



**TRANSFORMATION SCENARIOS FOR BOOSTING
ORGANIC FARMING AND ORGANIC AQUACULTURE
TOWARDS THE FARM-TO-FORK TARGETS**

Deliverable D5.1

Strategic Research and Innovation Agenda appropriate for meeting the organic F2F targets

REPORT/PUBLIC

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Summary

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History of Changes

VERSION 0.1	13/06/2025	Maria Gernert (IFOAM EU)	First draft
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VERSION 1	30/06/2025	Ambra De Simone (IFOAM EU)	Submission

Executive Summary

OrganicTargets4EU is a Horizon Europe project dedicated to supporting the European Union's Farm to Fork (F2F) and Biodiversity Strategies, which aim to have at least 25% of the EU's agricultural land under organic farming and a significant increase in organic aquaculture by 2030. The project develops a range of possible scenarios for achieving the 25% organic targets and propose possible pathways of change. The socio-economic impacts of reaching the 25% organic target are analysed at two strands: for Production and Markets and Knowledge and Innovation. This deliverable reports the identified knowledge gaps preventing the achievement of the organic F2F targets and recommendations for research and innovation (R&I) investments. The knowledge gaps take into consideration the scenarios developed in Work Package 2 Participatory foresight and scenario analysis, covering both business and environmental aspects.

OrganicTargets4EU contributed to the development of the new TP Organics Strategic Research & Innovation Agenda (SRIA) for Organics and Agroecology through Task 5.1 under WP5 Knowledge exchange and capacity building, involving national-level practice partners and external experts in a broad, bottom-up consultation process. The SRIA sets the research and innovation priorities of the organic and agroecological sector for 2028-2034, i.e., the period of the next multi-annual financial framework (MFF) of the European Union (EU). The aim of TP Organics, the European Technology Platform for Research & Innovation into Organics and Agroecology is to identify knowledge gaps and provide solutions of organic and agroecological farmers, food processors, consumers, policymakers and other actors on the ground. The secretariat of TP Organics is hosted by IFOAM EU.

In order to collect input for the new SRIA, IFOAM EU and TP Organics organised, through OrganicTargets4EU, two European-level workshops in the beginning and towards the end of 2024. In addition, the practice partners of OrganicTargets4EU organised eight national workshops in all eight focus countries (Austria, Denmark, France, Germany, Greece, Italy, Hungary and Romania), in conjunction with Task 5.2. Finally, an online consultation was conducted during summer 2024.

This deliverable explains the methodology to develop the SRIA based on a broad, inclusive stakeholder engagement process and provides a snapshot of the content. While IFOAM EU coordinated the whole development process, wrote the accompanying chapters, introduction and methodology, policy recommendations for R&I for more impact,) and is overseeing the design process, FiBL Europe took over the scientific coordination of the chapters containing the 33 research questions. The respective contributions of the other OrganicTargets4EU project partners involved in the deliverable are mentioned as well.

1. Introduction

Today's research and innovation (R&) determines tomorrow's food and farming systems. Building on their systems approach, R&I in organic and other agroecological approaches, which are knowledge intensive rather than input intensive, can enable the transition to a more sustainable future for all. TP Organics¹, the European Technology Platform (ETP) for Research & Innovation into Organics and Agroecology established in 2008, hosted by IFOAM Organics Europe (IFOAM EU) and officially recognised by the European Commission as an ETP in 2013, has published its first Strategic Research & Innovation Agenda (SRIA) for organic food and farming in 2009² and has published two more SRIAs since then, in 2014³ and 2019⁴. The new TP Organics SRIA for Organics and Agroecology is being developed with the contribution of the OrganicTargets4EU project, within Task 5.1, Building a Strategic Research & Innovation Agenda to meet objective 1 of Work Package 5: **Assess knowledge needs and make recommendations for R&I investments in the organic sector (Task 5.1)**.

The new TP Organics SRIA is being developed in preparation of the next EU R&I Framework Programme (FP) 10 that will succeed Horizon Europe and will run from 2028-2034. The new SRIA will define the R&I needs of the organic and agroecological sector, while also outlining R&I needs, for the transition of the European food and farming system at large. As a key advocacy document, it forms the basis of all concrete advocacy activities of TP Organics, from the development of position papers for specific Work Programmes under the next FP, through meetings with the European Commission, to comments on draft proposals towards EU Member States in the Programme Committee.

As part of the development process, TP Organics collects input and ideas from stakeholders at EU and national levels. Workshops with European stakeholders were held at the TP Organics events Science Day at BIOFACH 2024 and Organic Innovation Days 2024 to get feedback on the draft topics or research questions and identify potential gaps or priority topics that should be added. The flowchart below (Figure 1) shows the overall timeline of the SRIA development process.

¹ <https://tporganics.eu/>.

² <https://tporganics.eu/wp-content/uploads/2016/01/tporganiceu-strategic-research-and-innovation-agenda-2009.pdf>.

³ <https://tporganics.eu/wp-content/uploads/2016/01/tporganiceu-strategic-research-and-innovation-agenda-2014-brochure-20150129.pdf>.

⁴ <https://tporganics.eu/wp-content/uploads/2020/01/ifoam-sria-full-version-final.pdf>.



Figure 1 TP Organics SRIA process – timeline

2. Methodology

2.1. European workshops

IFOAM EU coordinated the overall SRIA development process IFOAM EU organised two European-level SRIA workshops at the TP Organics events Science Day at BIOFACH 2024 and Organic Innovation Days 2024. The workshops included break-out groups to discuss the proposed research questions under the main themes as well as to ask the participants for potentially missing questions and/or themes, thereby preparing the main content of the new SRIA. While the input of the participants was noted down on flipcharts during the first workshop at Science Day, the workshop at Organic Innovation Days on 22-23 October 2024 gave participants the possibility to vote online for the questions they consider of highest importance and to provide further input. IFOAM EU gathered the input collected during the workshops and relayed it to FiBL Europe, the scientific coordinator of the SRIA.

2.1.1. Science Day SRIA workshop

The Science Day BIOFACH session organised by TP Organics aimed to receive initial input and feedback on the initial four research themes:

- Transforming food production
- Transforming food processing
- Transforming food consumption and diets
- Transforming food system governance challenges and responsible innovation

The event was publicly announced via the TP Organics website⁵ and social media (X and LinkedIn) as well as IFOAM EU channels (X, Facebook, LinkedIn). On 16 January 2024, a mailing invitation was sent to all TP Organics members (822 recipients), and the session was also mentioned in BIOFACH invitations to IFOAM EU members (website, newsletter, mailings) to reach as many European stakeholders as possible. A review of the event can be found on the TP Organics website⁶.

⁵ <https://tporganics.eu/science-day-2024/>.

⁶ <https://tporganics.eu/science-day-2024-review/>.

Based on the input and notes from the workshop, a first draft of research questions under the four themes included 5-9 questions per theme. In collaboration with the co-authors who had led the Science Day parallel workshops, the chapter descriptions were updated in early March 2024.

2.1.2. Organic Innovation Days parallel SRIA workshops

At the TP Organics “Organic Innovation Days” on 22-23 October 2024 (see event review⁷), four parallel workshops were held on the four identified main themes of the new SRIA, compared to three themes in the first European workshop and later changed back to three main R&I themes (i.e., leading for the environment, biodiversity and the climate; leading for people, communities and sustainable livelihoods; leading for responsible innovation) separate from the additional chapter about the governance of the next EU R&I framework programme, i.e., policy recommendations. The aim was to get final in-person feedback on the identified research questions (10 per theme). Participants could listen to a brief presentation of the new SRIA and of the four themes in plenary set up. Subsequently, they were invited to join one of the four workshops for 45 minutes, and again, another workshop for another 45 minutes. The workshop setting with two rounds helped ensuring mobility and a greater engagement from the participants during the discussion, stimulating input regarding the importance of the respective questions, and if anything should be changed or added to make them more relevant and clearer, as well as if any other research questions should be added.

In the case of the three R&I “content” themes discussing the research questions, the participants received input in form of a presentation of the respective workshop’s theme and why it is important. Afterwards, the participants rated the research questions anonymously using a survey on Microsoft Forms and accessing it on their mobile phone. The form was set up to randomise the order of answers for each participant and reduced bias due to the order of the questions. The ranking was projected on real time on a screen to support workshop facilitators to foster discussion. A specific attention was given to the most popular and least popular research questions (based on the means of the points received for each question). Before closing the workshop session, participants were invited to propose new, additional questions that could likewise be ranked. Notetakers also evaluated which questions were more or most discussed, and which ones less. The process was then repeated for the second round of the workshop’s sessions with a new set of participants.

The fourth parallel workshop was dedicated to the enabling policy environment needed, such as AKIS at national and European levels and EU CAP Network, and was facilitated by a representative of the PREMIERE project. The quantitative and qualitative data of the workshops was processed and shared at a later stage with the theme expert to provide them with further insights to develop their respective chapters of the SRIA.

2.2. Public SRIA consultation

IFOAM EU and TP Organics, assisted by FiBL Europe, developed an online survey, as well as a communication plan for the promotion of the survey from mid-June to mid-July 2024 via TP Organics and IFOAM EU communication channels (websites, newsletters, social media, and mass

⁷ <https://tporganics.eu/organic-innovation-days-2024-event-review/>.

mailings⁸). Launched on 17 June 2024⁹, the public online consultation was available in English, French, Spanish, German, Hungarian, Romanian, and Italian until 18 August 2024.

TP Organics developed the Public Strategic Research and Innovation Agenda (SRIA) consultation utilising Microsoft Forms and incorporated a variety of question formats, including multiple-choice, rating scales, and open-ended responses. To enhance outreach and engagement among target audiences, TP Organics translated the consultation into six official European languages, assisted by OrganicTargets4EU partners.

The consultation framework consisted of several sections aimed at gathering insights regarding the respondents, specifically focusing on the types of organisations they represented, their geographical reach, and their involvement in funding research and innovation in agroecology and/or other sustainable farming practices. Respondents were encouraged to specify the sustainable farming methods addressed within their national and regional strategies.

Subsequent sections were designed based on the outcomes of the Science Day SRIA workshop, each containing a comprehensive description and a series of related research questions to be rated on a scale from 1 to 4. In the context of the consultations, 4 meant the question is highly relevant (very urgent and important) to be addressed by future research and innovation, whereas 1 meant least relevant. Notably, none of the rating questions were mandatory. Each section concluded with an open text box for respondents to provide any additional comments or remarks.

