	0	
	Farms in the LL use at least 4 different farming management (4)	0	0	
Species / Crops	Number of Main Crops	70	75	<i>Species Vegetables, cereals, pulses, fruits, olives, grape vine, almond</i>
	Number of Complementary Crops	7	9	<i>Cover crops, flowers, aromatics, pumpkins, brassica</i>
Number of Varieties and Population	Number of cultivars	650	800	<i>AVL and LR: Number of cultivars in the catalog</i>
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	5	7	
Public-private partnerships and links for breeding	Not desired (1)	0	0	
	Non-existing but desired (2)	0	0	
	Occasional (3)	1	1	<i>Number of private-public partnerships</i>

	Well-established (4)	4	6	Number of private-public partnerships
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	282	347	Non-registered varieties
	Research (2)	22	18	Varieties that are on their way to be registered through the research regional body
	Certified Seed (3)	381	451	Seeds are standard. We have included the number of registered varieties
	Organic Certified Seed (4)	340	411	Number of varieties with organic seed used or produced
Market: sale of organic seeds	Number of Crops	62	65	Species Vegetables, cereals, pulses
	Volume (per crop – add rows)	Tomato: 2,05 kg Cabbage: 0,61 kg	Tomato: 2,52 kg Cabbage: 0,80 kg	Just as examples
Market: sale of organic products	Number of Products	30	35	
	Volume (per product, add rows)	Tomato: 600.000 kg Cabbage: 200.000 kg	Tomato: 700.000 kg Cabbage: 220.000	
Culinary breeding activities	Number of tasting events / sensory evaluations	1	2	
Agricultural stakeholder involvement (add rows if required)	Number of farmers (or farmer organizations)	35 farmers and 1 farmer	39 farmers and 3	

		organisatio n	<i>farmers organisat ion</i>	
	Number of seed producers	35	39	
	Number of seed traders	58	86	
	Number of breeders	0	1	
	Other (<i>Specify</i>) _____			
Processors in the value chain (add rows if required)	Number of millers	0	0	
	Number of bakers	0	0	
	Number of chefs	5	7	
	Other (<i>Specify</i>) _____ Nurseries	6	11	
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	760	1.175	<i>Number of participants in activities organised by the groups</i>
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	9	21	
Citizen involvement	Number of activities with citizens	46	73	
Policy makers involvement	Number of policy makers involved at the local level (<i>e,g Municipality</i>)	7	13	<i>Number of policymakers</i>
	Number of policy makers involved at the regional level	9	7	<i>Number of policymakers with an open window of communication</i>
	Number of policy makers involved at the national level	0	1	

	Number of policymakers involved at the EU/international level	0	1	
Research community involvement	Number of researchers	2	3	
Connection with city food policies	Non-existing (1)	0	0	
	Aspiration (2)	2	3	
	Occasional (3)	0	1	
	Well established (4)	2	1	<i>Number of connections</i>

6. Living Lab Arables FR1

Country	France		
Climate	Oceanic	Natural geographical features	
Region / community Bretagne			
Actors (type of actors involved, number of farmers and other actors) https://www.agrobio-bretagne.org/ Farmers (about 5 in 2023) and 2 facilitators committed in managing the LiveSeeding experimentations; they belong to a large network (FRAB) of the organic farmers (about 1660 farmers) and others actors involved in organic sector, researchers, facilitators (30) and consumers.			
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Polyculture (cereals, buckwheat, legumes, fruit, vegetables) and breeds, in organic and biodynamic agriculture			
Seed system and seed market Most of the farmers are members of Triptolème, a Breton seed association engaged in participatory plant breeding with INRAE for a long time. They also used to buy seed to organic seed retailers.			
Products and products markets (channels used) Flour of cereals and buckwheat, bread sold on farm markets, local food chains and BioCoop (national). And other products not addressed in the LIVESEEDING project (legumes, fruits, animal products)			
Labels and communication No other label than Organic product and Demeter.			
Connections outside the LL experience (other networks, other fields of action...) Atelier paysan https://latelierpaysan.org/ (for machineries), D'une graine aux autres, Triptolème, Réseau semences paysannes, IBB (Initiative bio bretonne), Biodynamic association, Terres de sources (https://terresdesources.fr/)			
Brief description and history of the initiative			

The FRAB was created in 1987. It brings together groups of organic farmers present in each of the 4 Breton departments. It develops organic farming in the territory and represents organic farmers with public authorities and institutions. The FRAB has organised a network of local on-farm experimentations. Some farmers in Brittany have also initiated participatory plant breeding for arable crops with INRAE for 25 years; since 2007, they have created a seed association Triptolème, member of the national network Réseau semences paysannes (RSP).

What goals does the Living Lab aim to achieve in the frame of the LiveSeeding project?

The objective of the LL is the number of available cultivars for diversifying the crops and products. Buckwheat

- Insufficient production in Brittany even if the “galette” belongs to the local gastronomy
- Consumers ask for new products such as dehulled grains
- Demand for new adapted varieties (only one is marketed in Brittany)

Minor cereals (oat, spelt, rye...)

- Very few varieties on the market
- Demand for new products

For both, needs of new machinery for on-farm processes (experiment with Atelier paysan)

Exploring new species for diversification (lentils and millet)

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator or Year 3 (enter X or number)	Notes / Comments
	All farms use the same farming management (1)			

