



AGRIRESEARCH FACTSHEET ECOLOGICAL APPROACHES AND ORGANIC FARMING

Why do research and innovation support ecological approaches and organic farming?

Agriculture and forestry have to meet the changing needs of society not only in terms of consumption, but also to address the environmental issues relating to primary production (e.g. biodiversity, habitats, water quality and quantity, climate change, air quality). A deeper understanding of ecological principles is changing the perceptions on the functioning of primary production systems and will make it possible to use ecosystem services to benefit sustainable and resilient land use systems without jeopardising profitability. Integrated ecological approaches are a promising area of research and innovation; this includes the interactions between plants and/or animals and other organisms as well as the interactions within the soil with ecosystem services such as pollination, biological pest control, maintenance of soil structure and fertility, nutrient cycling and hydrological services; not all of which are well known.

Specific types of farming systems that implement ecological approaches have developed in Europe and across the world, and they have their own research and innovation needs. These include the organic sector, which is the largest such farming system with a dedicated regulatory framework and dynamic market growth. Collaboration with other parts of the food and non-food supply chain is necessary to develop effective, new creative solutions and business models especially for radical eco-innovations. Ecological approaches are knowledge-intensive and depend on combining formal and practical knowledge with modern technologies and practices. Knowledge relating to agro-ecosystems is site-specific and evolving. Innovations are expected to capitalise on local conditions and provide place and tailor-made solutions. Long-term experiments and an appropriate research infrastructure need to be developed to meet the specific needs of ecological approaches in relation to a particular landscape level and its evolution over a longer period of time.

Ecological approaches under Horizon 2020 Societal Challenge 2



36

Projects or expected grants



213 M€

EU contribution 2014-2020



617

Participations in selected projects

Key themes

Agroecology – Organic Farming – Biodiversity – Ecosystem Services – Landscape – Agriculture – Agroforestry – pollination – biocontrol – diversification – mixed farming – permanent grassland

Ecological approaches, Organic and Mixed farming under EIP-AGRI activities

Focus groups:

- Mixed farming systems: livestock/cash crops
- Agroforestry
- Ecological Focus Areas
- Organic Farming: optimising arable yields
- Protein crops
- Permanent Grassland
- Sustainable High Nature Value (HNV) farming

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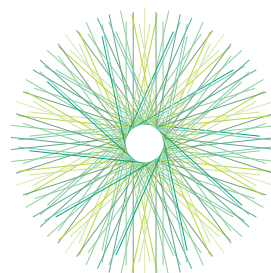
Workshops:

- Organic is operational
- Tools for environmental farm performance
- Protein crops

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Operational groups funded under Rural Development programmes:

Organic farming and agro-environmental challenges are both part of the top five themes of the first Operational Groups funded under Rural Development programmes alongside with plant protection, precision farming, and new supply chains. The EIP-AGRI has been designed as a key initiative for co-creation and sharing knowledge. Alongside the “multi-actor” projects under Horizon 2020, Operational Groups enable to respond to local initiatives and to site-specificities often related to ecological approaches. Among the long list of running OGs, we could mention:



eip-agri
AGRICULTURE & INNOVATION

Development of a commercial line for biodiversity and local fruit and vegetable products	bit.ly/2q6VhQc
Cover crop management for improved soil biology	bit.ly/2uOFKdm
Nitrogen supply and control of Rhizoctonia solani in organic potato production	bit.ly/2GYd2vr
Organic egg	bit.ly/2GCnDsJ
Innovative arable crop system with leguminous crop	bit.ly/2qaiDEr
Organic dock control Development and implementation with fiery clearwing moths	bit.ly/2Ek9sGl
Agroforestry with horticultural crops - A multifunctional farm for peri-urban areas	bit.ly/2lwA9Ky

SC2 Collaborative Projects – Ecological approaches and Organic farming

Organic Farming

Many projects and H2020 research topics cover both conventional and organic farming; the projects listed below are dedicated to organic farming.