In total, the survey encompassed seven content sections and featured 27 research questions. The sections included: "Elevating organics as the leader in environmental protection and climate change action" (7 research questions), "Building an organic plant-based sector" (2 research questions), "Ensuring ethical and sustainable integration of animals in organic farming systems" (4 research questions), "Providing nutritious and healthy food" (4 research questions), "Organic for Everyone: Inclusive and Affordable" (2 research questions), "Digital solutions suited for organic and agroecological systems" (3 research questions), and "Reviving Rural Communities Through Organic Farming" (5 research questions).

As a result of this initiative, TP Organics received a total of 72 responses, which comprised 38 in English, 3 in French, 10 in German, 2 in Spanish, 17 in Italian, 1 in Hungarian, and 1 in Romanian. The majority of respondents represented the research sector, with 33 individuals identifying their affiliations as "research institute/University." The other groups of respondents included the private sector (9 responses) and civil society organisations (8 responses). When asked whether their organisations fund research and innovation in agroecology or other sustainable methods, 50% of the respondents said 'yes.'

The responses from the SRIA consultation were anonymised and subsequently organised into an Excel document for processing and analysis. For each question, data was extracted to include total votes for each rating, medians, and means. A comparative analysis was conducted to evaluate the questions both within their respective sections and overall. To facilitate the drawing of conclusions from the consultations, the team ranked the results of the 27 questions, concentrating on the top 10 highest scores and the bottom 5. The criteria for ranking included means, response rate (calculated as the number of answers divided by total respondents multiplied by 100), and the totals of 4 and 1 responses. Various charts were generated to enhance

⁸ IFOAM EU mailings to more than 1,000 members; TP Organics mailings to more than 600 members (individual contacts).

⁹ <https://tporganics.eu/sria-survey-2024/>.

the interpretation of the data and information collected. The qualitative and quantitative answers were shared with the SRIA co-authors for in-depth analysis and to be integrated into the SRIA preparation.

A SRIA coordination meeting was held by IFOAM EU and TP Organics on 28 August 2024 together with FiBL EU where the outcomes of the SRIA survey were presented and discussed with the main SRIA co-authors. During the meeting, it was agreed that a separate SRIA chapter, now the recommendations chapter following the content part (also see 3.1 in this deliverable on the overall SRIA structure), will be dedicated to the enabling environment, i.e., support measures, governance structures, etc., to be provided by the European Commission, as well as on local and national levels. The types of funding needed to ensure that knowledge generated by projects is put into practice, as well as how research should be done, will be addressed in this chapter.

2.3. Roles of the OrganicTargets4EU partners and national workshops

The OrganicTargets4EU partners took over the following roles in the SRIA development process:

- As the scientific coordinator of the SRIA process, FiBL EU, one of the founding members of TP Organics, reviewed the input provided by Practice Partners and input collected at BIOFACH Science Day and Organic Innovation Days. It identified 3 research themes: Leading for the environment, biodiversity and the climate; Leading for people, communities and sustainable livelihoods; Leading for responsible innovation) and selected 35 research questions distributed over the themes. A pool of experts that contribute to elaborating the research questions was established together with IFOAM EU and TP Organics.
- Thünen Institute provided input to the SRIA development process, including participation in the Organic Innovation Days in Brussels and drafting sections relating to relevant areas of expertise.
- ICROFS invited and involved the CORE Organic Pleiades members in the workshop at the Organic Innovation Days on 22-23 October 2024 to also include the view of the ministries and other funding bodies who have funded organic research in the past years.
- COISPA provided input on research questions on organic aquaculture.
- OrganicTargets4EU practice partners provided research topics from their national workshops under T5.1 for the SRIA, summarised in a report to provide research topics to the SRIA (see Annex 5).

Based on the guidelines developed by IFOAM EU and TP Organics, all eight focus countries (Austria, Denmark, France, Germany, Greece, Italy, Hungary and Romania) provided research topics during the national workshops in conjunction with T5.2. These topics were validated during the Organic Innovation Days 2024 on 22-23 October in Brussels.

3. Content development and communication

3.1. Overall structure of the new SRIA

Following the overall division in three content themes and an overarching theme about how research should be funded, the main SRIA part is composed of these two parts: the concrete

challenges of the organic and agroecological actors on the ground as well as of the wider food system stakeholders, and policy recommendations for the next EU research & innovation framework programme (FP10) on a conceptual meta-level. This second part comprises recommendations for enhancing the knowledge flow between research and practice, making the link to agricultural knowledge and innovation systems (AKIS) and the multi-actor approach that is integral to Horizon Europe and should be maintained and reinforced in FP10.

Next to strengthening the multi-actor approach, this final SRIA chapter “**Shaping inclusive research & innovation for more impact**” calls for third-party, cascade funding to reach SMEs, start-ups, and grassroots initiatives that dominate organic value chains as well as the two-stage application procedure. The latter will democratise participation through simpler access rules, lump-sum grants, and off-the-shelf templates. Furthermore, EU Missions, European R&I Partnerships, and living lab networks must be continued and fully funded to mainstream organic R&I into system-level transformation.

For the first main content part containing the research questions clustered under the three identified main themes, “**Research & innovation priorities**”, the TP Organics Secretariat identified co-authors and contributors to further develop the research questions and instructed them during conference calls and through written exchange. Terms of Reference were shared with the TP Organics Advisory Board on 28 October 2024, inviting them to contribute to the written elaboration of the SRIA chapters¹² (see Annex 1). IFOAM EU and TP Organics collected the interested contributors, including their expertise, in an Excel file that was shared with and further complemented by FiBL Europe. FiBL Europe was responsible for reviewing the elaborated research questions.

3.2. Relation of the identified knowledge gaps to the scenarios developed in WP2

In WP2 of the OrganicTargets4EU project, Participatory foresight and scenario analysis, four European scenarios to reach 25% organic farmland by 2040 were developed, two of them policy driven and two demand driven. They are described in the OrganicTargets4EU publication “Scenario narratives—Transformation scenarios for boosting organic farming and organic aquaculture towards the Farm-to-Fork targets”¹³:

- In the **Green Public Policy** scenario narrative (policy driven), policy initiatives and public support rather than market forces play a major role, including AKIS and EU sustainability labelling, as well as organic regulation adaptations.
- The **Divergent Pathways** scenario narrative (policy driven) is about standards on greenwashing (“green claims”), more attractive national organic regulations, and policy support for organic AKIS, but also supply chain and market initiatives driving conversion, as well as bio-districts. However, the organic sector only grows in specific regional hubs.
- In the **Organic on Every Table** scenario narrative (demand driven), organic food has reached all European families. Organic food is widely included in schools and public canteens, through targeted green public procurement policies. Large-scale retailers play a leading role in facilitating the mainstream availability of organic products, while alternative distribution models are expanding as well. Organic AKIS widely exist.
- In the **Organic Power to the People** scenario narrative (demand driven), consumers push the market growth of healthy and green organic food and alternative models, helped by

NGOs and civil society initiatives at local level but also national policymakers. Knowledge sharing among farmers is facilitated by social networking and citizen science.

Through the scenario development national workshops and backcasting workshops developing transition pathways held in the OrganicTargets4EU focus countries, partners identified not only drivers, shared triggers, and public policy options but also knowledge gaps and needs for research and innovation:

- New indicators are needed to measure both the conventional and organic impacts on the environment and health.
- Best management practices for soil health need to be identified, tested, and scaled.
- Likewise, innovations are needed for agronomic challenges for organic such as crop protection and no-till.
- Storage capacities and processing for organic, but also the workload and well-being of farmers have to be addressed.

The “**Research & innovation priorities**” chapter, the core of the new SRIA outlining the identified knowledge gaps, is aligned with these scenarios and outcomes:

1. Leading for the environment, biodiversity and the climate

1.1 Organics at the frontline of climate action and adaptation

This first theme is responding to the outcomes of backcasting workshops carried out in Task 2.3 in Hungary, Denmark, Italy, France and Germany, i.e., the need for development of best management practices and innovations

- Carbon sequestration and soil management for climate-resilient organic farming
- Enhancing water resilience in organic and low-input farming systems
- Integrating renewable energy into organic farming for climate resilience and vital rural areas

1.2 Organic strategies for a biodiverse world

Relates to “Divergent Pathways” scenario narrative

- Enhancing biodiversity through multifunctional organic crop and livestock systems
- Diversified and climate-resilient perennial systems in organic farming
- Climate-resilient and diverse plant breeding for sustainable organic food systems
- Breeding resilient, long living, and multi-purpose animals for organic farming

1.3 Integrated solutions for sustainable food systems

Relates to “Green Public Policy” and “Divergent Pathways” scenario narratives as well as backcasting workshop outcomes

- Climate-resilient organic grassland systems for sustainable ruminant production
- Climate- and biodiversity-friendly organic plant production systems
- Accelerating the development and adoption of biocontrol solutions in organic farming
- Advancing organic aquaculture
- Unlocking the potential of organic bivalve and algae production in the EU
- Circular fertilisation strategies for organic farming
- Resilient and multifunctional free-range livestock systems for organic farming
- Diversified and resilient feed systems for organic livestock
- Sustainability assessment, benchmarking and reporting for organic farms
- Enhancing the soil microbiome for resilient and productive organic agriculture

2. Leading for people, communities and sustainable livelihoods

2.1 Organic for everyone: inclusive and affordable

Relates to “Green Public Policy” and “Organic on Every Table” scenario narratives

- Making organic food accessible for all: strategies for inclusive consumption
- Bridging the gap between consumer attitudes and actual purchasing behaviour for organic food

2.2 Providing nutritious and healthy food

Relates to “Organic on Every Table” scenario narrative and backcasting workshop outcomes

- Strengthening processing capacity and infrastructure for resilient organic food systems
- Understanding the health impacts of organic food consumption
- Enhancing the contribution of the organic sector to the EU’s protein transition

2.3 Reviving rural communities through organic farming

Relates to “Organic Power to the People”, “Green Public Policy” and “Divergent Pathways” scenario narratives as well as backcasting workshop outcomes (need for indicators, processing methods, marketing tools etc.)

- Bio-districts as a strategy for participatory territorial planning and rural revitalisation
- Organic farming and agroecology as a tool for generational renewal
- Developing organic farming policies for better market, environmental and social outcomes
- Improving access to land for organic farmers through better governance and policy support
- Strengthening the position of organic farmers in the value chain
- Improving socio-economic performance of organic and agroecological production systems

3. Leading for responsible innovation

Relates to “Green Public Policy” scenario narrative as well as backcasting workshop outcomes (need for monitoring tools and management strategies etc.)