Farming System: Index of diversity of farming management within the LL	All farms use at least 2 different farm management system (2)			
	All farms use at least 3 different farming management (3)			
	All farms use at least 4 different farming management (4)	x	x	Each farmer has different farming management. 5 farms = 5 very different farming management (vegetable/cereals, orchards/cereals, poultry/cereals, bees/cereals, cows/cereals)
Species / Crops	Number of Main Crops			Meadows or vegetable or orchards
	Number of Complementary Crops			Cereals, buckwheat, lentils
Number of Varieties and Population	Number of cultivars		+1 buckwhe at +2 spelt	Buckwheat, they will add our experimental population "5 pop" in their system, keeping their usual varieties (different in each farm) during the project Two populations of spelt at the end on one farm. The breeding process for millet is not finalised
Breeding for diversity	Number of experiments / breeding activities for organic farming	1 per farm	1 buckwhe at per farm + dehulling trial in one farm; 1 farm with	1 or 2 field experiment in each farm, a dehulling trial organised in one place for all the farms

			spelt trial and baking quality assessem ent	
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)			
	Occasional (3)			
	Well-established (4)	x	+1	LiveSeeding project, OUTILSEM (regional funds) begun in 2024 to complete LiveSeeding means on buckwheat
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	x	ld	The situation is different in each farm
	Research (2)	x	ld	
	Certified Seed (3)			
	Organic Certified Seed (4)	x	id	
Market: sale of organic seeds	Number of Crops	0	0	Only exchanges
	Volume (per crop – add rows)	0	0	
Market: sale of organic products	Number of Products	x	x	Each farm sells different products
	Volume (per product, add rows)	x	x	The new product for the farms will be the dehulled buckwheat if we succeed with the dehulled equipment and “5 pop” plant breeding. The breeding process is not completed at the end of LiveSeeding
Culinary breeding activities	Number of tasting events / sensory evaluations			Test for dehulled ability of buckwheat
	Number of millers	3	3	3 are farmers-millers

Processors in the value chain (add rows if required)	Number of bakers	2	2	2 farmers-bakers
	Number of chefs			
	Other _____(Specify)			
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	0	2	On farm (Mathilde-La Rocheraie, on 30/05/2025): 14 persons (5 organic farmers, 9 future organic farmers)
				Professional event (La terre est notre Métier) on September 2024 with buckwheat and millet demonstration: several thousand people
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	0	2	1 paper (Symbiose, professional/FRAB journal); 1 video (ready at the end of January 2026) about buckwheat
Citizen involvement	Number of activities with citizens	0	3	2025: Fête du champ à l'assiette, about the involvement of French municipalities in the development of cultivated diversity. Planned in April 2026 for buckwheat 1 poster in each farm will be shown at the selling point
Policy makers involvement	Number of policy makers involved at the local level (e,g Municipality)	1	1	
	Number of policy makers involved at the regional level	0	1	Involvement of regional funds since the beginning of LiveSeeding

	Number of policy makers involved at the national level			
	Number of policymakers involved at the EU/international level			
Connection with city food policies	Non-existing (1)			
	Aspiration (2)			
	Occasional (3)			
	Well established (4)	1	1	With Rennes

Are there any additional information to highlight?

Even if many farmers are interested in the results of the project, only 3 (Morvan, Pascal, Ivan) farms have been involved in the field experiment in 2023. In 2024, we have 4: Morvan, Pascal, Mathilde, Guillaume (Millet) et Biotaupes (spelt). For 2025, 5 farms: Morvan, Pascal, Mathilde, Ivan, Guillaume, + Thierry (outside Brittany with spelt, but linked with Triptolème)

8. Living Lab Cereal_EL

General information

Country	<i>Greece</i>
Region	<i>North Greece (Thessaloniki)</i>
Climatic area	<i>Mediterranean</i>
Geographical and agro-ecological features	<i>Institute of Plant Breeding and PGR (HAO DEMETER, Thessaloniki (Thermi), plain near sea</i>
Living Lab coordinator	<i>AEGILOPS</i>
Living Lab launching event	<i>June 22th, 2023</i>

Living Lab description

Actors (type of actors involved e.g., farmers, processors, researchers, and other actors) <i>Farmers, researchers, authorities, seed producers</i>
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Soft wheat organic breeding selections as candidates for OVs. Low input trial at IPBPGR Thessaloniki, (Thermi) experimental field. Previous crop was vicia.
Seed system and seed market Seed from previous organic breeding selections schemes on soft wheat landraces was used in trials. Comparison with commercial check varieties
Products and products markets (including market channels used)

Not yet

Labels and communication



Connections outside the LL experience (*other networks, other fields of action...*)

Organic farmers' Union of NOrthern Greece
Aristotle University of Thessaloniki (Plant Breeding Lab)
International Hellenic University of Thessaloniki (Arable crop Lab)
Bioscoop – Social Consumers Cooperative (Thessaloniki)
To Koukouli—Growers- Consumers Cooperative (Thessaloniki)
SITO SEEDS – Seed Savers Network

Brief description and history of the initiative

Selections from soft wheat landraces via participatory breeding within AEGILOPS network can be used in organic seed production and be registered as organic varieties (OVs). Within the scope of 7years experimental period for OVs trials will be established in order to investigate adapted DUS and VCU protocols in cooperation with greek authorities (varietal testing institute)

Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project?

To make cereal organic food stakeholders aware about OVs and OHM via LiveSeeding project. To encourage seed producers invest in organic seed market, farmers to use organic seed and breeders to work on participatory organic breeding. Also to contribute on related future synergies between stakeholders (farmers, scientists, seed producers, millers, bakers, consumers)

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator Year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)	1	2	organic
	Farms in the LL use at least 2 different farm management system (2)	1	2	Low input, organic
	Farms in the LL use at least 3 different farming management (3)			
	Farms in the LL use at least 4 different farming management (4)			

Species / Crops	Number of Main Crops	Cereal(wheat)		<i>i.e. the main cash crops, please specify</i>
	Number of Complementary Crops			<i>i.e. crops in the rotation and/or cover crops, please specify</i>
Number of Varieties and Population	Number of cultivars	9	2 selected plus 2 (check Varieties)	
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	1	3	
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)	1		
	Occasional (3)			
	Well-established (4)		2	
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)			
	Research (2)	X	X	
	Certified Seed (3)			
	Organic Certified Seed (4)			
Market: sale of organic seeds	Number of Crops			
	Volume (per crop – add rows)			
Market: sale of organic products	Number of Products			
	Volume (per product, add rows)			
Culinary breeding activities	Number of tasting events / sensory evaluations			
Agricultural stakeholder involvement (add rows if required)	Number of farmers (or farmer organizations)	5	7	
	Number of seed producers	1	1	
	Number of seed traders			
	Number of breeders	1	5	

	Other (<i>Specify</i>)_____			
Processors in the value chain (add rows if required)	Number of millers			
	Number of bakers	1	1	
	Number of chefs		1	
	Other (<i>Specify</i>)_____			
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	20	50	
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)		2	
Citizen involvement	Number of activities with citizens	1	3	
Policy makers involvement	Number of policy makers involved at the local level (e,g Municipality)			
	Number of policy makers involved at the regional level		1	
	Number of policy makers involved at the national level	2	3	
	Number of policymakers involved at the EU/international level			
Research community involvement	Number of researchers	12	20	
Connection with city food policies	Non-existing (1)			
	Aspiration (2)	X		
	Occasional (3)		X	
	Well established (4)			

Are there any additional information to highlight?