CORE Organic Cofund

www.coreorganiccofund.org

Total cost: 20.6M€

EC contribution: 5M€

Coordinator: Icrofs

Dec. 2016 – Nov. 2021

CORE Organic Cofund is the continuation of a 10+ year ERA net supporting trans-European research and innovation within organic food and agriculture. The latest programme supports 12 projects with a total of 14 M€ covering four thematic areas:

- Ecological support in specialised and intensive plant production systems
- Eco-efficient production and use of animal feed at local level
- Appropriate and robust livestock systems: cattle, pigs, poultry
- Organic food processing concepts and technologies for ensuring food quality, sustainability and consumer confidence.

OK-Net Arable

www.ok-net-arable.eu

Total cost: 2.2M€

EC contribution: 2M€

Coordinator: IFOAM - EU

Mar. 2015 – Feb. 2018

The overall aim of 'OK-Net Arable' was to increase productivity and quality in organic arable cropping by improving the knowledge exchange among farmers, farm advisers and scientists. To achieve this, the project synthesized existing knowledge. Based on this, advisory material that is easy to use was collected. An online platform (farmknowledge.org) was made to make the advisory material available for a wide audience of farmers and advisers and facilitate farmer-to-farmer learning across Europe.

OK-Net EcoFeed

www.ok-net-ecofeed.eu

Total cost: 2M€

EC contribution: 2M€

Coordinator: IFOAM - EU

Jan. 2018 – Dec. 2020

OK-Net EcoFeed aims at helping organic pig and poultry farmers in achieving the goal of 100% use of organic and regional feed. The project will create a European network of innovation groups that will facilitate the exchange of knowledge among the different sectors. These groups will identify innovations from the ground up and ensure that solutions disseminated by the project "work in the real world". All knowledge generated by the project will be made available on the organic farmknowledge platform.

LIVESEED

www.liveseed.eu

Total cost: 9M€

EC contribution: 7.5M€

Coordinator: IFOAM - EU

Jun. 2017 – May 2021

The objective of LIVESEED is to improve transparency and competitiveness of the organic seed and breeding sector, encouraging greater use of organic seed. Cultivars adapted to organic systems are key for realising the full potential of organic agriculture in Europe. It will investigate socio-economic aspects relating to the use and production of organic seed and their interaction with EU regulations.





Crop diversification

DIVERSify

www.plant-teams.eu/

Total cost: 5M€

EC contribution: 5M€

Coordinator: James Hutton Institute

Apr. 2017 – Mar. 2021

DIVERSify is a multidisciplinary and multi-actor partnership which will co-construct a new applied approach to optimise the performance of plant species mixtures (or ‘plant teams’) and develop tools to support implementation. It will unravel the mechanisms underpinning the benefits associated with cropping of plant teams and identify the plant traits and agronomic practices promoting these benefits, developing tools and guidelines for farming practitioners in diverse environmental conditions.

ReMIX

www.remix-intercrops.eu

Total cost: 6M€

EC contribution: 5M€

Coordinator: INRA

May 2017 – Apr. 2021

ReMIX will allow designing cropping systems based on agro-ecology for the benefit of farmers and the whole EU agricultural community. It will exploit the benefits of species mixtures to design more diversified and resilient agro-ecological cropping systems. Based on a multi-actor approach, ReMIX will produce new knowledge that is both scientifically credible and socially valuable in conventional and organic agriculture. The project will tackle practical questions and co-design ready-to-use practical solutions.

DiverIMPACTS

www.diverimpacts.net

Total cost: 11.2M€

EC contribution: 10M€

Coordinator: INRA

Jun. 2017 – May 2022

DiverIMPACTS seeks to achieve the full potential of diversification of cropping systems for improved productivity, delivery of ecosystem services and resource-efficient and sustainable value chains. It will assess the performance of crop diversification through rotation, intercropping and multiple cropping. It will also provide rural actors with key enablers and innovations that will help removing existing barriers and ensure the uptake of crop diversification benefits at farm, value chain and territorial levels.

DIVERFARMING

www.diverfarming.eu

Total cost: 10.5M€

EC contribution: 10M€

Coordinator: U. Politecnica de Cartagena

May 2017 – Apr. 2022

With the long-term objective to increase diversification and biodiversity in Europe and to foster sustainable development of the bioeconomy, Diverfarming will develop and deploy innovative farming and agribusiness strategies. Diverfarming will increase the long-term resilience, sustainability and economic revenues of agriculture across the EU by assessing the real benefits and minimising the limitations, barriers and drawbacks of diversified cropping systems under low-input agronomic practices, and by adapting and optimising the organisation of downstream value chains.



