

Annex A. OECD recommendations to improve agricultural innovation systems

Improving governance of agricultural innovation systems is key

- Establish a longer-term strategy for agricultural innovation to guide operational objectives and associated expenditures, taking into account long-term challenges such as climate change, as well as societal demand.
 - Ensure coherence between innovation and growth strategies.
 - Improve the integration of agricultural innovation objectives in government-wide innovation strategy.
 - Improve involvement of stakeholders in the definition of objectives, starting at an early stage of the process.
 - Include measurable targets in the definition of objectives; and monitor progress towards objectives.
- Improve co-ordination between research organisations, public and private and at the national and subnational levels:
 - If missing, create a specific national institution (e.g. a national council) to co-ordinate objectives and monitor policy, and ensure continuity in programming.
 - Clarify mandates of organisations to avoid duplication or undersupply in one area (for example between research and knowledge transfer).
- Develop coherent evaluation procedures at different levels (researchers, projects, institutions, system) that include some independent evaluation and cover a wide range of indicators of efforts, outputs and impacts to allow for future improvements. Ensure evaluation criteria are consistent between levels and with objectives.

Strengthen linkages within the national innovation system to increase efficiency and responsiveness to needs

- Facilitate linkages within the agricultural innovation system (between research, advisory services, education, government, farmers and agri-food companies) and with other experts and stakeholders.
- Promote and enable research co-operation across sectors, so that food and agriculture benefit from advances in other sectors and generic research, such as genetics and digital technologies.
- Remove institutional constraints to public research organisations to engage in co-operation activities with the private sector.
- Facilitate the organisation of producers and industry to enable them to contribute more effectively to the agricultural innovation system.

- Facilitate the emergence of public-private partnerships (PPPs) for research and innovation, when they bring additional benefits. Provide guidelines for successful PPPs and, in particular, ensure objectives are shared and institutional arrangements are clear, including the sharing of costs and benefits between partners, which should be commensurate.
- Create and support poles of competitiveness, or poles of excellence to facilitate co-operation.
- Explore further opportunities to share public infrastructure with the private sector.
- Identify areas where local companies and researchers could collaborate to develop local or niche products and innovations.
- Support the functioning of local, national and international networks for innovation and the participation of researchers and stakeholders in these networks.
- Strengthen the links between research and development (R&D) and technical assistance, for example by adding technology transfer components to research projects or by encouraging networking between researchers, advisors and producers. Simplify research programming to improve effectiveness and transparency.
- Simplify the programming of R&D and innovation funding, and provide clear information to improve access. For example, streamline funding programmes and build a single platform that informs on all of the sources of available government funding. When relevant, include information on subnational sources.
- Review the efficiency of research funding mechanisms to ensure higher impact. Consider greater use of incentives that incentivise transdisciplinary and system-based approaches and wider stakeholder involvement that increases relevance.
- Explore ways to generate new (breaking through) ideas to overcome current constraints, for example through demand-driven funding mechanisms.
- In cantons where research is organised by commodity sector, create cross-sector thematic areas and projects, or broaden the scope and membership of existing commodity research systems.
- Explore ways to generate new, breakthrough solutions to current and future challenges.

Strengthen private contribution to R&D and innovation for food and agriculture to increase the impact

- Enhance the involvement of processing industries and retailers in innovation, by making them an integral part of the system, from the priority setting stage to the financing and commercialisation of innovation stages.
- Evaluate programmes that support innovation in private companies to ensure they are efficient and reach intended beneficiaries. In particular, monitor whether they reach agri-food companies. If private companies have access to tax incentives for R&D, evaluate the system to ensure it stimulates additional research activities.
- Strengthen and harness the capacity of private companies to participate in research partnerships via project funding, support to networking, training activities and effective intellectual property rights (IPR) protection.
 - Ensure appropriate protection of IPR and improve enforcement when needed, to attract private funding while allowing for further use for research purposes, as with plant breeders' rights.
- Explore alternative sources of funding for research and innovation:
 - This could include farmers' contributions and revenues from royalties or intellectual property.
 - Investigate the demand and supply for venture capital for agri-food companies and identify a possible role for the government to ease constraints.

- Lower barriers to foreign direct investment (FDI) in agricultural R&D if they exist.

Facilitate international R&D co-operation

- Explore opportunities for public research to engage in bilateral, regional and multilateral co-operation in R&D and technology transfer.
- Remove institutional constraints on public research organisations to hire foreign researchers or trainees.
- Provide positive incentives such as support to student and staff exchange, and sharing of equipment and laboratories.

Strengthen farm advisory systems to facilitate adoption

- There is no one-size-fits-all or preferred model for farm advisory systems.
- Encourage a diverse supply of relevant advice from diverse public and private suppliers.
- Ensure needs are met:
 - Review current systems and identify needs and gaps.
 - Ensure advisory services cover technical, financial and organisational aspects and sustainability improvements.
 - Ensure advice is accessible to all types of farmers, using new (digital) technologies.
- Focus public role on services that the private sector may underprovide:
 - Target the needs of small, semi-subsistence farmers to broaden their opportunities.
 - Strengthen environmental performance by providing targeted advice on sustainable technologies and practices, and use experience to better understand issues and needs.
- Explore the scope for including support to technical assistance and research projects within agri-environmental policies, in case of under-provision.
- Facilitate the sharing of experiences through networking and the development of databases.
- Ensure advisors have up-to-date knowledge, possibly through certification and facilitate continuous training.

Facilitate knowledge sharing and information dissemination

- Continue developing information systems to guide policies, research and innovation, and facilitate knowledge sharing.
 - Include market intelligence (big data) and research results.
 - Monitor innovation adoption in farm and farm surveys, surveys to generate data on innovation and better understand motivations and barriers to adoption.
 - Monitor environmental performance in surveys.
 - Use innovative methods to reduce collection costs and improve farm and firm participation, drawing on experience from other countries.
 - Develop indicators and tools to evaluate the performance of the agricultural innovation systems in general, and innovation policy regularly, taking longer-term effects into account.
- Promote the integration of research data and sharing of experience at the international level.

- Improve public understanding of the importance of innovation in food and agriculture, in the sector and society, and build trust in science through increased transparency and education.

Reference

OECD (2019), *Innovation, Productivity and Sustainability in Food and Agriculture: Main Findings from Country Reviews and Policy Lessons*, OECD Food and Agricultural Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/c9c4ec1d-en>. [1]



From:
Enhancing Innovation in Rural Regions of Switzerland

Access the complete publication at:

<https://doi.org/10.1787/307886ff-en>

Please cite this chapter as:

OECD (2022), "OECD recommendations to improve agricultural innovation systems", in *Enhancing Innovation in Rural Regions of Switzerland*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/cf7a5d36-en>

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