

Summary

The Integrated Crop Production (ICP) partnership is an industry driven public-private collaboration that targets the need of the whole European agricultural value network to innovate sustainably. Europe and the world are facing major challenges in terms of food and nutritional security and safety, whilst mitigating impact of climate change, preserving human and environmental health and establishing a sustainable food system. The dimension of these challenges requires transition of the sector from a linear disciplinary approach to an integrated networking approach.

The ICP partnership aims at promoting an environment for its stakeholders, the Knowledge & Innovation system (KIS), that stepwise facilitates development of coordinated and collaborative innovation efforts. The aspiration is to offer this “KIS” environment to the stakeholder groups of the entire agricultural value network.

To establish a common language, arrive at joint understandings, learn from each other, mobilize resources, and develop positive externalities. In such a “system” knowledge is co-produced by all actors in the network and smartly established feedback loops should ensure that the outcomes of collaboration are usefully fed back into the research and innovation process. To maximize effectiveness, it is proposed to fully leverage ongoing European efforts such as the Agricultural KIS (AKIS), and build further on its strengths.

Integrating stakeholders in the research and innovation cycle offers a number of benefits. It may deliver innovations fit for purpose, higher novelty, higher success rates, reduced time-to-market, and lower costs, etc. The intrinsic value of the collaborations is that stakeholders innovate beyond their resources and make best use of internal and external ideas. Furthermore, engaging with consumers can increase the ability of the sector to develop a more agile approach to innovate and create value, as it allows to better understand customers’ needs and behaviours and their willingness to adopt products and their development accordingly.

The ICP partnership targets the following goals:

- Help to implement the Sustainable Development Goals, Bio-Economy-, Circular Economy- and the Energy Union strategies – e.g. by shifting industry towards renewable resources, developing solutions towards nutrient cycles and health cycles;
- Create a Knowledge and Innovation System with new Public-Private Partnerships (bilateral and also multilateral);
- Promote allocation of EU funding to strategic R&I areas to further build a highly competitive science and innovation base across Europe;
- Yield a competitive advantage for EU industry due to improved agro-technology and regulations;
- Secure a skilled workforce by state-of-the-art education and training;
- Increase productivity, resilience, resource-use efficiency and environmental performance;
- Provide higher quality food and non-food products.

The specific actions of this initiative are:

- To install for stakeholders stepwise a “KIS” resource, an innovation-oriented partnership development toolbox. Such toolbox will serve as a platform to:
 - a) learn and benefit from previous successful & unsuccessful attempts to develop innovation-oriented partnerships (e.g. examples of joint initiatives, win-wins, legal framework, risk funding, R&D funding, etc.,)
 - b) access information about the R&D capabilities of the participating stakeholders, their innovation interests & gaps, etc. The goal is that the stakeholder group collects, organizes, makes accessible, and maintains the “KIS” resource.
- To initiate and maintain the dialogue between the different sub-sectors of the agricultural value network and with external stakeholders across food systems;
- To set a common agenda of focal areas for research and innovation based on an integrated cross-sectoral approach;
- To create an open access point for parties who want to address the whole agricultural value network;
- To identify and make use of adequate financing mechanisms to implement the prioritized R&I activities;
- To promote public-private interfaces that address the focal areas for research and innovation;
- To define the foreseen impact of the activities and develop tools to assess this impact.

To meet the ambitions, this document explores different non-exclusive options for implementation:

1. **Contractual Public-Private Partnership** under an EU Research and Innovation framework programme based on a long-term commitment made by the ICP-stakeholders and the European Commission supported by adequate financial resources from public and private sector. The European Commission has developed the Contractual Public-Private Partnership as an instrument to foster the competitiveness and sustainability of European economy and industry.

2. **Self-funded network** that seeks adequate funding on a case-by-case basis for the individual activities. The network consists of volunteers and interested stakeholders from industry, the farming community and academia who will jointly address the preferred topics in the focal areas and develop financing mechanisms on a case-by-case basis.

3. **Joint stakeholder document** that reflects the needs of the stakeholders in the agri-food network and the focal areas for research and innovation, to be fed into ongoing initiatives JPI, ERA-nets, EU Framework Programme actions, JTI etc. with their own individual agendas and governance structures.

Depending on the mode of implementation a different level of integration and reach will be achievable from weak and fragmented Joint stakeholder document to strong and fully integrated cPPP. These are explained and assessed in more detail in section 5 (**Error! Reference source not found.**).

1. Vision and mission statement

Europe and the rest of the world are facing complex challenges in terms of safeguarding food and nutritional security and safety, whilst mitigating the impact of climate change, preserving human and environmental health and establishing a sustainable agri-food system.

To provide future generations with sufficient safe and healthy food yields need to increase, be more stable and be more resource efficient. The impact of an increase in production on the environment needs to be reduced. The adaptation to and mitigation of climate change will require a joint effort to limit global warming to below the 2°C target.