3.1 Digital solutions suited for organic and agroecological systems

- Integrating AI and robotics in organic agriculture: needs, risks, and opportunities
- AI Applications in organic aquaculture for enhanced sustainability and fish welfare
- Harnessing AI for better organic certification and knowledge systems

3.2 Protecting the integrity of the organic sector

- Knowledge-Based Strategies for Fraud Prevention in Organic Supply Chains

3.3 Inclusive and participatory innovation for organic and agroecology

- Building Synergies for Agroecologically-Oriented AKIS frameworks

3.3. SRIA leaflet with key messages

TP Organics published a leaflet as a teaser for the new SRIA on 4 June 2025 on the TP Organics website¹⁰ as well as in printed form, to be distributed at key events such as the Workshop of organic farming EU-funded research and innovation projects organised by DG AGRI on 17-18 June 2025, the European Organic Congress 2025 on 25-26 June in Warsaw, Poland, organised by IFOAM EU, and the Organic Innovation Days 2025. In addition, TP Organics will bring the leaflet to important advocacy meetings with the European Commission and other policy- and decision-makers where FP10 will be discussed.

¹⁰ https://tporganics.eu/wp-content/uploads/2025/06/TPO_leaflet_FP10_2025.pdf

Titled “Research & Innovation for Organics and Agroecology: Triple wins for people, innovation and our environment”, the new leaflet summarises **key messages from the three main themes of the new SRIA** as well as the vision for the next EU Research & Innovation Framework Programme (FP10). The full vision and policy recommendations can be found in the new TP Organics Position Paper “Making EU Research & Innovation deliver for competitiveness, sustainability and resilience”¹¹.

The key messages from the SRIA, as stated in the leaflet, are the following:

Driving innovation in organic and agroecology creates triple wins for the whole food system:

Wins for the environment, biodiversity and the climate

- Climate action: improved organic farming methods enhance soil carbon storage, improve water management, and reduce greenhouse gas emissions.
- Organic strategies improve biodiversity in cropping systems and livestock management while increasing resilience and productivity.
- Innovations in organic plant and animal breeding and biocontrol support climate adaptation and sustainability.

Wins for people, communities and sustainable livelihoods

- Strong organic value chains revitalise rural communities and inspire the next generation to take up farming.
- Sound policy and governance, grounded in evidence, can secure fair pricing, equitable land access, and economic viability—laying the foundation for fair and sustainable food systems.
- Bridging the gap between consumer interest and actual purchasing behaviour makes sustainable and organic food more accessible and affordable for all.

Wins for responsible innovation

- Ethically driven digital innovations in the organic sector offer solutions for sustainable farming, transparent value chains, and effective knowledge exchange.
- Inclusive and participatory innovation, connected to education and advisory services, drives the transformation towards agroecology.
- Robust regulation and reinforced integrity systems build and maintain consumer confidence in organic products.

In addition to the scenarios developed in OrganicTargets4EU WP2, as explained above, these triple wins for the whole system, as they will be generated by organic and agroecological R&I, are aligned with and contribute to the Food2030 pathways for action (updated in December 2023 with a new pathway on zero pollution)¹²:

- **Wins for the environment, biodiversity and the climate:** “Climate and sustainability” benefits are mentioned under each pathway. Organic strategies and innovations will support climate adaptation and sustainability.
- **Wins for people, communities and sustainable livelihoods:** Pathway 11 on zero pollution refers to new value chains. Strong organic value chains revitalise rural communities and inspire the next generation. Pathway 1 is about governance for food system change. Our SRIA theme 2 is about sound policy and governance to secure fair pricing and economic

¹¹ https://tporganics.eu/wp-content/uploads/2025/06/TPO_FP10_Position-Paper_202506.pdf

¹² https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/food-2030-pathways-action-20-ri-policy-driver-sustainable-healthy-climate-resilient-and-inclusive_en.

viability, laying the foundation for fair and sustainable food systems, in line with the policy-driven scenario narratives.

- **Wins for responsible innovation:** Likewise related to pathway 1, this theme is about inclusive and participatory innovation to drive the transformation.

The full SRIA publication, to be launched officially on 4 November at the Organic Innovation Days 2025, will be publicly available online for download on the TP Organics website¹³. The launch will be announced, and the publication will be promoted through the TP Organics and IFOAM EU communication channels.

4. Conclusion

Organic agriculture is knowledge intensive rather than relying on external inputs. Therefore, organic and agroecological research and innovations, next to knowledge exchange and advice, are crucial to both developing solutions for organic as well as to ensuring that farmers have the right knowledge to transition to and stay in organic farming. At the same time, innovations and solutions developed in the organic sector are open to be applied by agriculture and food industry at large, thereby making the whole food and farming system more sustainable and resilient. TP Organics is recognised as a European Technology Platform defining and relaying the needs and priorities of the organic sector for R&I to policymakers, so that they will be considered in the allocation of EU funding. These priorities are regularly compiled through an extensive and inclusive process in the form of a Strategic Research & Innovation Agenda (SRIA).

The development process of the new TP Organics SRIA for Organics and Agroecology engaged all stakeholders at both EU and national level through consultations over two years, while also considering the scenarios developed in OrganicTargets4EU WP2. The new SRIA prepares the sector for the next EU R&I framework programme succeeding Horizon Europe (FP10) that will run from 2028 to 2034. It outlines the identified key knowledge gaps and research needs to be addressed in the future, both for further developing the organic and agroecological sector and for accelerating the transition of EU food and farming at large.

The new SRIA is divided in three main parts:

1. the introduction setting out the TP Organics vision for future organic and agroecological research (“triple lead for sustainable food systems”), the strategic role of organic R&I for the EU objectives of competitiveness and food security, as well as an outlook of the expected programme and why research funding is crucial;
2. the identified R&I priorities, divided in three themes (i.e., leading for the environment, biodiversity and the climate; leading for people, communities, and sustainable livelihoods; leading for responsible innovation);
3. policy recommendations for the design of FP10 calls and innovative as well as inclusive governance mechanisms to boost the impact of R&I.

As outlined in part 3 of this deliverable, the two policy-driven European scenarios are mainly reflected in the new SRIA in chapter 1 Leading for the environment, biodiversity and the climate and chapter 3 Leading for responsible innovation, while the two demand-driven scenarios relate to chapter 2 Leading for people, communities, and sustainable livelihoods.

¹³ <https://tporganics.eu/publications/>.

5. Annexes

5.1 Annex 1: Call for SRIA contributors

Call for authors – New TP Organics SRIA

Dear ____

As a valuable member of TP Organics' Advisory Board, we hereby invite you to take part in the revision of our Strategic Research & Innovation Agenda (SRIA). The new SRIA will be a key document that will set the research & innovation (R&I) needs of the organic and agroecological sector, as well as R&I to support the transition of EU food and farming systems. The revised SRIA will focus on the transformation of European food and farming systems in the years to come. This publication will be instrumental in advising the European Commission for the next framework programme Horizon Europe.

Your role in the revision process will be to co-author a chapter(s) **and** to process the input from TP Organics members on one of the themes below:

- **Area 1: Change the way we produce food:** towards sustainable, diversified and resilient organic and agroecological farming systems
- **Area 2: Change the way we process and supply food:** towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging
- **Area 3: Change the way we eat and connect in food systems:** towards sustainable and healthy organic diets and empowering European citizens to co-create the transition
- **Area 4: Change the way we govern food systems:** towards democratic, transparent and participatory governance (inclusion of civil society) and relocalisation

TP Organics Secretariat will fully support you in drafting this publication and provide templates for the chapters. Specifically, we will organise an interactive workshop at the upcoming TP Organics Science Day at the BIOFACH 2024 Congress in February 2024 to collect the research & innovation priorities of the organic actors. The results of the workshop will be validated through an online public consultation during summer 2024 and at the Organic Innovation Days next year.

To join the SRIA revision team, please get back to us **by** ____ at the latest indicating the following:

- The theme you are interested in to contribute;
- Initial ideas on research needs for this theme;
- Your availability for moderating a workshop at Science Day 2024 in Nuremberg (Germany) and at the Organic Innovation Days on 22-23 October in Brussels (limited amount of travel grants is available upon request).

Your role will also include processing/elaborating on the input provided by the members of TP Organics. We hope that you will take up this unique opportunity to co-author the SRIA publication and thus contribute to strengthening R&I for organics and agroecology.

The timeline of the publication process is the following:



Looking forward to hearing from you soon,

5.2 Annex 2: National workshop guidelines

New TP Organics Strategic Research & Innovation Agenda for Organics and Agroecology: next steps to sustainable food systems

Guidelines for national OrganicTargets4EU workshops 2024

Time & date: ...

Venue: ...

Goal of the workshop: To engage participants in providing research & innovation priorities as input for the SRIA publication, complementing the first input received at TP Organics' Science Day at BIOFACH 2024. **The aim is to get to at least 3, max. 5 clusters of R&I challenges per area.**

Expected participants: ...

Space: Chairs will be arranged in a circle.

Equipment: flip charts; post-its; markers; challenges for the discussion printed on A4 (hand-outs for the participants) and A3 (to hang on the wall)

Total time available: 2h20 (for the introduction, presentation of challenges, workshop discussion, clustering, voting and wrap-up)

Draft agenda (timings to be added)

Introduction: 10'	Facilitator introduces the OrganicTargets4EU project and explains the background and aim of the workshop (i.e., gathering of input from the participants to feed into the new TP Organics SRIA) within the project.
Workshop: 2h – 30 min. per area	
Area 1	
10' Presentation of research & innovation challenges	Facilitator presents new R&I challenges in the area (general description of area, possibly complemented with scenarios).
20' Review R&I challenges	Participants come up with own research questions. 5' Individual thinking: write challenges on sticky note 15' Group discussion: review and collect new ideas, discuss and cluster
Area 2	
10' Presentation of research & innovation challenges	Facilitator presents new R&I challenges in the area (general description of area, possibly complemented with scenarios).
20' Review R&I challenges	5' Individual thinking: write challenges on sticky note 15' Group discussion: review and collect new ideas, discuss and cluster
Area 3	
10' Presentation of research & innovation challenges	Facilitator presents new R&I challenges in the area (general description of area, possibly complemented with scenarios).
20' Review R&I challenges	5' Individual thinking: write challenges on sticky note 15' Group discussion: review and collect new ideas, discuss and cluster
Area 4	
10' Presentation of research & innovation challenges	Facilitator presents new R&I challenges in the area (general description of area, possibly complemented with scenarios).
20' Review R&I challenges	5' Individual thinking: write challenges on sticky note 15' Group discussion: review and collect new ideas, discuss and cluster
10' Voting and wrap-up	All participants move around and do the multiple voting (3 stickers per person).

Facilitator's role:

- lead the discussion
- capture the main points and cluster them
- sum up the key points in the plenary
- collect all the inputs and process them into a report afterwards

ANNEX I

The R&I challenges in the four areas will be printed and handed out to participants, as well as displayed in the room in A3 size.