Ovs and participatory organic breeding are quite new concepts for stakeholders. More over organic seed market (especially of cereals) does not really exist (no entries still in the national organic seed database). Progress should be made following LIVESEED national recommendations for Greece adapted by national stakeholders in 2019.

9. Living Lab Pepper_EL

The current LL assessment refers to the start of the LL activities, which can be considered the time of the Living Lab launching event, when all the actors became aware of the LiveSeeding project and the common objective pursued by the LL itself.

General information

Country	<i>Greece</i>
Region	<i>North Greece (Thessaloniki)</i>
Climatic area	<i>Mediterranean</i>
Geographical and agro-ecological features	<i>Thessaloniki suburbs (Kalochoi) , plain area, organic family farm Gradona</i>
Living Lab coordinator	<i>Kostas Koutis(AEGILOPS), Giorgos Kostakis (OIKOS)</i>
Living Lab launching event	<i>Thessaloniki, October 1st 2023</i>

Living Lab description

Actors (type of actors involved <i>e.g., farmers, processors, researchers, and other actors</i>) <i>Farmers, seed producers, researchers, citizens</i>
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Pepper local and old domestic registered varieties . Organic farming in rotation with legumes , corn.
Seed system and seed market

Nursery plants . Seed from AEGILOPS community seed bank and OIKOS SEEDS

Products and products markets *(including market channels used)*

Fresh product to farmers market or organic retailers

Labels and communication



Connections outside the LL experience *(other networks, other fields of action...)*

Union of Organic Growers in North Greece

Institute of Plant Breeding Plant Genetic Resources – Gene Bank (HAO Demeter- Thessaloniki)

Aristotle University of Thessaloniki (Plant Breeding Lab)

International Hellenic University of Thessaloniki (Vegetable Lab)

Bioscoop – Social Consumers Cooperative (Thessaloniki)

To Koukouli—Growers- Consumers Cooperative (Thessaloniki)

SITO SEEDS – Seed Savers Network

Brief description and history of the initiative Selected Pepper (Unregistered) landraces and old registered domestic local varieties are used by many organic growers because of their good adaptation, quality and taste. Nevertheless, still the majority of organic pepper growers and organic food stakeholders are not aware of this. Additionally, there is lack of organic seed in the market produced by those pepper varieties
Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project? To bring together farmers with other stakeholders, scientists, seed producers, consumers, chefs and authorities. To meke them aware of pepper plant genetic resources and their useful characteristics as crop and food. To communicate with stakeholders about organic breeding and seed initiatives in Europe and LiveSeeding project as well as opportunities for organic seed production and market in Greece

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator Year 3	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)	2	4	organic
	Farms in the LL use at least 2 different farm management system (2)	1	2	Organic, low input

	Farms in the LL use at least 3 different farming management (3)			
	Farms in the LL use at least 4 different farming management (4)			
Species / Crops	Number of Main Crops	pepper		
	Number of Complementary Crops	4		
Number of Varieties and Population	Number of cultivars	7	7	
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	2	4	
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)	1		
	Occasional (3)			
	Well-established (4)		2	
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	3	3	
	Research (2)	1	1	
	Certified Seed (3)	3	3	
	Organic Certified Seed (4)			
Market: sale of organic seeds	Number of Crops			
	Volume (per crop – add rows)			
Market: sale of organic products	Number of Products			
	Volume (per product, add rows)			
Culinary breeding activities	Number of tasting events / sensory evaluations	1	2	

Agricultural stakeholder involvement (add rows if required)	Number of farmers (or farmer organizations)	5	5	
	Number of seed producers	1	1	
	Number of seed traders			
	Number of breeders			
	Other (<i>Specify</i>)_____			
Processors in the value chain (add rows if required)	Number of millers			
	Number of bakers			
	Number of chefs	1		
	Other (<i>Specify</i>)_____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	25	70	
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	2	4	
Citizen involvement	Number of activities with citizens	1	4	
Policy makers involvement	Number of policy makers involved at the local level (<i>e.g Municipality</i>)			
	Number of policy makers involved at the regional level			
	Number of policy makers involved at the national level			
	Number of policymakers involved at the EU/international level			

Research community involvement	Number of researchers	4	5	
Connection with city food policies	Non-existing (1)			
	Aspiration (2)	X		
	Occasional (3)		X	
	Well established (4)			

Are there any additional information to highlight?

Organic seed market for vegetable crops is very small . Seed is mostly imported

10. Arable_HU_ ÖMKi Living Lab

Country	<i>Hungary</i>
Region	<i>Across the country</i>
Climatic area	<i>Temperate Continental</i>
Geographical and agro-ecological features	<i>In Hungary, the landforms are lowland (between 0-200 m a.s.l.), hilly (between 200-500 m a.s.l.) and mid-mountain (between 500-1500 m a.s.l.). The nearest high mountain ranges are the Carpathians and the Alps. In Hungary, the complex interaction of very diverse soil-forming factors has resulted in a mosaic of highly variable soil properties, both spatially and temporally, which can be arranged in four basic sequences.</i>
Living Lab coordinator	<i>Established by ÖMKi - Dóra Drexler, now coordinating Gyöngyi Györéné Kis, gyongyi.kis@biokutatas.hu</i>
Living Lab launching event	<i>2020</i>

Living Lab description

Actors (type of actors involved, number of farmers and other actors)

