

# Leading for the environment, biodiversity and the climate

Organic food production leads the way toward a better environment. Investing in research to promote organic farming methods will help mitigate climate change, enhance resilience in food production against its severe consequences, and protect biodiversity. There is a need for research to strengthen the contribution of organic practices to soil carbon sequestration. Adaptive water management strategies are essential for combating climate extremes, alongside innovative solutions in organic animal husbandry aimed at reducing greenhouse gas emissions. Organic farming fosters cultivated biodiversity in both fields and pastures, contributing to improved resilience and economic stability. However, challenges persist, including the need to uphold high animal welfare standards and to develop emerging organic sectors, such as aquaculture. Finally, accurate indicators are needed to assess the true costs of food and inform policy-making. This comprehensive approach to organic farming aims to cultivate a resilient and sustainable food system that benefits farmers, consumers, and the environment alike.

## Organics at the frontline of climate action and adaptation

1. **How does organic farming contribute to soil carbon sequestration?** How can organic farming and conservation farming methods effectively be combined? **What are the most effective mechanisms to financially reward farmers for the carbon they sequester in their soil?**
2. **How can water management and irrigation practices in organic farming be adapted to mitigate the impacts of more frequent droughts and floods due to climate change?** What methods are possible to retain water in the landscape?
3. **What methods can be applied in organic animal husbandry to reduce greenhouse gas emissions?** What specific solutions exist to reduce the climate impact of ruminants compared to monogastric animals (pigs, poultry)? How can circularity and use of regional feed sources be enhanced?

## Organic strategies for a biodiverse world

4. **What cultivation and livestock management practices can be implemented to enhance biodiversity in the fields and surrounding ecosystems,** and how does increased (functional) biodiversity affect production quality, resilience against pests, diseases, and climate change and economic outcomes for farmers? How can multifunctional production systems, incorporating both plant and livestock diversity, contribute to greater economic stability and broader sustainability in organic farming?
5. **How can we design more resilient and diversified specialized cropping systems in organic farming – i.e. orchards, vineyards and greenhouses?** How to improve biodiversity, while controlling weeds, pests and diseases in permanent crops and protected cropping systems?
6. **How can crop diversity in organic farming be increased?** How can we breed robust plant varieties that are adapted to organic growing conditions and are tolerant against biotic and abiotic stress? Special attention is needed for varieties adapted to diverse cropping systems, such as intercropping. Finally, how can breeding programs for neglected crops and landraces be developed to enhance their resilience, yield, and nutritional value?
7. **Which pre-breeding and breeding schemes and goals are suited for organic animals?** Can we breed more robust animals adapted to outdoor living and higher shares of roughage in feed rations? How can we develop and enhance efficient multipurpose breeds for cattle and poultry?

## Integrated solutions for sustainable food systems

8. **What climate- and biodiversity-friendly plant production methods optimise yields and resource use, while supporting plant health?** How can cultivation systems be designed that are adapted to local soil and climate conditions, and prevent diseases, pests, and weeds? How can cover crop and intercropping methods effectively be employed? What is the role of perennial crops (nuts, fruits, perennial grains) and how can their production be stimulated?
9. **What strategies can be employed to boost the development of the organic aquaculture sector?** What alternatives exist for marine-based feeds and how do they compare in terms of growth performance, health, and environmental impact? What changes in the organic aquaculture regulations are necessary to accommodate alternative feeds (e.g. insect-based proteins)? How can the shortage of organic juveniles be addressed? What water quality is needed to grow organic molluscs? Which production methods deliver the highest animal welfare?
10. **How can soil fertility be sustained without the use of animal manure?** What alternatives to animal manure exist? How can organic waste from all stages of the value chain—on farms, during food processing, and at the consumer level—be more effectively utilised? How can we improve recycling of nutrients between society and agriculture? Which cropping patterns in organic farming contribute to higher nutrient use efficiency?
11. **What are organic free-range husbandry systems, both intensive and more extensive, that ensure high animal welfare while minimising impact on climate and the environment and protecting animals against diseases** (e.g. African swine fever, avian flu...)? How can we leverage the contribution of extensive animal husbandry to nature conservation, and maintenance of grasslands with high biodiversity value? What are the most effective methods to increase the incorporation of roughage (grass) in feed rations for poultry and pigs, while maintaining optimal nutrition and productivity? What specific solutions exist to improve animal welfare and sustainability in smaller animal sectors (e.g. rabbits, ducks, geese...)?
12. **How to value the true cost of food?** What are reliable indicators to compare the performance of organic and conventional farms in a fair way – with regards to all dimensions of sustainability and equity? How can these data be integrated into policy making and be used to reward farmers for the public goods they provide? How can this information be communicated to consumers in an effective way? How to collect better and comparable data about organic farming performance in a systematic way?