Area 1: Transforming food production

In 2020-2021, the EU launched a number of strategies and action plans to transform the European farming and food systems making them more sustainable, diversified and resilient by 2030. Most important is the "Farm to Fork Strategy," which seeks to establish farming systems with neutral or positive environmental footprints by diminishing reliance on pesticides and antimicrobials, curbing excessive fertilization, enhancing animal welfare, reversing biodiversity decline, mitigating climate change and its repercussions, while ensuring food security and affordability, and fostering a sustainable income and livelihood for producers. Other relevant strategies are the "Soil Strategy for 2030" to protect and restore soils and promote their sustainable use to achieve healthy soils by 2050 and the "Biodiversity Strategy" to put Europe's biodiversity on the path to recovery by 2030. Organic farming and agroecological farming systems have goals and principles in line with the goals set out in these strategies, for which reason the EU in 2021 set out an "Organic Action Plan" to reach the ambitious goal of 25 % of the EU agricultural land under organic farming by 2030. However, organic farming and food production systems face various challenges to optimize their contribution to fulfil these goals. A major challenge to obtain these goals is the effects of climate change leading to, warmer and dryer or wetter climate with serious effects on agriculture in general, so there is an urgent need for more resilience in organic farming and in farming in general.

Area 2: Transforming food processing and distribution

The landscape of organic consumption is changing because of evolving consumer preferences and technological advancements. New technologies and techniques such as high-pressure processing (HPP), cold-pressing, and fermentation have emerged, allowing food manufacturers to preserve the integrity of ingredients while maintaining taste and nutritional value. These innovations align with consumer trends towards minimally processed plant-based and whole-food products, reflecting a preference for items closer to their natural state. This trend is particularly evident in the rise of vegan and raw food movements as well as the Clean Label Movement, where consumers prioritise foods with simple, recognisable ingredients and easily understandable labels. Unfortunately, the trend towards vegan food and meat/milk/eggs substitutes has led to an increase of ultra-processed food on the market, and this poses challenges to consumer health and acceptance. At the same time, environmental issues such as CO₂ neutrality and zero-waste processing have become relevant targets in the organic movement. Moreover, there has been a focus on sustainability in packaging, with innovations in compostable, recyclable, and reusable options gaining traction. Consumers are increasingly mindful of the environmental impact of packaging and are seeking alternatives that minimise waste and pollution. Advancements in technology have facilitated innovation in supply chains, with the rise of online tools, blockchain and artificial intelligence (AI) enabling shorter and more efficient supply chains, allowing also the reduction of food waste. These developments enhance

convenience for consumers and contribute to greater transparency and traceability in the organic food industry, while posing relevant challenges not only to processors but also to distributors. Finally, consumer motivations to consume organic processed food may have shifted since research on the topic was conducted, more than 20 years ago.

Area 3: Transforming consumption/diets

GLOCAL: The trends of regionalisation and globalisation occurring simultaneously, often referred to as "glocalisation," is important for organic production and agroecology. The term "glocal" reflects the complexity and ambiguity inherent in balancing global and local dynamics within the agricultural sector. On one hand, there is a growing preference for local and regional products, driven by factors such as sustainability concerns, support for local economies, and desire for authenticity. On the other hand, globalisation continues to influence markets, supply chains, and consumer preferences, leading to increased access to global products. The challenge for the organic sector lies in navigating the contradictory nature of the trends of regionalisation and globalisation. Understanding and effectively addressing the complexities of consumer demand for organic products are crucial. It is difficult to communicate with the consumers; there is no one solution; arguments need to be balanced. It is all about perception: organic food is linked to international; agroecology is linked to local. What we need: more reflection of resilience and more transparency in food and feed supply chains. How to use "tracing back" more effectively for organic products?

Protein shift: When talking about this topic, the clarification of what is included under this title was unclear first. We understood that the wording has been misleading. For that reason, we recommend to change the term from 'protein crop' to 'N-fixating crop' because all legume crops including feed crops for ruminants are seen as part of the protein shift. After the clarification of the terms and the agreement on a common understanding, the group agreed that we need much higher shares of legume crops for both pasture/grassland and cropping. Plant protein sources can replace food from animal production. However, allocating more arable land to the cultivation of protein crops could lead to a reduction in wheat output, resulting in decreased availability of both food and feed. Additionally, since processing and supply chains are not yet fully established for protein crops, costs are still high or may have a negative impact (soy from Global South). Finally, while many countries have developed strategies and allocated funding to promote the cultivation of protein crops, the effectiveness of these programs remains uncertain. Without a clear understanding of their impact, it is challenging to optimise resource allocation and ensure the successful integration of protein crop cultivation into agricultural systems.

Consumer preferences and health: Engaging consumers in understanding the realities of local sustainable food production poses a significant challenge. For instance, consumers may not realize the interconnections between meat and milk production or the surge in tomato availability during summer holiday periods. Another challenge arises in policymaking. While policies that influence demand for specific products may not always be popular, they are essential for driving the transition of the food system towards sustainability. Civil society engagement such as CSAs can help to trigger a changing understanding and a change in behavior. Online purchasing needs to be taken into account because consumer groups behave differently – this will have to be taken into account. Currently, the pricing and market system for food is based on volume and weight but both aspects are not relevant for the nutritional value of a product. We need to understand much better who we can change this system and focus on the nutritional density instead. Transparency is needed. Public procurement is often not taking into account the nutritional value. The demand for food products is diverse depending on the type of buyer. We need to distinguish

between highly processed (for gastro, catering, certain end consumers) versus raw food (for a certain group of households, restaurants). We need a new concept for the interpretation of the “consumer”. Instead, we need to focus on individual needs. For that reason, the sections ‘consumer preferences’ and ‘health’ should be merged into one section. Part of this new concept should be: Humans need to be integrated into the system. In the past, we used to talk about the production systems including value chains, but the consumer was seen as “put on top of it”. This needs a mind shift. We need a holistic approach for both, organic and conventional and emerging forms in between.

Area 4: Transforming food system governance

Cooperation and democratisation of decision making in the food system: The current set-up of the food system is not able to respond to the global and joint challenges of food security, sustainability and equity. Public policies and market rules are demonstrating inertia in responding to the speed, scale and depth of external shocks. New balances must be sought to guarantee the income of food systems actors as well as to incorporate hidden costs in relation to climate change, natural resource degradation and unaffordability of healthy diets. This requires innovative governance mechanisms aiming at greater policy coordination and integration, too. There is a growing vitality of local initiatives that adopt participatory and inclusive decision-making processes to better reflect societal concerns and enhance agency in policy formulation. Enhanced cooperation among operators and a more sensitive connection with consumers can generate greater transparency and fairness in food supply chains, potentially informing more equitable and sustainable food policies. Redesigned value chains configurations may also lead to greater territorial cohesion and may result in an improved alignment with sustainability criteria of the private sector. In all these aspects organic agriculture can play a catalytic role.

A new mission for a transformative AKIS: Agriculture, and organic farming in particular, is a knowledge-intensive activity. Agroecological competences are becoming more important in view of the increasingly erratic climate and market dynamics. Organic farmers and processors are said to be innovative by vocation: to achieve the F2F target of 25% organic farmland by 2030, innovations have to be scalable via more intense interaction among actors and advisory systems should be reinforced or reorganized to support farmers across multiple sustainability dimensions. Training and education systems should value the knowledge reservoir made available by scientific and practical contributions. Overcoming institutional barriers and challenging entrenched power dynamics is essential to realising the potential of a transformative AKIS as a driver of the agroecological transition towards more sustainable and resilient food systems.

5.3 Annex 3: SRIA table of contents

TP Organics Strategic Research & Innovation Agenda for Organics and Agroecology

Research & Innovation for organics and agroecology: triple lead for sustainable food systems

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1. Executive Summary
2. Introduction
 - a. Making EU Research & Innovation deliver for competitiveness, sustainability and resilience
 - b. Research funding needs to step up to achieve more impact
 - c. The strategic role of organic R&I for EU competitiveness and food sovereignty

- d. Vision for future organic and agroecological research: triple lead for sustainable food systems
- e. Outlook on FP10
3. Research & innovation priorities
 - a. *Leading for the environment, biodiversity and the climate*
 - b. *Leading for people, communities and sustainable livelihoods*
 - c. *Leading for responsible innovation*
4. Shaping inclusive research & innovation for more impact
 - a. Strengthening the multi-actor approach
 - b. Third party funding
 - c. Two-stage application
5. References

5.4 Annex 4: TP Organics leaflet (screenshot)¹⁴

**EXPLORE THE VISION OF
TP ORGANICS FOR FP10 IN OUR POSITION PAPER**

Agriculture and food have emerged as vital pillars of the European Union, and it is increasingly apparent that these domains are essential components of the EU's security framework. Be it in the realms of climate action, ensuring access to healthy and affordable food, or safeguarding food sovereignty, the EU must champion research and innovation (R&I) for sustainable agri-food systems to enhance the well-being of its citizens.

TP Organics advocates for a robust and independent EU R&I Framework Programme (FP) 10, featuring a substantial budget dedicated to R&I in organic and agroecology.

FP10 SHOULD:

- Stand alone with a dedicated legal foundation (Article 182 TFEU) and embrace increased funding to tackle societal and global challenges, paving the way for a prosperous, fair, and just future for everyone.
- Elevate its support for the agricultural and food sectors, addressing urgent challenges that jeopardise EU security, including biodiversity loss, climate change, reliance on external inputs, and generational renewal.
- Acknowledge organic food and farming as vital drivers of EU competitiveness and food sovereignty, proposing a ring-fenced budget for organic and agroecological R&I to rectify historical underfunding.

**DRIVING INNOVATION IN ORGANIC AND AGROECOLOGY
CREATES TRIPLE WINS FOR THE WHOLE FOOD SYSTEM**

- 1 WINS FOR THE ENVIRONMENT, BIODIVERSITY AND THE CLIMATE**
 - Climate action: improved organic farming methods enhance soil carbon storage, improve water management, and reduce greenhouse gas emissions
 - Organic strategies improve biodiversity in cropping systems and livestock management while increasing resilience and productivity
 - Innovations in organic plant and animal breeding and biocontrol support climate adaptation and sustainability
- 2 WINS FOR PEOPLE, COMMUNITIES AND SUSTAINABLE LIVELIHOODS**
 - Strong organic value chains revitalise rural communities and inspire the next generation to take up farming.
 - Sound policy and governance, grounded in evidence, can secure fair pricing, equitable land access, and economic viability—laying the foundation for fair and sustainable food systems.
 - Bridging the gap between consumer interest and actual purchasing behaviour makes sustainable and organic food more accessible and affordable for all.
- 3 WINS FOR RESPONSIBLE INNOVATION**
 - Ethically driven digital innovations in the organic sector offer solutions for sustainable farming, transparent value chains, and effective knowledge exchange
 - Inclusive and participatory innovation, connected to education and advisory services, drives the transformation towards agroecology
 - Robust regulation and reinforced integrity systems build and maintain consumer confidence in organic products



¹⁴ https://tporganics.eu/wp-content/uploads/2025/06/TPO_leaflet_FP10_2025.pdf.