- ~20 on-farm partners
- Seed suppliers
- Farmer-miller-baker network
- Civil organizations (Seed Association)
- Breeding houses
- Official Authority (Nébih-National Food Chain Safety Office)

•
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Organic winter wheat, spelt, durum, einkorn and emmer. From 2025, also triticale.
Seed system and seed market Sealed sowing seed and farm saved seeds.
Products and products markets (including market channels used) Flour, pasta, bakery products. ÖMKi's Farmer-Miller-Baker Network.
Labels and communication We don't have special labels. It has to be indicated that the product has organic origin marked by the organic certification code and/or label. We use social media and ÖMKi's Farmer-Miller-Baker Network as a great communication channel.
Connections outside the LL experience (other networks, other fields of action...) -
Brief description and history of the initiative • It started in 2012 with wheat and ancient wheat on-farm trials. The number of participating farms increased over time. ÖMKi On-Farm Living Lab was accredited in 2020 and became a member of ENoLL (European Network of Living Labs). Organic post-registration trial started from 2020 (wheat, spelt, triticale). • Key steps were: • 2011: Foundation of the Host organisation: ÖMKi, the Hungarian Research Institute of Organic Agriculture Public Benefit Non-profit Ltd. • 2012: Launch of on-farm participatory research network. Starting organic post registration trials: it provides information and further developing opportunities for stakeholders

- **2020:** Living Lab certification by ENOLL. This step embedded the ÖMKi Living Lab in the European network, increased its visibility and credibility

Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project?

- ÖMKi wants to promote **domestic** organic breeding and seed production. There is a lack of Hungarian organic wheat varieties, which the market also needs.
- **Pparticipatory breeding** and **seed** production offer a way to produce crops at a lower cost.
- By introducing **innovative cultivar testing methods**, we will promote the competitiveness of organic arable production.
- To ensure 100% **organic seed** use by 2036.
- Farmers are more likely to use **farm-saved seeds**.

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description	Indicator 1 (enter X or number)	Indicator Year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)			<i>we don't collect these data</i>
	Farms in the LL use at least 2 different farm management system (2)	x	x	Organic and conventional
	Farms in the LL use at least 3 different farming management (3)	x		Organic, non-certified organic and conventional
	Farms in the LL use at least 4 different farming management (4)			
Species / Crops	Number of Main Crops	6	6	<i>Emmer, einkorn, spelt, winter wheat, durum wheat, triticale</i>
	Number of Complementary Crops	2	6	<i>winter wheat & winter peas; einkorn & winter wheat; einkorn wheat & pea; barley & lentil; bread wheat & pea; rye & vetch; spelt & pea</i>
Number of Varieties and Population	Number of cultivars	43	81 varieties, 23 populations	
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	5	7	

Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)			
	Occasional (3)	x		
	Well-established (4)	x	x	
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	x	x	
	Research (2)	x	x	
	Certified Seed (3)	x	x	
	Organic Certified Seed (4)	x	x	
Market: sale of organic seeds	Number of Crops			<i>no sales that are official as seed</i>
	Volume (per crop – add rows)			
Market: sale of organic products	Number of Products			<i>ÖMKi is a non-profit organization</i>
	Volume (per product, add rows)			<i>no data</i>
Culinary breeding activities	Number of tasting events / sensory evaluations	2	4	
Processors in the value chain (add rows if required)	Number of millers	18	35	
	Number of bakers	24	64	
	Number of chefs			
	Other processors – pasta, biscuits	2	8	
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	Approx. 90	Approx. 500	We had 7 important events
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)		2	We communicate via social media, newsletters
Citizen involvement	Number of activities with citizens			<i>no data</i>

Policy involvement makers	Number of policy makers involved at the local level (e,g Municipality)			
	Number of policy makers involved at the regional level			
	Number of policy makers involved at the national level	1	1	NÉBIH Official Authority
	Number of policymakers involved at the EU/international level			
Connection with city food policies	Non-existing (1)	x	x	
	Aspiration (2)			
	Occasional (3)			
	Well established (4)			

11. LL_IT1_RESILIENT RICE

Country	Italy
Region	Piedmont
Climatic area	Continental Europe
Geographical and agro-ecological features	Wet plain
Living Lab coordinator	RSR
Living Lab launch event	03-09-2025, ROVASENDA (Vercelli)

Living Lab description

Actors (type of actors involved, e.g., farmers, processors, researchers, and other actors)

Farmers association 1: Distretto BIO Piemontese, Piedmont Organic District, which brings together 35 rice farms

Farmers association 2: Polyculture, which gathers 8 farms adhering to the macrobiotic model

Seed enterprise: UNAGarlanda – Farm and seed company

Consumer community – participating in sensory evaluation processes

These communities of practice are supported by various research agencies: the Universities of Turin, Milan and Pollenzo, the National Rice Authority and the Rural Seeds Network.

Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) The main crop is rice, followed by legumes and other minor cereals (millet) in rotation. All LL farms are organically managed. Some of these farms carry out agroforestry practices
Seed system and seed market The seed production system is linked to the lack of breeding research for organic rice. In fact, most varieties are developed for conventional rice cultivation. Most sowing in the rice system is carried out in derogation from the availability of organic seeds.
Products and product markets (including market channels used) The farm produces and markets all classes of rice (round, medium and long grain) directly, through a large purchasing platform and large-scale retailers specialising in organic products. For the past two years, the Distretto BIO Piemontese has also marketed a production of heterogeneous organic material.
Labels and communication There is a label that describes the origins of the initiative and the specific characteristics of OHM production.
Connections outside the LL experience (other networks, other fields of action, etc.) LL is connected with other rice-related communities of practice in Spain, Egypt and Turkey.
Brief description and history of the initiative The 'Resilient Rice' Living Lab, a joint project between the RSR and the Piedmontese Biodistrict of Rice Growers, aims to transition Italian rice farming towards a more ecologically sustainable and diversified model. The project's medium-term goal is to make a wider range of rice varieties available, which are more diverse than the current commercial options, and to help these varieties adapt to specific local conditions. This involves developing site-specific seed material, known as HOB (Heterogeneous Organic Material), and adapting farming techniques accordingly.