## Leading for people, communities and sustainable livelihoods

Inclusivity is a core value of the organic sector; however, organic food is often perceived as a niche product primarily for affluent consumers. Research is needed to explore how to promote organic consumption across diverse demographics and ensure that vulnerable groups can access the nutritional and health benefits of organic foods. Effective communication strategies must be developed to bridge the gap between consumer interest and actual purchasing behaviour. Additionally, the quality of organic food can be enhanced through improved post-harvest storage methods, sustainable packaging solutions, and adapted processing techniques. Ultimately, the health benefits of organic foods can positively impact public health. Promoting inclusivity in the organic sector also involves fostering strong rural communities. Attracting younger generations to organic farming, ensuring a fair distribution of value, and implementing better support policies are essential for establishing a long-term vision that benefits both the market and the environment, thereby promoting sustainable livelihoods through organic farming.

## Organic for Everyone: inclusive and affordable

13. **How can the consumption of organic and sustainable food products be fostered across different demographics and socio-economic groups?** How can organic food be made accessible to vulnerable groups?
14. **What instruments are available to bridge the gap between consumer sympathy for organics and their actual purchasing behaviour?** How can factors such as certification, (social) media campaigns and strategic marketing be leveraged? What communication strategies work best? What are the most effective messages for promoting organic food products, considering the diversity among EU countries and across consumer segments?

## Providing nutritious and healthy food

15. **How to guarantee the quality of organic food after harvest?** What strategies can be employed to enhance the protection and preservation of crops in storage? What preservation methods, relying on natural additives, are possible in organic food processing? What sustainable packaging solutions can effectively preserve product quality and ensure practicality for transport, while minimising (plastic) waste?
16. **What food processing techniques can be allowed in organic food?** What is the impact of different processing techniques in terms of health and environment? What is the acceptance of these techniques among consumers? How can more processing opportunities be created for small-scale organic farmers to enhance their market access?
17. **What are the health effects of consuming organic food compared to conventional food?** Do organic minimally or mildly processed products have better nutritional and health profiles? What health claims can be made? Can the impact of increased organic production and consumption on national healthcare costs be estimated?
18. **How can the organic sector contribute to the protein transition in the EU** by promoting increased consumption of plant proteins and reducing reliance on animal products? What processing methods are suitable for the production of organic meat alternatives? How can the efficacy of organic protein supply chains be improved? How can consumption of plant-based proteins be promoted? How can nudging techniques be effectively employed to encourage consumers to eat less but higher quality animal products?
19. **What are the differences in microbiome composition between organic and conventional soils and foods**, and how do these differences influence the human gut microbiome and overall dietary health?

## Reviving Rural Communities Through Organic Farming

20. **How can participatory territorial planning support organic farming and revive rural communities?** How can the governance of organic districts be enhanced, creating sustainable landscapes while creating economic opportunities? What guidance do different stakeholders (e.g., farmers, food processors, tourist operators, local authorities) involved in territorial planning need? What policies are needed to better align participatory territorial planning with existing regulations and frameworks at various administrative levels?
21. **What strategies can be implemented to engage younger generations in the organic sector, both in farming and across other segments of the value chain, such as processing and retail?** How to foster intergenerational knowledge transfer? Can we develop targeted capacity-development programs to enhance organic literacy among new entrants? What innovative strategies exist to address labour challenges?
22. **Which market and governance reforms are needed to expand and consolidate organic production in the EU beyond the Farm-to-Fork targets?** How can market access be improved and profitability for organic farmers be enhanced? How effective are current support mechanisms for organic farming and broader agricultural policies? How can environmental

and market objectives be better integrated into support for the organic sector? How would a framework look like that is able to track progress and measure impact of organic support policies?