5.5 Annex 5: National workshop results under T5.1: Building a Strategic Research & Innovation Agenda

Introduction

According to the Description of Actions (DoA) of the [OrganicTargets4 EU project](#), Practice Partners in each of the eight Focus Countries have to organise national-level workshops on the Strategic Research and Innovation Agenda (SRIA) under Task 5.1 (back-to-back with the Agricultural Knowledge and Innovation System (AKIS) organic advisory services under Task 5.2). A [guidance document](#) with the expectations set out in the DoA, as well as suggestions for the organisation and delivery of the workshop were sent to Practice Partners.

Country reports

HUNGARY

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.

Clusters / single research topics	Ranking
1/a. Biological Foundations:	5
- Organic seed breeding	
- Study and breeding of landrace varieties	
- Replacing corn with sorghum	
- Cultivation of wild plants	
- Increasing the diversity of cultivable plant species	
- Investigation of alternative plant species and varieties	
- Breeding of resistant and drought-tolerant varieties	
1/b. Water:	5
- In-stream water storage	
- Flooding of grasslands	
- Preservation and establishment of landscape elements that aid water retention	
- Utilization of groundwater resources, assessment of water balance	
- Development of moisture conservation technologies adapted to local conditions	
- Nature-based solutions	
1/c. Soil	4
- Research aimed at restoring soil structure and determining the time frame for this restoration	
1/d. Technology Import:	2
- Examination of agro-technological and plant protection issues and best practices from southern countries	
- Import of irrigation technologies and innovations	
- Introduction/adaptation of marketable plant species resistant to climate change into domestic cultivation	
1/e. Extensive Animal Husbandry:	2
- Possibilities of mixed farming and multipurpose land use	
- Grazing experiments, including the examination of the nutritional value of products	
1/f. Participatory research methods	1

1/g. Recycling of by-products	1
1/h. Land management based on ecological principles	0

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.

Clusters / single research topics	Ranking
2/a. Small-Scale Operations	6
- Prioritization and promotion of local products	
- Product labelling: indicating the country and region of origin	
- Strategies for small-scale producers to enter large retail chains	
- Feasibility studies on the profitability of small-scale production	
- Processing opportunities for products from organic smallholdings	
2/b. Alternative Food Systems	5
- Self-sufficient systems	
- Community-supported agriculture (CSA)	
- Community gardens	
2/c. Preservation	4
- Traditional, additive-free preservation methods	
- Alternative preservation methods beyond freezing	
- Use of natural additives and auxiliaries	
2/d. Food security	3
- Potential and impact of small-scale mobile processing units (e.g., slaughterhouses)	
2/e. Environmental Impact Assessment	1
- Determination of the ecological, water, and carbon footprint of specific technologies	
2/f. New Technologies	1
- Reduction of food waste	

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

Clusters / single research topics	Ranking
3/a. Health Impacts of Nutritional Content	9
- Effects of production and processing methods on health and public health	
- Relationships between nutritional content, human microbiome, diets, and health	
- Investigation of the health impacts of organically produced foods	
- Functional foods (foods with known, beneficial nutritional content)	
- Relationships between nutritional content and enjoyment	
3/b. Communication and Awareness	7
- Consumer awareness regarding diet	
- Traditional cooking techniques and preservation methods	
- Nutritional content as a quality parameter	
- High-fiber diet, raw diet (vegetables, fruits)	

- 'Organic fasting'	
- Development of anonymized food-tracking systems	
3/c. Consumers' Real Needs	3
- Assessment of real, local consumer preferences	
- Consumer psychology: product selection, incentives, preference formation	
- Impact of different lifestyles (urban, rural) on consumer habits	
3/d. Environmental Impacts	1
- "Distant" organic vs. local conventional?	
- Optimal balance between global and local markets	
3/e. Legumes as Protein Alternatives	0
- Effects of mixed cropping	
- Justification for specialized advisory services related to protein crops	

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

Clusters / single research topics	Ranking
4/a. Regulation	14
- Improving the regulation of the organic product chain	
- Clarifying the concept of "reasonable regulation"	
- Defining possible (local) exceptions	
- Differences in regulatory practices among EU countries	
- Effects of loosening the institutional system: benefits and risks	
4/b. Favourable Market Measures	5
- Establishment of mandatory organic ratio in public catering	
- Facilitating access to healthy food by adjusting regulations	
- Internalizing environmental and social externalities in pricing	
- Reducing prices through regulatory changes	
4/c. Alternative Food Systems	1
- CSAs/green basket communities	
- Local supply systems, small-scale, Short Food Supply Chains	
- Mandatory organic research support for educators and researchers	

DENMARK

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.
1/a. Plant proteins
- New species and production systems
- Plant health and natural solutions
- Soil health, bio stimulants, intercropping
1/b. Diversity
- In field, nature and cultivation in same space and technology to do this
- With livestock outdoor, agroforestry.

1/c. Nutrients
- Separation of nutrients for more accurate fertilisation - How to avoid leaching and run-off
1/d. Regenerative
- Reduced cultivation in organic farming
1/e. Rotation and crops
- Clover/grass allocation for feed, food, energy and resource - Better recirculation of nutrients
1/f. Soil health
- How can we measure soil health
1/g. Livestock
- Allowance of different species in one barn - Development of more resilient, animal-, climate-, biodiversity friendly system - Size and yield limitations for livestock aligned with organic principles
1/h. Breeding
- Climate resistant plant species - Dedicated food plants
1/i. EU regulation
- Should include specified demands for climate impact, animal welfare, biodiversity
1/j. Systems
- Multifunctional systems (social, production, nature)

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.topics

2/a. Plant Proteins
- How to process for preserving natural taste and healthy features of produce (vitamins) - Find processing methods making it easier for restaurants and catering - Sale on farm (store) - How to refine plant protein?
2/b. Diversity
- Can supermarkets present seasonal vegetables? - Barriers for distributors to buy organic?
2/c. Livestock
- Production should be integrated with plant production and forestry - Share farming
2/d. Processing and packaging
- Should be regulated
2/e. Chain thinking
- How to get producer, processor and trader to cooperate better - Shorten the chain
2/f. Partly processing
- Try and answer consumers demands
2/g. Niche products

- Terroir milk/cheese/butter (grass, mountain, valley etc.)

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

3/a. Plant proteins

- How to prepare at home
- Not only pulses, but also oats, hemp, linseed, rape seed

3/b. Diversity

- Food basket calculations including vegetables and animal products
- Show (brand) biodiversity per product

3/c. More plant products in diet

- Why many people do not consume the required number of vegetables and fruit

3/d. Consumer

- Role in the chain
- Shorten chain
- Less waste
- Show connection health and organic
- Know more about consumer habits

3/e. Chain

- How to align production to demand of consumer-export

3/f. Pricing

- Information of the costs for better welfare, less pesticides, more nature etc.

3/g. Brands

- How to show in an easy way the score for climate, biodiversity, pollution (a,b,c,d...
- Processing should be organically acknowledged and documented

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

4/a. Plant proteins

- Who decides what consumers demand?

4/b. Education

- Introduce organic farming in elementary schools
- Organic products should be on every school (in biology, in the kitchen)

4/c. Legislation

- Subsidies to livestock should align to what politicians want for the future.
- Brands by law, showing how much pollution, nutrification, climate change, animal suffering the product is causing

4/d. Justice

- Polluters should pay, and this would increase the price of conventional production.

- Organic versus conventional practice data should be used in public evaluations and policy statements of agricultures impact (not only conventional)
4/e. Fake news
- Organic agriculture shall continuously present facts, as so much nonsense is distributed (e.g., climate impact, poisonous fungi residues, animal cruelty by having them outside) - Organic agriculture should define itself in comparison to regenerative, animal welfare bands etc.

FRANCE

Instead of the rank, the total score for each cluster is reported to stress the difference in priority between clusters. Noteworthy, topics are often not R&I topics *per se* but pinpoint issues that would require investigations to be overcome. We chose not to reformulate to leave open the solutions or the approaches to be proposed. Besides, although area workshops were clearly separate, the outcomes show topics are intermingled and frontiers are blurred.

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.

24 participants voted and thus maximum score was of 120.

Clusters / single research topics	Score
1/a. Plant and animal genetic resources adapted to organic farming and climate change	107
• Accessible genetic resources adapted to organic farming. • Adapting genetics to cope with climate change, facilitating transfers from areas currently under projected climate.	
1/b. Work on sobriety and adapt to climate change (water, soil, climate)	102
• Better understand water use and impacts of farming practices and crop choices. Work on sobriety and alternatives. • Improve soil fertility management: develop indicators, optimise fertilisation and secure fertilisers supplies, or nutrients and carbon inputs. • Anticipate climate change to adapt knowledge production and advice. Support holistic or systemic adaptation. Objectify the contribution of organic farming to climate change and its repercussions.	
1/c. Biocontrol¹⁵	98
• Ensure that biocontrol solutions are suited for organic production and promote the adoption of these methods. • Support and alleviate obstacles to the development of biocontrol solutions.	
1/d. Redesign production systems to maximise environmental services and limit the use of external inputs (biodiversity or autonomous strategies...)	97
1/e. Technical and economic references and references on multiperformance to support advice and guide public policies towards the dual transition to food and agroecology	95
• Harmonise public policies and gear them towards the dual transition to agroecology and food and support organic farming. Include non-food productions in the agenda and outermost regions.	

¹⁵ The French definition of biocontrol encompasses all methods of plant protection using natural processes (processes and species interactions occurring in a natural environment), i.e. macroorganisms, plant protection products made of microorganisms, chemical mediators like pheromones, natural substances of mineral, plant or animal origin.

Clusters / single research topics	Score
- Shed light on production costs and their variability, between organic and non-organic systems and between countries and within organic systems and regions. Integrate the costs of service crops or the effects of previous crops. - Produce technical-economic and multi-performance benchmarks for organic farms to support advice and encourage farm resilience and inform public decision-making. - Foster upstream-downstream dialogue to inform market opportunities (volumes and prices) and stimulate the agroecological transition.	
1/f. Develop open innovation, rethink the way of producing and exchanging knowledge	90
- Support in-field innovation, individual or collective or on a regional scale field experiments and support co-innovation. Promote exchanges between peers and between farmers and experts. - Explore low-techs or opposite high-techs and confront them to organic principles.	
1/g. Support advice and training tailored for organic farming going beyond purely technical issues and supporting exchanges between peers	90
- Support generational renewal through specific technical assistance, financial support and access to land: allow capital, knowledge and networks transfers. Gain a better understanding of the specific features of different transmissions. - Ensure farmers well-being, prevent psycho-social risks especially in the face of hazards, uncertainties and when setting up a farm. - Training and advising farmers on technical and economic issues and pinpoint the offer available and useful for organic farmers. - Foster collective approaches to co-innovation and the exchange of practices between peers. Disseminate outcoming knowledge and innovation. - Include organic farming in the curricula of farmers, trainers, and teachers, and institutional players.	