The Resilient Rice LL began as an initiative of a few rice farmers, starting with small trial plots and then scaling up to farm level, and then to organic district level, which involves several rice farms.

Through collaborative, on-farm research involving stakeholders, including consumers, the Living Lab has identified the most suitable rice varieties for organic and biodynamic farming and the market. Various agricultural techniques related to weed control and fertility enhancement under agroecological conditions have also been explored.

Furthermore, the project has begun experimenting with blends of different rice varieties and 'evolutionary populations' (naturally evolving mixtures of seeds) and evaluating their performance in rice mills and consumer acceptance.

What goals does the Living Lab aim to achieve within the framework of the LiveSeeding project?

Reinforce the use of organic seeds in organic farming through dialogue between seed providers and producers in a region that has cultural elements in common

Support research into heterogeneous material as a solution to the limited availability of rice varieties adapted to organic farming and into methods for growing and selling them through organic marketing channels.

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description (information by AVL, first, and LR, second)	Indicator year 1 (enter X or number) AVL+LR+UNIO	Indicator year 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)	185	289	e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.
	Farms in the LL use at least 2 different farm management systems (2)	22	43	conventional/organic or organic/biodynamic
	Farms in the LL use at least 3 different farming management systems (3)	0	0	
	Farms in the LL use at least 4 different farming management methods (4)	0	0	
Species / Crops	Number of Main Crops	70	75	Species Vegetables, cereals, pulses, fruits, olives, grape vines, almonds
	Number of Complementary Crops	7	9	Cover crops, flowers, aromatics, pumpkins, brassica
Number of varieties and population	Number of cultivars	650	800	AVL and LR: Number of cultivars in the catalogue
Breeding for diversity	Number of experiments/trials/breeding activities for organic farming	5	7	
Public-private partnerships and links for breeding	Not desired (1)	0	0	
	Non-existing but desired (2)	0	0	
	Occasional (3)	1	1	Number of private-public partnerships

	Well-established (4)	4	6	Number of private-public partnerships
Legal status of seed/PRM flow within the LL	Informal / On-farm (1)	282	347	Non-registered varieties
	Research (2)	22	18	Varieties that are in the process of being registered through the regional research body
	Certified Seed (3)	381	451	Seeds are standard. We have included the number of registered varieties
	Organic Certified Seed (4)	340	411	Number of varieties with organic seed used or produced
Market: sale of organic seeds	Number of Crops	62	65	Species Vegetables, cereals, pulses
	Volume (per crop – add rows)	Tomato: 2.05 kg Cabbage: 0.61 kg	Tomato: 2.52 kg Cabbage: 0.80 kg	Just as examples
Market: sale of organic products	Number of products	30	35	
	Volume (per product, add rows)	Tomato: 600,000 kg Cabbage: 200,000 kg	Tomato: 700,000 kg Cabbage: 220,000	
Culinary breeding activities	Number of tasting events / sensory evaluations	1	2	
Agricultural stakeholder involvement (add rows if required)	Number of farmers (or farmer organisations)	35 farmers and 1 farmer organisation	39 farmers and 3 farmers'	

			organisations	
	Number of seed producers	35	39	
	Number of seed traders	58	86	
	Number of breeders	0	1	
	Other (specify)_____			
Processors in the value chain (add rows if required)	Number of millers	0	0	
	Number of bakers	0	0	
	Number of chefs	5	7	
	Other (specify)_____ Nurseries	6	11	
	Other _____			
	Other _____			
Training	Number of actors reached by training/knowledge sharing events	760	1,175	Number of participants in activities organised by the groups
Marketing/awareness raising	Number of initiatives (communication campaigns, narratives)	9	21	
Citizen involvement	Number of activities with citizens	46	73	
Policy involvement makers	Number of policy makers involved at the local level (e.g. Municipality)	7	13	Number of policy makers
	Number of policy makers involved at the regional level	9	7	Number of policymakers with an open window of communication
	Number of policy makers involved at the national level	0	1	
	Number of policymakers involved at the EU/international level	0	1	

Research community involvement	Number of researchers	2	3	
Connection with city food policies	Non-existent (1)	0	0	
	Aspiration (2)	2	3	
	Occasional (3)	0	1	
	Well established (4)	2	1	Number of connections

LiveSeeding: LL Arables_UK

The current LL assessment refers to the start of the LL activities, which can be considered the time of the Living Lab launching event, when all the actors became aware of the LiveSeeding project and the common objective pursued by the LL itself.

General information

Country	<i>United Kingdoms</i>
Region	<i>National</i>
Climatic area	<i>Temperate Oceanic Climate</i>
Geographical and agro-ecological features	<i>Arable farming in the UK is mostly located in low-land landscapes.</i>
Living Lab launching event	<i>15th November 2022</i>

Living Lab description

Actors (type of actors involved *e.g.*, farmers, processors, researchers, and other actors)

The collaboration includes a range of farm businesses, millers, traders, bakers, chefs, researchers, non-profit organisations, artists and more. UKGL does not run a membership offer, instead participants engage via attendance at events and meetings, and through sharing UKGL's values in their work. UKGL is a grassroots movement dedicated to the sharing, critique, and real-world application of transformative ideas. Emerging in 2017 as a convening of farmers, millers, bakers, researchers, and storytellers, it has evolved into a broad umbrella connecting dozens of enterprises and hundreds of individuals across the UK and internationally.

Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry)

Predominantly wheat, but also oat, barley and rye in organic and/or low-input systems.

Seed system and seed market

The network works with populations/OHM, but also landraces, organic varieties and conventional varieties. It provides a platform for sharing knowledge, genetic material, and research, while improving access to land, equipment, and expertise.