23. **How are farmers' stakes represented and addressed in institutions at local, national and EU level, and which factors contribute to their representativity?** Which differences emerge in the representation of organic and conventional farmers? What can be done to improve farmers' representation and inclusivity in decision-making processes, ensuring equitable access to resources, opportunities and support for both organic and conventional farmers?
24. **How can access to land for organic farmers be promoted?** What can be done to protect land rights, combat land grabbing and promote sustainable land use in the EU? Which reforms are necessary at EU and national (regional) level?
25. **What mechanisms can be implemented to ensure a fair distribution of profits between farmers and retailers in the organic value chain?** What strategies can be adopted to improve the profitability of organic farms, thereby reducing production costs and making organic products more affordable for consumers? What strategies do small-scale producers have to successfully enter large retail chains? How can direct sales and the integration of organic criteria in public procurement drive growth in the organic market and strengthen rural economies?

## Leading for responsible innovation

Organic food production is inherently innovative, but responsible and appropriate innovation is essential. This means ensuring that new technologies are safe for both people and the environment, economically viable, and manageable from a technical and administrative perspective. Research is necessary to develop digital solutions tailored to organic and agroecological systems, carefully balancing their potential benefits with the associated risks. Additionally, innovation must address the prevention of fraud and safeguard the integrity of organic products across the supply chain. Strengthening the organic regulation to build consumer trust and harmonize standards across Member States is key. New approaches to learning are also critical, fostering inclusive, participatory innovation and promoting collaboration among farmers. Ultimately, innovation in organic farming will drive the agroecological transformation of food systems.

## Digital solutions suited for organic and agroecological systems

26. **How can artificial intelligence and robotics be effectively integrated into organic farming** (e.g. in mechanical weeding, crop rotation planning, and disease detection in plants and animals)? What are the associated risks and opportunities? How can risks be mitigated? Do organic and/or small-scale farmers have specific needs or requirements for digital tools that differ from those of conventional farmers?
27. **Can the use of Artificial Intelligence enhance traceability in organic value chains?** Can it be employed to automate the organic certification process, make it more effective and efficient and reduce administrative burden? What will be the impact of the use of AI in certification on consumer confidence? What risks and ethical considerations should be considered, especially with regard to data ownership?
28. **How can digital solutions, in particular Artificial Intelligence, be effectively employed in farm advise, decision making tools, training programmes and knowledge platforms?** What are specific requirements or conditions for use in organic and agroecological systems? Can AI help to disseminate organic and agroecological knowledge on a wide scale? What role do digital communities play in knowledge exchange and promoting collaboration among organic farmers? What are the opportunities, risks and ethics impacts? How to guarantee ownership of organic data and knowledge?

## Protecting the integrity of the organic sector

29. **What strategies and technologies can be implemented to prevent fraud in the organic value chain**, ensuring the integrity and transparency of organic products from farm inputs until the consumer's plate?
30. **What are the obstacles faced by organic farmers in addressing the unintentional presence of non-authorised substances in their crops?** How do the requirements of the organic regulation (Regulation 2018/848) impact their operations and what are practical solutions to comply with them?
31. **How can the EU organic regulation be improved to ensure consistency, transparency, and fairness across Member States?** How do differences in the interpretation and enforcement of EU organic regulations across Member States impact the organic sector? Under what conditions are such difference justified? What steps can be taken to harmonize the practices when needed?

## Inclusive and participatory innovation for organic and agroecology

32. To enable the agroecological transformation of the food system, **how can effective synergies among training, advisory service and co-innovation be built?** How can formal education and experiential learning be better integrated? What curricula are necessary to enhance the teaching of organic farming in vocational education and farmer training programs?
33. **How can networks among organic farmers be established and strengthened?** How can collaboration among farmers reduce labour intensity and promote a better work-life balance? How can networks contribute to the exchange of knowledge and the shared use of resources? How can management systems support new forms of cooperation, alternative ownership models, and organisational structures that are adapted to the organic farming approach?