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.

23 participants voted and thus maximum score was of 115.

Clusters / single research topics	Score
2/a. Improve the understanding of value chains and support or impose a fairer distribution (including margins, transparency)	101
2/b. Inform consumers and satisfy their expectations	97
- Knowledge, indicators and messages to inform consumers. - A better understanding of consumer choice criteria. - Satisfying demand by anticipating bottlenecks.	
2/c. Territorializing production, transformation and consumption: assess the impacts, adapt the tools and promote	95
2/d. Structuring the organic sector and working together on the value chain	94
Involve downstream actors (especially retail) in new commercial relationships in the value chains.	

Clusters / single research topics	Score
Develop innovative, local, small-scale or more sustainable processing and logistics tools.	
2/e. Public policy support and redesign the organisation of research and innovation on food processing and logistics (including regulation aspects)	91
2/f. Evaluate and improve organic products (processing methods, recipes, practicality, naturalness, transport, carbon footprint, etc.)	90
- Improve the footprint of processed organic products and their packaging. - Improve the “naturalness” or the suitability for the organic principles of processing methods and inform consumers. - Organic processed food and nutrition: improve recipes and processes, improve knowledge and its dissemination. - Assess processes and recipes with regards to the best conditions of use and the adjustments required to cope with supply fluctuation, and sizing of the units.	
2/g. Distribution channels: diversification of distribution methods, alternative shops, proximity and improved accessibility of products	90
- Support supply chains and distribution methods based on collaborative, democratic and fair governance. - Propose recipes and products that meet consumers expectations. - Improving the physical and financial accessibility of organic products.	
2/h. Diversification of productions and outlets for food and non-food products	83

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

24 participants voted and thus maximum score was of 120.

Clusters / single research topics	Score
3/a. Public policy and market regulation	106
- Public policy to support the transition of the food system and towards organics. - Regulating markets to encourage local production for a food transition coupled with an economic transition.	
3/b. Hidden costs of food, competitiveness and corporate social responsibility (CSR)	104
- Produced multi-criteria sustainability assessment tools. - Objectivising and integrating hidden costs, internalising externalities, including in public procurement. - Supporting virtuous purchasing, informing consumers about the impact of their consumption and the levers for improvement.	
3/c. Accessibility of organic food <i>sensu lato</i>	103
- Financial accessibility and organisation of supply chains and logistics. - Competitiveness of the French organic plant-based protein sector.	
3/d. Raise consumers education and awareness	103
- General education about a better food system, raise awareness on the issues involved. - What are the recommendations for making the transition to sustainable food? - Training for professionals, particularly public purchasers (public procurement).	

Clusters / single research topics	Score
3/e. Impacts of climate change for the organic sector	98
- Adapting to climate change and mitigating greenhouse gas emissions for the sector and for consumers. - Issues of animal production while plant-based protein products develop. (1) Levers of commitment to the protein transition. (2) Increase knowledge and awareness of the impacts of livestock farming, in particular in terms of social and environmental benefits, e.g. of extensive grass-fed livestock farming. (3) Making the most (value) of organic animal products.	
3/f. Levers for an improved consumption of organic products including out-of-home catering	91
- Better understanding of the socio-economy of organic food particularly via its accessibility - Promote organic products in out-of-home catering (supply chains, staff training, etc).	
3/g. Organic versus other labels or claims. Competition and/or complementarity	83
- Impact and behaviours in the equation organic versus local. - Improving the traceability of organic farming, differentiate organic production, particularly in socio-economic terms.	

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

25 participants voted and thus maximum score was of 125.

Clusters / single research topics	Score
4/a. Provide financial support for research and innovation, especially in-field, participative or co-innovation with a focus on resilience	110
- Provide short- and long-term support. - Subsidise or ensure risks of in-field experiments as well as risks inherent to nature based solutions. - Foster exchanges among peers and between operators and R&I actors. - Target robustness, resilience.	
4/b. Raise awareness, communicate and educate on scientific grounds on what is sustainable	106
- From primary school onwards educate people about sustainable food and communicate to raise awareness. - Back up speeches on organics with a scientific basis. - Training and informing professionals.	
4/c. Understanding and removing socio-technical barriers including food prices and costs	106
- Understand the lock-ins. - Set fair prices that also account for transitions. - Experiment new business models.	
4/d. Horizontal and collective governance: represent the diversity of stakeholders	99
Involve consumers/citizens and the various players of the sector.	

Clusters / single research topics	Score
- Shared governance based on one or more platforms dedicated to organics and involved in sectoral dialogue, public subsidies and innovation. - Coordination of the food system between different ministries.	
4/e. Horizontal and collective governance: local scale	98
- Decentralise the governance of food systems (including land policy). - Optimise the way Territorial Food Projects (PAT in France) operate, study their impacts and promote positive experiences.	
4/f. Support virtuous supply and value chains, penalize the less virtuous ones and enforce laws	86
4/g. Better explain regulations and write them in a more democratic way	78

GERMANY

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems

Key challenge a:

- **Climate change**

R&I Questions:

- Development of new varieties/seeds for drought periods, increasing resistance to diseases and changing nutrient pattern
- How to achieve functioning organic fertilization with legume fatigue and potentially less available organic manure especially when animal husbandry is decreasing
- Research on regional utilization concepts of natural resources such as water, soil, forests/ available biomass
- How to locally produce higher amounts of plant-based protein sources (soy, peas, chick-peas, beans)
- Development of standards and requirements for organic urban farming
- Expand R&I exchange networks across EU countries for knowledge transfer
- Seed varieties that are fit for climate change in different severe weather conditions: ability for drought tolerance and temporary high precipitation
- Research into farming systems and cropping systems that are able to buffer above mentioned different severe weather conditions

Key challenge b:

- **Control and certification procedures**

R&I Questions:

- Research on digital auditing applications, remote/satellite-based monitoring platforms to assure organic standards

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging

Key challenge a:

- **Changing consumption behaviour towards more plant-based diets**

R&I Question:

- Development of more diversified organic fish and meat replacement products

Key challenge b:

- **Increased plastic-packaging of products**

R&I Question:

- Development of alternative and climate-positive packaging materials

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition

Key challenge a:

- **Lack of awareness of (organic) food production systems**

R&I Question:

- How to raise awareness by consumers regarding organic food production systems

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

Key challenge a:

- **Policy-making bodies react with delay towards external shocks**

R&I Question:

- Innovation and funding activities regarding the set-up, reinforcement of eco-model regions, communal-development plans for the production, supply or consumption of organic products

Key challenge b:

- **A common Agriculture policy that provides farmers with stability, while enabling the transition to more sustainability as well as reducing the bureaucratic burden and at the same time**

R&I Question:

- Identification of elements that reduce the bureaucracy burden and provide tools that ease or automate documentation for farmers
- How to make the systemic benefits of organic farming measurable in a sustainability tool?
- Which steps are making real sustainability impact for conventional farmers in their sustainability transition?
- Identifying an effective tool that strengthens the social sustainability of the CAP and the farming sector. Especially in terms of the survival of small and medium size farms as well as the generation renewal and young farmers

Take home messages:

- Cross-association advisory formats/people & capacities, also supra-regional or more international exchanges for producers, processors and organic trade
- Problems with organic vocational training (TVET), organic farming is hardly present here, currently it can only be achieved through specialization
- Lack of long-term planning for farms (retailers prefer 6 months contracts, farmers have a multi-annual planning cycle, to align crop rotation and planning with this

retailers would need to offer more long-term contracts), challenge price pressure and unfavorable contracts for farmers with food retailers and brands of organic shops

- Inappropriate, unrealistic demands from the EU Commission concerning the interpretation of some EU regulations (e.g. poultry farming, grazing,), reduce the transition to organic farming and pressure some farmers to re-convert. Further it makes management for existing organic farmers difficult.
- Better measurement methods for sustainability accounting, climate related effects, CO₂ emissions, biodiversity effects in the production, transportation & processing of organic food that adequately shows the performance of organic farming and does give justice to the systems approach in organic.

GREECE

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.

Clusters / single research topics	Ranking
1/a. Mussel and seaweed farming	
- Specific research topics mentioned by participants - Mussel production in response to climate change - Seaweed farms as an additional sustainable aquaculture product which can provide public goods and ecosystem services in response to climate change. - Confusion between the conflicting definitions of 'high ecological status', as defined by Directive 2000/60/EC; of 'good environmental status', as defined by Directive 2008/56/EC; or of equivalent quality to the production zones classed as 'A', in accordance with Article 18(8) of Regulation (EU) 2017/625, regarding the water quality and environment specific algae and shellfish are grown in. - Valid and safe alternatives to the use of additional nutrients and CO₂ from various sources for microalgae/algae cultivation with organic certification. - Water quality can always be improved locally, using algae culture for nutrient uptake or co-culture with other biofiltering organisms of economic value.	
1/b. Trout Farming	
- Most aspects of production are considered organic; however, the additional costs of certification, organic feed and juveniles are at this time too high. - An innovative breakthrough for suitable, affordable organic feed (i.e insect meal, organic soya or lupin meal) could help reduce costs and make organic fish more competitive to conventional. - Organic hatcheries supplying larvae are needed - Seasonal price fluctuations of trout in Greece and consumer attitudes turning towards easy preparation meals have led producers to invest in processing, packaging, freezing or smoking the fish.	
1/c. Marine Fin fish (Sea bream, sea bass, Great amberjack)	
- An innovative breakthrough for suitable, affordable organic feed (i.e insect meal, organic soya or lupin meal) could help reduce costs and make organic fish more competitive to conventional.	
- Reducing issues caused by increased production of fin fish by incorporating IMTA principles or organic principles.	
- Sea bream and sea bass industry is stagnating since it is always changing hands, with not a clear, sustained vision.	