Products and products markets <i>(including market channels used)</i> Products are developed by businesses within the Grain Lab network and there is no collective branding. However, UKGL enables farmers, millers, and bakers to collaborate on prices and market development based on the actual cost and realities of sustainable production and community building. We are exploring ways for economic value to remain within local communities rather than being extracted by global corporations.
Labels and communication No current label. Internal communications: in person and remote events, sociocracy- governance based meetings, vibrant WhatsApp community. External communications: Website, Instagram page, events, attendance to farming conferences etc...
Connections outside the LL experience <i>(other networks, other fields of action...)</i> Connections with policy organisations, other organisations working on seeds, research actors...
Brief description and history of the initiative Emerging in 2017 as a convening of all the actors cited above, it has evolved into a broad umbrella connecting dozens of enterprises and hundreds of individuals across the UK and internationally. In 2019, UKGL CIC was incorporated to facilitate large-scale convenings and manage funded projects addressing collective needs. This means that UKGL is now a Community Interest Company (CIC), a legal structure that uses an "asset lock" to ensure all profits benefit the community rather than private gain. UKGL has a group of five directors with legal responsibility for reporting and company duties. The directorship oversees fundraising and annual accounts/budgets, including allocation of resources to affiliated organisations. Following the pandemic, a period of convening as well as establishing processes for distributed decision-making (including the application of sociocratic principles) has been a key focus as well as continued work on alternative seed systems. Notable successes include attaining an experimental derogation from government agencies to navigate barriers in seed legislation and test alternatives.

UKGL is providing a platform for sharing knowledge, genetic material, and research, while improving access to land, equipment, and expertise. UKGL has successfully incubated several regional grain networks, each focused on these activities in different ways: https://www.bicga.org.uk/grain_map.php.

Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project?

The overarching goal of the network is to build an alternative, diverse, democratic and decentralised grain system. Unspoken objectives arising from that are the development of cohesion within the group, development of knowledge exchange, and development of innovation in plant breeding and business models.

The UKGL network recognises that demonstrating radical change while upholding core values requires deep inquiry, reflection, and creativity. Their collective purpose is not to recreate extractive systems with new players, but to foster the emergence of new, relational economies. These co-designed systems serve the people working within the grain ecosystem through a commitment to mutual support and shared prosperity.

Section 2 – Indicators to map the progress of each LL

Indicator name	Indicator description	Indicator for Year 1 (enter X or number)	Indicator for Year 3 (enter X or number)	Notes / Comments
Species / Crops	Number of Main Crops	4	4	Wheat, but also oat, barley and rye. No clear change in this over the course of the project
	Number of Complementary Crops	Unknown	Unknown	
Number of Varieties and Population	Number of cultivars	Focus was on three specific populations	An array of 30 populations has been screened	

			over the course of the project with a sub-sample now selected for bulking up	
Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	1	2	
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)			
	Occasional (3)			
	Well-established (4)	X	x	
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)	x	x	
	Research (2)	x	X	
	Certified Seed (3)	x	X	
	Organic Certified Seed (4)	x	X	
Market: sale of organic seeds	Number of Crops	N/A	N/A	Not happening
	Volume (per crop – add rows)	N/A	N/A	
Market: sale of organic products	Number of Products	N/A	N/A	Produces sold are based on the individual businesses (mills, bakers, processors...) and are not recorded.
	Volume (per product, add rows)	N/A	N/A	Same as above
Culinary breeding activities	Number of tasting events / sensory evaluations	N/A	N/A	
Agricultural stakeholder involvement	Number of farmers (or farmer organizations)	Unknown	70	Information on members not collected. Based on a recent survey

(add rows if required)				we have now vague number from each categories.
	Number of seed producers	Unknown	Unknown	
	Number of seed traders	Unknown	Unknown	
	Number of breeders	Unknown	Unknown	
	Other (<i>Specify</i>)_____	Unknown	Unknown	
Processors in the value chain (add rows if required)	Number of millers	Unknown	29	Information on members not collected. Based on a recent survey we have now vague number from each categories.
	Number of bakers	Unknown	118	<i>Ibid</i>
	Number of chefs	Unknown	Unknown	<i>Ibid</i>
	Others (researchers, citizens, artisits...)	Unknown	37	<i>Ibid</i>
	Other _____	Unknown		
	Other _____	Unknown		
Training	Number of actors reached by training / knowledge sharing events			
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	4	4	Attendance at a regular cycle of events (ORFC, Groundswell) plus communications at other ad hoc events and in certain publications on an ad hoc basis. This has not changed throughout the course of the project.
Citizen involvement	Number of activities with citizens	NA	NA	
Policy makers involvement	Number of policy makers involved at the local level (<i>e,g Municipality</i>)	NA	NA	

	Number of policy makers involved at the regional level	NA	NA	
	Number of policy makers involved at the national level	1	1	The network is working with some organisations engaged in relevant advocacy work including the Real Bread Campaign and Gaia Seed Sovereignty Programme.
	Number of policymakers involved at the EU/international level	NA	NA	
Research community involvement	Number of researchers	1	4	
Connection with city food policies	Non-existing (1)	x	x	
	Aspiration (2)			
	Occasional (3)			
	Well established (4)			

Are there any additional information (such as problems, critical issues, strengths etc.) related to the indicator performance and the LL progress that you would like to communicate or **highlight**?

The work that has happened in this living lab is not linear, the group has a collective purpose: not to recreate extractive systems with new players, but to foster the emergence of new, relational economies. Co-designed systems serve the people working within the grain ecosystem through a commitment to mutual support and shared prosperity. This is achieved via a robust schedule of formal and informal consultations, knowledge exchange events, and a vibrant WhatsApp community. By prioritising relationships over transactions, UKGL aims to ensure that its work contributes to a wider, healthier ecosystem for all. It can be hard to quantify specific changes over time as work is dispersed and led by the actors involved in the network.

The major positives that happened over the past few years and been the strengthening of existing friendships and commercial relationships within the network, the clarification of the group goals, the collective identification of issues and plans to address them. There is also a stronger relationships between local community networks and the wider national group.

14. LL_14_Vegetables PT

The current LL assessment refers to the start of the LL activities, which can be considered the time of the Living Lab launching event, when all the actors became aware of the LiveSeeding project and the common objective pursued by the LL itself.