The **vision** underpinning the proposed ICP partnership is a future-proof agri-food system that operates agile in response to changing customer demands and simultaneously demonstrates resilience towards variable abiotic and biotic stresses, harnesses the diversity of the biosphere, delivers superior alternatives to today's fossil-based economies and fosters economic growth and social prosperity.

An industry-driven ICP partnership will provide the organisational and coordination environment for an integrated approach by facilitating a KIS to connect with already existing AKIS within European member states¹. This will ensure consistency of AKIS and further development into training and technology transfer systems that involve all actors along the research and innovation cycle. The goal is, to develop and diffuse knowledge to inspire and identify opportunities, mobilise resources, help managing risks and forms markets, legitimise activities and develop positive externalities. In such system knowledge is co-produced by all actors that engage with each other in processes of learning and co-evolution. A cornerstone of the KIS platform is that it will allow users to learn and benefit from previous innovation-oriented partnerships, and offer insights which stakeholders are well positioned to work out a particular partnership opportunity.

The process of increasing crop productivity, quality and sustainability needs the coordinated commitment of all sectors involved. This approach entails a smart combination of disciplines generating and transferring complementary knowledge. The **transition from a linear approach to an integrated cross-sectoral approach requires collaboration throughout the network, with feedback loops**, so that the outcomes are appropriately fed back into the research and innovation process. The ICP initiative aims at serving as the wiring between top-down Member States' and European Commission strategies and programmes and bottom up public-private initiative by fostering mutual understanding of different stakeholders, co-creating research and innovation outcomes, and providing input for a consistent agri-food policy agenda. It will enable new means of finding solutions, new ideas for cross-overs with neighbouring sectors such as chemistry, health, logistics, energy, water, high-tech systems and materials,

¹ "Agricultural knowledge and innovation systems in transition – a reflection paper", Standing Committee on Agricultural Research (SCAR) Collaborative Working Group AKIS, 2012, Brussels, Belgium

and it will facilitate access to a vivid agri-food community that extensively interacts to speed up the transition towards a sustainable agri-food system.

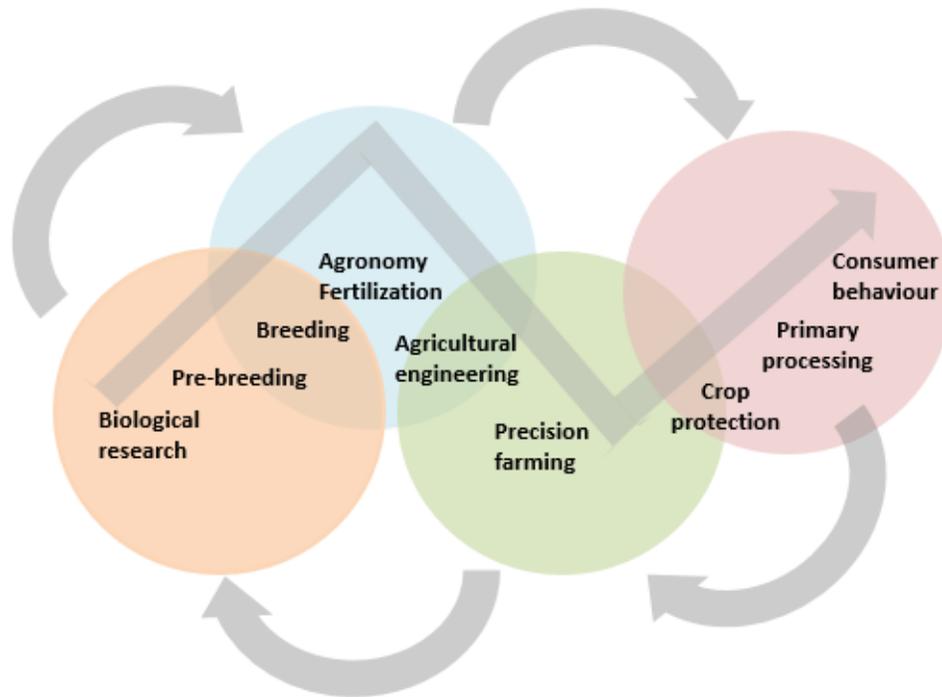


Figure 1: Collective systems approach across sectors. This partnership proposal envisages aligned efforts of the sectors Plant Breeding, Crop Protection, Fertilizers, Agricultural Engineering, Precision Farming, Big Data, Non-food (such as plant-based Fibre/Textile, Bio-Fuel, Bio-chemistry) and plant-based Primary Food Production and - Processing. The ICP initiative will define a relevant member group of preferred partners and supporting companies but reaches out to other sectors/ initiatives that would be beneficial for the shared ambitions. Associated industries like flour-milling and sugar, starch, cocoa, vegetable protein and-oil processing industry have been identified as relevant actors in the network.