Nitrogen Fixing crops

LEGVALUE

www.legvalue.eu

Total cost: 6M€

EC contribution: 5M€

Coordinator: Terres Inovia

Jun. 2017 – May 2021

LEGVALUE objectives are to define platforms for change that can help deliver greater EU self-sufficiency in crop protein production, to identify opportunities for innovation, adding value to markets and all participants in the value chains and to recognise opportunities to influence change, be they at commercial, research or policy level. The ultimate benefits are the fostering of more profitable legume production in the EU to satisfy a larger more valuable and diverse market to the financial benefit along value chains and to deliver social and environmental benefits to all.

TRUE

www.true-project.eu

Total cost: 5M€

EC contribution: 5M€

Coordinator: James Hutton Institute

Apr. 2017 – Mar. 2021

TRUE aims to identify the best “transition paths” to increase sustainable legume cultivation and consumption across Europe. Analysis and modelling approaches combined with data generated from Case Studies and transdisciplinary knowledge-exchange will lead to concrete innovations and to a Decision Support Tool for primary producers, agronomists, processors, associated businesses and decision makers to help determine a range of options for successful transitions with a variety of legume species and processing approaches to match the pedo-climatic zones and farm types.

EUCLEG

www.eucleg.eu

Total cost: 7.8M€

EC contribution: 5M€

Coordinator: INRA

Sept. 2017 – Aug. 2021

EUCLEG aims to improve diversification, crop productivity, yield stability and protein quality of both forage (alfalfa and red clover) and grain (pea, faba bean and soybean) legumes. Using diverse and extensive genetic resources and taking advantage of advanced molecular tools, EUCLEG aims to identify and develop the best genetic resources, phenotyping methods and molecular tools to breed legume varieties with improved performance under biotic and abiotic stresses in the representative European and Chinese agro-ecological areas.



Integrated Pest Management including weed management

SC2 projects dealing with biological control and integrated pest management are clustered in a specific factsheet on plant health.

Compiling knowledge ready for practice – thematic networks

AFINET

www.eurafagroforestry.eu/afinet

Total cost: 2 M€

EC contribution: 2 M€

Coordinator: U. de Santiago de Compostela

Jan. 2017 – Dec. 2019

AFINET aims at improving knowledge exchange between scientists and practitioners on agroforestry practices through the creation a knowledge cloud reservoir and a network of farmers to foster agroforestry implementation at EU level, with a special focus on silvoarable (woody perennials and arable crops combinations) and silvopastoral systems (woody perennials and livestock farming) design, management, production, profitability and policy.

CERERE

www.cerere2020.eu/

Total cost: 2 M€

EC contribution: 2 M€

Coordinator: U. of Reading

Nov. 2016 – Oct. 2019

CERERE aims at sustaining and promoting innovative approaches emerging in Europe from a multitude of practices adopted to introduce and manage agrobiodiversity in cereal production. These innovations are rooted in local traditions, knowledge and food culture.

Inno4Grass

www.inno4grass.eu

Total cost: 2 M€

EC contribution: 2 M€

Coordinator: Grünlandzentrum

Jan. 2017 – Dec. 2019

The overall objective of Inno4Grass is to bridge the gap between practice and science communities to ensure the implementation of innovative systems on productive grasslands. The long term goal is to increase profitability of European grassland farms and to preserve environmental values.

HNV-Link

www.hnvlink.eu/

Total cost: 2.23M€

EC contribution: 2.23M€

Coordinator: CIHEAM

Apr. 2016 – Mar. 2019

Conceived as a “support service” for knowledge and innovation exchanges, the HNV-Link network will give a decisive new impetus to this sector, and will provide tools to organisations, actors and networks supporting High Nature Value (HNV) farmlands.

Strengthening the European Research Area (ERA)

SusCrop

www.suscrop.eu

Total cost: 15M€

EC contribution: 5M€

Coordinator: FZ Juelich

Jan. 2018 – Dec. 2022

ERA-NET Cofund on Sustainable Crop Production

The aim of the SusCrop is to strengthen the ERA in the field of crop research, in particular in relation to crop production. The SusCrop joint call for proposals will include systemic research on agricultural crops as part of an ecosystem (“plant as a meta-organism”) additionally to breeding, IPM and resource-use efficiency activities.