General information

Country	<i>Portugal</i>
Region	<i>Interior (Castelo Branco)</i>
Climatic area	<i>Continental mediterranean</i>
Geographical and agro-ecological features	<i>Plane, dry</i>
Living Lab coordinator	<i>Micha Groenewegen micha.groenewegen at livingseeds.bio</i>
Living Lab launching event	<i>28th of March 2024 – Idanha-a-Nova</i>

Living Lab description

Actors (type of actors involved, number of farmers and other actors) <i>Seed company, local chef, restaurant (Mertola), local farmers, responsible national authorities organic agriculture, farmers network, seed growers, food processors, retailers.</i>
Crops (main crops and/or crops in rotation and cover crops) and farming practices (e.g. organic, biodynamic, permaculture, agroforestry) Tomato, peas, favas, broccoli, pumpkin, cucumber Farming practices: organic, biodynamic, organic regenerative certified, organic not certified).
Seed system and seed market Living lab has a seed company that provides the seeds for the trials and farmers.
Products and products markets (including market channels used) Seed sales: Direct sales Online Retailers
Labels and communication No development of labels. Use of organic and Demeter certification labels.
Connections outside the LL experience (other networks, other fields of action...). <i>Farm visits by local gardeners, farmers, students, researchers, consultants and interested citizens.</i>
Brief description and history of the initiative

Living lab of local actors on 2 separate locations (Idanha-a-Nova and Mertola), involving various actors from the value chain to achieve the goal of the living lab for the liveseeding project and continue this work in the future.

Which goals does the Living Lab aims to achieve in the frame of the LiveSeeding project?

Establish a network of actors from the value chain involved with the process of organic plant breeding and the use and adoption of genetically diverse material by farmers and retailers.

Section 2 – Indicators to map the progress of each LL

Living Lab assessment (baseline): please evaluate according to the indicators at at the beginning of the project/LL launching event, so that we will be able to assess the baseline and later the evolution during the project *(enter the correct number or an X when necessary for each indicator)*

Indicator name	Indicator description	Indicator Year 1 (enter X or number)	Indicator Year 2 & 3 (enter X or number)	Notes / Comments
Farming System: Index of diversity of farming management within the LL	Farms in the LL use the same farming management (1)			<i>e.g. standard tillage, minimum tillage, no tillage, agroforestry, permaculture, etc.</i>
	Farms in the LL use at least 2 different farm management system (2)			
	Farms in the LL use at least 3 different farming management (3)	x	x	Organic + biodynamic, organic regenerative certified, organic not certified).
	Farms in the LL use at least 4 different farming management (4)			
Species / Crops	Number of Main Crops	5	5	
	Number of Complementary Crops	Green manure	0	
Number of Varieties and Population	Number of cultivars	67	42	

Breeding for diversity	Number of experiments / trials / breeding activities for organic farming	3	4	Y1: Tomato drought resistance, fava OHM, pea. Y2+Y3: drought resistant tomato, fava OHM, sprouting broccoli, pea.
Public-private partnerships and links for breeding	Not desired (1)			
	Non-existing but desired (2)	x	x	
	Occasional (3)			
	Well-established (4)			
Legal status of seed / PRM flow within the LL	Informal / On-farm (1)			
	Research (2)	x	x	
	Certified Seed (3)			
	Organic Certified Seed (4)	x	x	
Market: sale of organic seeds	Number of Crops	x	x	Part of the LL is LSSV seed company with seed sales.
	Volume (per crop – add rows)	-		
Market: sale of organic products	Number of Products	-		
	Volume (per product, add rows)	-		
Culinary breeding activities	Number of tasting events / sensory evaluations	1	1	
Agricultural stakeholder involvement (add rows if required)	Number of farmers (or farmer organizations)	23	44	
	Number of seed producers	5	5	
	Number of seed traders	1	3	
	Number of breeders	2	5	
	Other (Specify)_____			
	Number of bakers			

Processors in the value chain (add rows if required)	Number of chefs	2		
	Number of food processor		2	
	Other _____			
	Other _____			
Training	Number of actors reached by training / knowledge sharing events	-	36	
Marketing / awareness raising	Number of initiatives (communication campaigns, narratives)	-	6	<i>Publications on OHM and LL.</i>
Citizen involvement	Number of activities with citizens	53	91	
Policy makers involvement	Number of policy makers involved at the local level (e,g Municipality)	1	3	<i>Mayor municipality</i>
	Number of policy makers involved at the regional level	-		
	Number of policy makers involved at the national level	1	5	
	Number of policymakers involved at the EU/international level	-		
Connection with city food policies	Non-existing (1)			
	Aspiration (2)	x		<i>Bio-region involvement</i>
	Occasional (3)		x	
	Well established (4)			

Are there any additional information (such as problems, critical issues, strengths etc.) related to the indicator performance and the LL progress that you would like to communicate or **highlight**?

Critical issue is connecting the different actors to each other into a single unified living lab, as well as the geographical extent of the different actors and participants, especially if we want to reach more in the same area of interest.

Annex III – Results before validation workshop

Annex III provides all the challenges and success factors collected during the data collection process before the validation workshop. The tables below provide a comprehensive list of challenges and success factors gathered during the first workshop, the survey, and the in-depth interviews.