- Organic hatcheries supplying larvae are needed, since the only one in Greece announced its termination, due to new management and the increased costs of maintaining the certification of the hatchery. Only two certified organic hatcheries in EU remaining (France and Croatia).
- Various high risks and 30% higher costs are encountered when larvae are transported for long distances. Production increase cannot be supported by only two hatcheries, so a strategic and probably time limited amendment to the Organic Regulation is proposed, about the introduction of non-organic juveniles.
- Alternate sources of vitamin B2 (riboflavin), since current sources are produced with GMOS's which are currently not allowed in the organic regulation (Article 5 of EU Regulation 2018/48).
- Alternative proteins to fish meal and from GMO free sources, i.e insects. Insects can convert low-value biomass into high quality animal proteins and by reintroducing them in the food chain, they are emerging as an excellent solution to address this nutritional challenge. However, organic regulations at the moment do not allow the use of insects in organic feed formulas, so an amendment to (EU) 2018/848 Annex II Part III and 3.1.3.3, authorizing the feeding of insects to carnivorous fish is proposed.
- Research on other novel feed ingredients, such as microalgae, yeast meals and vegetable protein concentrates, will be an important part of future-proofing sustainable organic aquaculture.
- Recirculating Aquaculture Systems are being promoted but do not fall under the EU organic standard. In order to modify this requires the agreement of the Parliament and Council of the Minister, which is a very long procedure
- Alternative veterinary treatments or prevention with new scientific evidence, i.e cinnamon oil..

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.

Clusters / single research topics	Ranking
1/a. Local consumption vs exports	No.
- Specific research topics mentioned - Greek mussels are shipped to Italy where they are mixed with local mussels and the consumer cannot know the difference. - Most Greek organic production is exported to Northern Europe. - Complicated laws and strict processing regulations entail increased costs for the initial certification along with maintaining it. - Supermarkets increase their prices in order to make more profit turning the choice of consumers towards cheaper frozen fish. - We cannot compete with countries outside the EU (per example Turkish prices are lower on sales of farmed sea bream and sea bass since the country subsidizes the sector) but we can promote the quality and added value of EU standards, instead, since foreign imports cannot be stopped. - However, new amendments bring stricter controls on imports in order to comply with EU legislations, beginning in January 2025.	

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

Clusters / single research topics	Ranking
1/a. Greek consumer education	No.
- Specific research topics mentioned - The consumer should reclaim his buying power back. - EU Barometer studies show how differently Greek people select their fish and sea food choices compared to other EU citizens. - Promoting locally made, quality products in order to protect our local farmers from the environmental and geopolitical crisis to come. - Applying new technologies whereby scanning a fish with your mobile phone takes you directly to the farm that produced it directly solves the problem of anonymized products and the question of where a fish comes from.	

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

Clusters / single research topics	Ranking
1/a. Increased learning and public understanding about organic aquaculture/Consumer awareness	No.
- Specific research topics mentioned - High initial expectations of organics introduced many other similar labels, so consumers are confused and do not trust the label, which is expensive. - EU ecological certification processes for sustainable practices are easier to apply. - Targeted consumer information on the benefits of organics is needed and how they are differentiated from conventional in nutritional value and quality. - A pressing need of true cost accounting for pricing mechanisms on all levels from production and certification to plate. - Enhance the budget for public procurement in a way that allows for better access to sustainable products by citizens and shows true political interest in leading the development towards a sustainable food system. - Economic impact assessments at the farm level and mechanisms to support organic products through the value chain, in order for farmers to have the recognition that they provide public goods and ecosystem services. This is an essential matter in order to support the legislation defined in the farm to fork strategy and the green deal legislations. - A mechanism is needed that can support the organic production through the whole value chain, to help at the production level in order to overcome technical barriers but also in order to reduce the cost and the burden of the certification, to give the possibility to the consortium of producers to make a campaign to work with the consumer.	
1/b. Moving away from oligopolistic competition	
- A big trend towards monopolization by huge companies and their economies of scale can procure a smaller cost, so the small companies are either removed from the market or they are bought out. As a result, a few huge companies remain that can agree between themselves and we call this oligopolistic	

competition in economic terms and when all the small companies have disappeared through this agreed price reduction, they can then raise the prices again. - Increasing support for locally managed, sustainable farms.
1/c. Simplification and facilitation of bureaucracy
- Develop and make available a map of marine regions with the potential for organic aquaculture production.
- Create a force to check or compare the implementation of rules in Organic farming among the MS or Non-EU countries which import in the EU and among certification bodies.
- Facilitate new licenses for organic aquaculture production in areas deemed unsuitable for conventional farming due to environmental legislation but where organic farming at a controlled level is consistent with environmental legislation and ecological limits.

ITALY

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.

1/a. Adaptation to Climate Change and New Challenges	8
- Investigate practices and methodologies in organic breeding to enhance crop and livestock varieties that align with organic standards and new EU regulation on breeding techniques - Assessment and analysis of resilience of organic food supply chains and develop systems for "risk sharing" to enhance stability and sustainability (collaborative risk-sharing mechanisms) - Research the production and development of alternative and sustainable organic food and feed proteins, including insect-based options that meet organic standards, assess their nutritional value - Investigate systemic solutions in organic food and farming by exploring agroecological practices, circular economy principles, and climate resilience strategies. - Examine the scientific evidence on resistant crop varieties, emphasizing their potential to minimize the inputs through natural breeding techniques focussing on the need for compliance with organic standards.	
1/b. Sustainable Practices and Environmental Impact	6
- Investigate agroecological, low-impact, regenerative and organic farming systems to understand their definitions and ecological impacts focusing on biodiversity, resource use, and long-term ecosystem health - Explore the redesign of production systems to integrate diverse crop rotations, polycultures and agroforestry, aiming to optimize resource use, reduce dependency on external inputs, and promote more sustainable organic practices. - Examine strategies for reducing external inputs in organic crop production by promoting the use of biological control methods. Assessing the impact of economic and policy incentives on encouraging farmers to adopt these practices.	

- Investigate methods for valorizing by-products and waste from agricultural production assessing the potential benefits of integrating these innovations into circular economy models in organic systems. - Investigate the synergies of logistic inputs to optimize transportation, storage, and distribution, reducing costs and environmental impacts. - Identify and develop policy instruments and tools that encourage the adoption of agroecological practices, tailored to diverse agroecosystems. - Develop and implement agroecological practices, such as innovative crop rotations, that ensure economic sustainability for farmers. Focus on creating farming systems that balance environmental benefits with financial viability.	
1/c. Protein Transition and Crop Diversification	2
- Explore climate adaptation strategies through genetic diversification, including the use of heterogeneous materials and crop varieties. - Develop a European and national strategy for promoting the cultivation of protein crops focussing on policy frameworks, market incentives, and research initiatives - Development of alternative protein sources within the framework of organic food and farming and foster development of sustainable value chains for their production.	
Innovation in Systems and Technology	2
- Examine data interoperability within the organic food and farming system, focusing on improving data exchange and integration among agricultural companies, cooperatives, consultants, and advisory centre. - Investigate the concept of the "data supply chain" in organic food and farming systems, focusing on the costs and benefits of data sharing among stakeholders such as farmers, cooperatives, and industry partners. - Development and use of digital tools for pest and weed control in organic farming, focusing on technologies such as remote sensing, AI-based monitoring, and precision agriculture techniques (how these tools can enhance data collection and storage). - Examine the adoption of digital technology in packages tailored specifically for the organic sector - Digitalization in organizational innovation within the organic farming and food sector aiming to enhance collaboration, streamline operations and improve decision-making processes - Develop innovations in national data management systems for focusing on enhancing data collection, sharing and analysis across the sector	

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.

Clusters / single research topics	Ranking
1/a. Consumer Preferences and Trends	9
- Conduct studies on consumer behaviour related to food choices and purchasing timing. Exploring the factors influencing consumer decisions, impact food purchasing habits and contribute to sustainable consumption patterns	

- Explore innovative solutions for catering services focussing at reducing administrative procedures, revising menus based on consumer trend and preferences and aggregating local organic producers to meet demand. - Conduct a comprehensive study on the profile of consumers, focusing on their motivations, preferences and behaviours to better understand how these factors influence their purchasing decisions in the context of organic products. - Developing more "coherent and defined" policies to support supply chains that promote sustainability throughout each stage, from the "agricultural" phase through to distribution phases including analyses of existing policy frameworks.	
1/b. Sustainable Processing and Supply Methods	6
- Investigate solutions that enhance market access for small producers in marginal areas, focusing on improving infrastructure, digital platforms, and cooperative models. - Development of organic protein supply chains with an emphasis on sustainable processing and supply - Valorization of "minor" crops with high nutritional value in the context of sustainable processing and packaging (innovative approaches to enhance the quality and marketability) - Development of sustainable processing solutions that address social and ethical issues (fair labour practices, community engagement, etc)	
1/c. Digital Technology	4
- Investigate the traceability systems that rely on efficient, interoperable databases, ensuring data flow and transparency as an outcome of the certification process, minimizing the administrative burden while maintaining supply chain integrity. - Adopt a cautious approach to digitalization, emphasizing that clear documentation and communication of the certification process are more valuable than relying solely on blockchain technology. - Invest in innovative supply chain certification models, leveraging emerging opportunities to develop an updated version of "group certification" - Investigate and develop sustainable logistics solutions - Enhance the usability of technologies in organic agriculture by simplifying interfaces, improving accessibility, and providing tailored training for farmers.	
1/d. Sustainable Packaging Solutions	2
- Identify innovative systems for bulk sales that reduce packaging waste and promote sustainability - Promote the expansion of bulk distribution systems to reduce packaging waste and environmental impact - Investigate the propensity of organic consumers to purchase more products in bulk using their own containers (reusable packaging), assessing consumer attitudes towards reducing packaging waste.	
1/e. Local Supply Chains	0
- Analyse the effectiveness of local supply chains for fresh produce. Evaluate how product quality and brand identity influence consumer choices for processed goods.	