Interesting activities under other Horizon 2020 sections

Funded through Horizon 2020 support to Infrastructures, **ENVRIplus** (www.envriplus.eu) brings together Environmental and Earth System Research Infrastructures, projects and networks to create a more coherent, interdisciplinary and interoperable cluster of Environmental Research Infrastructures across Europe. **AnaEE**, the research infrastructure for Analysis and Experimentation on Ecosystems has been

supported through FP7-Infrastructure (bit.ly/2v6YNQg) and is part of the European Strategy Forum on Research Infrastructures (ESFRI) roadmap (bit.ly/2GUvcem p41). ANAEE will provide a distributed and coordinated set of experimental, analytical and modelling facilities in ecosystem science, agriculture and forestry, including highly equipped in natural experimental platforms.

In the pipeline – 12 projects to start under 2017 and 2018 SC2 calls (79 M€)

Socio-eco-economics – socio-economics in ecological approaches	(2 projects, 10 M€)
Permanent grassland – farming systems and policies	(1 project, 10 M€)
Functional biodiversity: effective interplay of crop pollinators and pest predators	(1 project, 10 M€)
Making European beekeeping healthy and sustainable	(1 project, 8 M€)
Organic inputs – contentious inputs in organic farming	(2 projects, 8 M€)
Organic breeding – Increasing the competitiveness of the organic breeding and farming sectors	(2 projects, 12 M€)
Biodiversity in action: across farmland and the value chain – A. Small organisms, big effects for plants – belowground biodiversity interaction with plants	(2 projects, 14 M€)
Climate-smart and resilient farming – A. Microclimate management: from field to landscape	(1 project, 7 M€)

Funding opportunities – Open SC2 calls for 2019 (60 M€)

SFS-01-2019 – Biodiversity in action: across farmland and the value chain	
B (2019) Capitalising on native biodiversity in farmland landscape	(2 projects, 16 M€)
LC-SFS-19-2019 – Climate-smart and resilient farming	
B (2019) Efficiency and resilience of mixed farming and agroforestry systems	(2 projects, 14 M€)
SFS-35-2019-2020 – Sustainable Intensification in Africa	
A (2019) African Farming Systems, sustainable intensification pathways	(4 projects, 30 M€)



How does research on ecological approaches and organic farming support EU Policies?

Ensuring the environmental sustainability of agriculture is at the core of EU policies and measures, both inside the EU and in Commission's external research and innovation and development cooperation policy. Ecological practices can make a decisive contribution to it, as explicitly recognised in the New European Consensus for Development. From the policy side, both the Organic Farming Regulation and the Common Agricultural Policy can be considered as tools with potential to foster ecological approaches in agriculture. Some of the measures provided for in the Rural Development Regulation aim to make European agriculture more environmentally sustainable in particular by promoting agri-environmental measures and investments to tackle and adapt to climate change and to support areas with natural constraints. Within the first pillar of the CAP, three major greening practices (permanent grassland conservation, ecological focus areas and crop diversification) are being promoted to reduce the negative environmental impact of agricultural activities in the EU.

According to the Communication "The Future of Food and Farming", the future Common Agricultural Policy will increase its ambition in protecting environment and tackling climate change. The policy will step up the incentives to reduce the

pressure of agriculture on the environment while increasing the supply of public goods to the EU society. It will play an important role in the contribution of the EU to the COP21 Paris Agreement and the United Nations Sustainable Development Goals (SDGs). This context will be particularly favourable for supporting agroecological practices, which are for a great extent depending on local conditions. The future CAP provides also more emphasis on the farm advisory system and knowledge transfer and innovation, which are also key for the development of agroecology.

Research and innovation activities were developed in close alignment with the current Common agricultural policy, foreseen by the communication on the future of food and farming as well as the EU action plan on Organic Farming.

More info:

- The Future of Food and Farming: bit.ly/2j2n9lF
- Action Plan for the future of Organic Production in the European Union: bit.ly/2AxJAZT
- The new European consensus on development "our world, our dignity, our future": bit.ly/2w2YebQ