Challenges

Governance

Barrier	Example
Artificial structure of the LL [Focus on Project and No from the Process]	<i>"The Living Lab was created specifically for the project and doesn't represent a pre-existing collaborative network, which affects the real sense of being part of working for shared commons, and motivation among goal. LL is created only for the project and not as a pre-existing network, reducing motivation and sense of belonging".</i>
Lack of shared vision	<i>"The absence of a common vision leads to conflicts over future objectives and strategies, undermining long-term participation and the sustainability of the living lab."</i> .
Lack of real motivation	<i>"Limited interest in organic seeds and value chain"</i>
Rigidity & power imbalance	<i>"The top-down approach ensures focus but limits adaptability."</i>
Conflicts of perspective and decision-making.	<i>"In Living Labs, conflicts often arise due to differing points of view among stakeholders. For example, researchers may seek to dominate</i>

	<i>decision-making, limiting the space for farmers, practitioners, or other actors to contribute equally. Such imbalances can undermine trust, collaboration, and the co-creation process"</i>
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Stakeholder Engagement and Commitment

Challenges	Example
Time and resource constraints	<i>"Farmers and coordinators face competing priorities and have less time and energy to dedicate."</i>
Difficulty reaching key actors for a long-term	<i>Farmers, seed companies, and retailers are hard to involve.</i>
Continuous and coordinated participation is limited	

Knowledge Exchange & Training

Challenges	Example
Lack of experts and technicians in the Living Lab	<i>"Missing bridging figures between research and practice".</i>
No time for training	
Language Barriers	

Economic and Logistics

Challenges	Example
Lack of financial resources to develop solutions	<i>Dependence on short-term project funding/ No support from regional/national government/High costs associated with testing plot sizes</i>
Farmers under economic pressure	.
Difficulties in making the investment required for tools and machinery	<i>Expensive machinery, such as seed cleaners.</i>
Problems with stable seed supply.	<i>"Developing a nursery could be an excellent way to promote a more stable supply of seeds/plants, but it is a costly and time-consuming initiative."</i>

Research – Policy interface

Challenges	Example

Misalignment research–policy	Research goals not aligned with policy interests
Limited policy-maker engagement	“Policy makers and institutions are not really actively involved in the Living Lab, which limits opportunities for co-creation and reduces the scope of results.”
Weak policy advocacy and skills	Living Lab actors often lack the skills and expertise needed to address the policy dimension or to advocate effectively, which limits their influence on institutional change.

Cultural Change,

Challenges	Example
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Lack of tailored communication	The involvement of diverse actors enables the development of communication strategies tailored to different target groups and profiles. It also fosters the use of differentiated language adapted to each audience, increasing the overall effectiveness of communication.
Conservative mindset & fear of change	Resistance to organic seeds and traditional varieties due to risk perception and low awareness.
Low acceptance of traditional varieties	Profitability concerns and limited consumer interest hinder adoption
Lack of knowledge on international/national regulations	

Impact and Monitoring

Challenges	Example
Lack of feedback mechanisms	"The absence of a structured feedback system makes it difficult to assess results, adjust processes, and effectively communicate with stakeholders".
Limited evidence of impact	"Post-registration trials on organic varieties are scarce, leaving farmers uncertain about yield stability or market advantages".

Factors of success

Governance

Success Factor	Example
Clear roles and responsibilities	"Leaders assigned specific tasks and coordination. In our case, roles and responsibilities were defined. Each leader is responsible for a specific segment of activities (as well as stakeholder involvement) and for coordinating actions.""
Shared strategy and goals	Common vision for organic seeds and cultivated biodiversity.
Training in governance tools	"Training on sociocracy provided practical tools for collaborative work and decision-making, increasing the group's effectiveness.

Engagement in European projects	"Engagement in a European project can provide a common framework, resources, and opportunities to build cohesion, foster collaboration, and strengthen the sense of belonging among participants"
Engagement of key motivated actors	Farmers, local authorities, and social organizations.
Good balance among participants	"There could be a greater range of voices from within each category, but there is a delicate balance in how quickly we grow the group in terms of numbers versus being able to be effective and focused, and to remain on mission.
Building Trust	

Stakeholder Engagement and Commitment

Success Factor	Explanation
Integration between alternative and conventional actors	Collaboration between organic stakeholders and conventional actors in the supply chain creates opportunities for practice change and fosters innovation. This integration encourages dialogue, mutual learning, and the broader adoption of organic approaches.
Organization of on-farm & participatory events	Culinary Breeding Events, field trials, tasting events, and panel tests promote direct engagement, co-learning, and visibility of organic practices.
Direct interaction with farmers & processors across the value chain	Strengthens trust, builds acceptance, and supports long-term collaboration.

Communication through informal channels (e.g., WhatsApp)	Facilitates continuous dialogue, rapid knowledge exchange, and networking among involved actors.
Educational and dissemination activities	Initiatives in schools, fairs, and city halls raise awareness, spread knowledge, and engage local communities.
Joint projects with processors, bakeries, and millers	Foster the creation of experimental value chains, supporting innovation and testing of new market opportunities.

Knowledge Exchange & Training

Success Factor	Explanation
Participation in international networks	<i>Engagement in cross-border networks fosters knowledge exchange, visibility, and access to best practices, while strengthening collaboration beyond the local context.</i>

Economic and Logistics

Success Factor	Example
Financial support from the National or Local/Regional government	<i>"Access to public funding ensures long-term sustainability of the LL activities, covering operational costs and enabling innovation".</i>
Sharing tools and machinery within the LL network	<i>"Collective use of equipment reduces individual costs, optimizes resource use, and strengthens collaboration among participants".</i>

Horizontal Proliferation, Dissemination, and Cultural Change

Success Factor	Explanation
Close collaboration with farmers	Building trust and strong relationships within the territory ensures embeddedness, relevance, and long-term participation.
New communication strategies & language adaptation	Tailoring messages to different stakeholders makes results more accessible and fosters broader engagement.

Shared databases & open tools	Open-access resources promote transparency, collective learning, and replication of good practices.
Social media campaigns & local dissemination channels	Using digital platforms alongside local networks increases visibility, awareness, and community involvement.
Continuous support, mentorship & networks	Providing ongoing guidance and peer-to-peer exchange strengthens resilience, knowledge transfer, and cultural change.

Research–Policy Interface

Success Factor	Explanation
Co-development of research & policies	Direct involvement of policymakers in Living Labs creates a feedback loop between research and policy, ensuring evidence-based decisions and greater relevance of outcomes.
Policy alignment	Shared priorities and coordinated actions between researchers, policymakers, and practitioners foster coherence, reduce fragmentation, and accelerate impact.

Impact and monitoring

Success Factor	Explanation
Realistic expected results	Setting concrete and achievable goals helps maintain credibility and motivation among all stakeholders.
Transparency and communication of results	Clear reporting and open sharing of outcomes foster trust, accountability, and wider engagement.