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

Clusters / single research topics	Ranking
1/a. Marketing Strategies	6
- Identify the key attributes of the A.B.E. (Agricultural Bio-Economy) and tailor communication strategies to different consumer segments, delivering targeted messages to each audience.	
- Emphasize the nutritional value of organic products to boost consumer awareness and drive demand	
- Promote market-oriented entrepreneurial business models that align with consumer demand and industry trends	
- Develop innovative and effective marketing strategies capable of engaging both the average consumer and the dedicated "bio lovers"	
1/b. Consumer Perceptions and Preferences	5
- Promote collaboration and inclusivity by avoiding oppositions between different consumer groups or farming practices	
- Study on the health benefits of consuming organic products and identify the thresholds for various nutritional components, beyond which the consumption of organic products demonstrates significant health impacts.	
1/c. Obstacles to Change	4
- Evaluate the impact of the price factor on consumer decisions regarding organic products, focusing on its influence on purchasing behavior and market accessibility	
- Prioritize food education with the goal of promoting the health, rather than advancing the interests of the organic food industry	
1/d. Food Education Projects	3
- Promote the involvement of catering services, dieticians, and sports associations in initiatives to enhance public awareness of healthy eating and organic food.	
1/e. Strategies for Public Procurement	3
- Prioritize locally produced and organic food in public procurement by setting clear health and sustainability standards; promote transparency in supply chains.	
1/f. Redefine Consumer Roles	1
- Develop long-term training programs for doctors (including pediatricians and geriatricians), dieticians, and teachers focusing on the latest knowledge on nutrition, organic food benefits, and sustainable dietary practices.	
- Implement comprehensive food education programs in schools for both students and teachers, focusing on nutrition, sustainable eating habits, and the benefits of organic food	

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

Clusters / single research topics	Ranking
1/a. Innovative Governance Mechanisms	8

- Encourage public participation in supply chains for food service companies, such as catering, by promoting collaborative models that involve local communities and stakeholders	
- Innovative governance models from EU Member States and/or regions, particularly those beyond traditional DOP/IGP systems	
- Reform the representation system to include a wider range of stakeholders, such as consumers, students, and patients, in the decision-making process.	
- Ensure that decision-making processes are dedicated to stakeholders directly involved in organic farming to better align strategies with organic principles and goals.	
1/b. Accounting for Real Costs	5
- Implement cost accounting to assess environmental externalities and determine more appropriate pricing and support mechanisms.	
- Establish a comprehensive environmental accounting system to fully assess the environmental costs associated with food production.	
- Evaluate agricultural production costs alongside updated sustainability costs to ensure an accurate reflection of the financial requirements for sustainable practices.	
- Study interconnected representation systems that ensure the co-participation of stakeholders, including consumers, in the development of policies at all levels	
- Develop transparent and digital systems for the distribution of price and added value along the supply chain	
1/c. Collaboration and Knowledge Sharing	3
- Build an integrated Agricultural Knowledge and Innovation System (AKIS) specifically tailored for the organic sector	
- Develop peer-to-peer dissemination and training programs aimed at increasing the number of consultancy service providers in organic farming	
- Invest in new supply chain models where digital tools enable the analysis of production costs using quantitative parameters, nutritional value, and overall positive externalities.	
- Establish specific pathways for disseminating the results of research and initiatives, ensuring that findings reach relevant stakeholders effectively.	
- Develop models to systematize and support collaboration between farmers, researchers and consumers.	
1/d. Participatory Decision Making	2
- Develop new "bottom-up" financing systems for virtuous supply chains, such as supported organic breeding initiatives	
- The "public" must reclaim responsibility and avoid getting trapped in bureaucracy, particularly in the definition of the Rural Development Program (PSR), tenders and training strategies, proactive engagement and clear communication.	
- Invest in new forms of cooperation among farmers, processors, and consumers to enhance transparency and fairness in the supply chain.	

- Fund a "good example," for a duration of 10 years to document the effects of sustainable practices and demonstrate effective implementation.	
1/e. Overcoming Institutional Barriers	1
- Shift the perception of organic from being solely associated with the supply chain to emphasizing that organic equals health	
- Disseminate research results and increase funding to enable the quantification of environmental and health costs associated with alternative agricultural production systems, comparing organic practices with other methods.	

ROMANIA

Area 1: Transforming food production - Towards sustainable, diversified and resilient organic and agroecological farming systems.

Clusters / single research topics	Ranking
1/a. Innovation and innovative ecosystem (clusters, Living Labs, associations, authorities and public institutions centred on operators and their value chain for competitive farming systems)	11
- Conducting experiments on new practices in agroecology (soil, protected areas, forests) - Research on organic fertilizers and inputs in organic agriculture - New seed varieties and sustainable crops - Development of living laboratories (co-creation) - Effective financing tools - Development of clusters and public-private partnership - Network of innovation hubs encompassing a governable innovation ecosystem - Collaboration in the field of research between associative structures (clusters, associations) - Financing axes for innovative solutions in the field of organic agriculture	

Area 2: Transforming food processing and distribution - Towards minimal and mild organic processing, local, short and circular organic food supply chains and minimal, recycled and reusable packaging.

Clusters / single research topics	Ranking
1/a. Focus on sustainability, circularity	9
• Sustainability and traceability in the food chain with the involvement of new technologies, including digital ones • Circularity at local/regional level in the field of organic agriculture (energy) • Identification and dissemination of good practices • Capturing and retaining greenhouse gases in the soil • Sustainable packaging	
1/b. Functioning of the research network	6
• Impact of standards and legislation	

- Qualification of researchers
- Synergies between research projects
- Research on the development of private standards

Area 3: Transforming consumption/diets - Towards sustainable and healthy organic diets and empowering European citizens to co-create the transition.

Clusters / single research topics	Ranking
1/a. Focus on the consumer	11
• Research on eating habits and good food practice guides • Analysis of the impact of some education programs by social categories and identification of consumer preferences • Good practices in the field of combating green manipulation	
1/b. Cooperation on research agendas	9
• Development of a joint research agenda with the One Health Commission of the Romanian Academy and the involvement of the One Health International Movement • Developing healthy recipes and food safety	

Area 4: Transforming food system governance - Towards democratic, transparent and participatory governance (inclusion of civil society)

Clusters / single research topics	Ranking
1/a. focus on governance	5
• Governance of short chains with the involvement of biodiversity areas • Governance in the agroforestry system	

ANNEX

R&I challenges in the four areas of SRIA

Area 1: Transforming food production – Towards sustainable, diversified and resilient organic and agroecological farming systems

In 2020-2021, the EU launched a number of strategies and action plans to transform the European farming and food systems making them more sustainable, diversified and resilient by 2030. Although their implementation has been halted as a result of farmers' recent protests, their objectives have only become more compelling. We need farming systems with positive environmental footprints by diminishing reliance on pesticides and antimicrobials, curbing excessive fertilisation, reversing biodiversity decline and mitigating climate change plus consumption of fossil energy. We need to restore the health of our soils and promote circular approaches, e.g. through the recycling of nutrients. Society calls for better protection of animal welfare. Organic farming and agroecological farming systems aim to contribute to these objectives. However, organic farming and food production systems face various challenges to fulfil these goals. A major challenge is the effects of climate change leading to warmer and dryer or wetter weather and new emerging pests and diseases. Therefore, we need plant varieties and

animal breeds adapted to the new conditions and more diversified farming practices. Another challenge is the protein shift from animal proteins to plant-based proteins, in which the organic sector should play an important role. Again, this requires new plant varieties and cropping methods, as well as adapted post-harvest sorting techniques and processing methods. Finally, a thorough assessment is needed of the opportunities and threats the use of digital technologies and artificial intelligence can bring to organic farming.

Area 2: Transforming food processing and distribution –Towards mild organic processing, local food supply chains and minimal and reusable packaging.

The landscape of organic consumption is changing because of evolving consumer preferences and technological advancements. A growing segment of consumers prefers minimally processed food and foods with recognisable ingredients or easily understandable labels. The trend towards vegan food and meat/milk/eggs substitutes is also important, which may actually lead to an increase of ultra-processed food (e.g. lab-grown meat), which again may pose challenges to consumer health. Finally, there is an increasing trend towards convenience food, to which the organic sector needs to adapt.

In terms of food processing, environmental issues such as CO₂-neutrality and zero-waste processing have become more important. In relation to the protein shift to more plant-based protein sources, new processing methods and supply chains for plant-based proteins should be set up. In addition, there is increased focus on minimization and sustainability in packaging, with innovations in compostable, recyclable, and reusable options gaining traction. Consumers are increasingly observant on of the environmental impact of packaging and are seeking alternatives. Finally, advancements in digital technology and artificial intelligence have the potential to enhance convenience for consumers and increase transparency and traceability in the (organic) food industry, while posing relevant challenges in terms of privacy and data ownership for processors, distributors and consumers.

Area 3: Transforming consumption and diets – Towards sustainable and healthy organic diets

Engaging consumers in understanding the realities of sustainable food production poses a significant challenge. On one hand, there is a growing preference for local and regional products, driven by factors such as sustainability concerns, support for local economies, and desire for authenticity. On the other hand, globalization continues to influence markets, supply chains, and consumer preferences, leading to increased access to global products. For the organic sector, the challenge lies in reconciling the seemingly divergent trajectories of regionalization and globalization. Therefore, it is essential to gain a nuanced understanding of the multifaceted demands of consumers regarding organic products. Notably, consumers often perceive "local" food as inherently sustainable or even superior to (imported) organic options, a perception that may not align with reality. Most research into the purchasing habits and motivations of organic consumers dates back from 20 years ago. The evolving landscape necessitates renewed inquiry to develop compelling arguments and innovative promotional strategies for organic purchases.

Despite concerted efforts to offer guidance for dietary behavior changes, the success rates remain modest, with many consumers exhibiting resistance to altering habits, even when prompted by health considerations. While policies aimed at influencing demand for specific products may encounter resistance, they are deemed indispensable for propelling the food system towards sustainability. In this respect, public procurement in schools, hospitals, public

administrations etc., is a powerful tool to drive demand for local, organic products. Finally, a paradigm shift is necessary in conceptualizing the role of the "consumer." Formerly, discussions centered on production systems and value chains, with consumers perceived as merely positioned atop of them. To foster comprehensive understanding, it is imperative to integrate human beings into the broader food system discourse.

Area 4: Transforming food system governance – Towards cooperation and democratisation in the food system, empowering European citizens to co-create the transition

The current set-up of the food system is not able to respond to the global and joint challenges of food security, sustainability and equity in the value chain. Public policies and market rules are demonstrating inertia in responding to the speed, scale and depth of external shocks. We need innovative governance mechanisms aiming at greater policy coordination and integration. The current pricing and market system for food primarily rely on volume and weight metrics, overlooking both the nutritional value of products and their environmental ramifications (e.g. in relation to climate change and natural resource degradation). Thus, there is a pressing need to implement true cost accounting for pricing mechanisms.

There is a growing vitality of local initiatives that adopt participatory decision-making processes to better reflect societal concerns and enhance agency in policy formulation. Enhanced cooperation among operators and consumers can generate greater transparency and fairness in food supply chains. Redesigned value chain configurations may also lead to greater territorial cohesion. In all these aspects organic agriculture can play a catalytic role.

Agriculture, particularly organic farming, relies heavily on knowledge and expertise. Therefore, it is imperative to cultivate organic and agroecological innovations. These innovations should be bolstered and scaled-out through enhanced collaboration among all actors and advisory systems, and across all sustainability dimensions. Training and educational systems should leverage the wealth of knowledge provided by both scientific research and practical experiences. Digital tools and software platforms can offer valuable assistance to farmers in integrating and analyzing data from on-farm experiments and formal research. However, to fully realize the potential of a transformative Agricultural Knowledge and Innovation System (AKIS) as a catalyst for the organic and agroecological transition, it is crucial to overcome institutional barriers and challenge entrenched power dynamics.



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