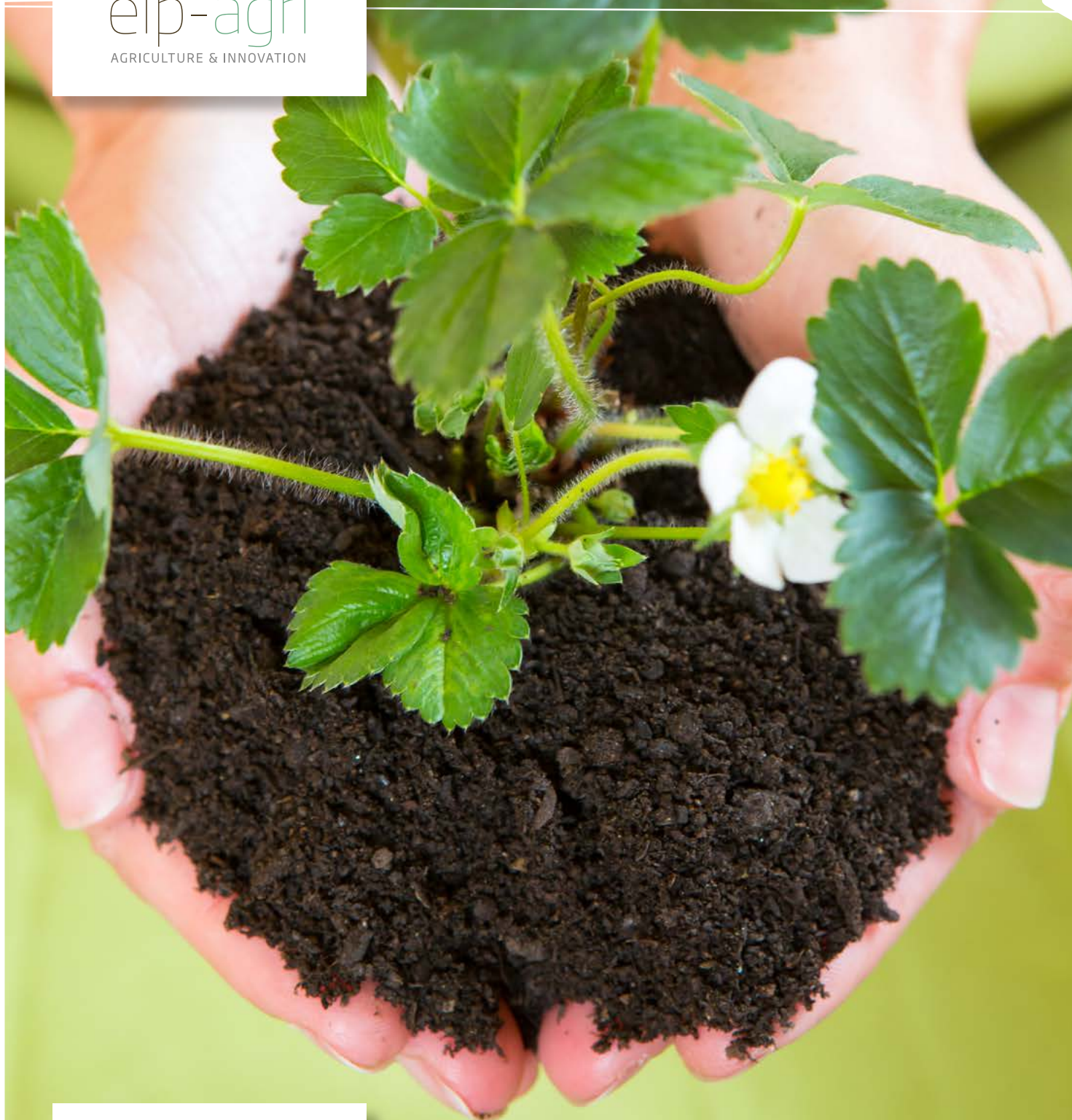


eip-agri
AGRICULTURE & INNOVATION

Organic is operational

Inspiring innovation for EU agriculture



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This brochure has been produced within the framework of the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI), which was launched by the European Commission to promote innovation in the agricultural and forestry sectors and to better connect research and practice.

The EIP-AGRI Workshop 'Organic is Operational' (Hamburg, June 2017) brought together partners in Operational Groups working in organic farming or closely related subjects across Europe. The event offered opportunities for networking and addressed challenges related to soil management, organic arable farming, organic horticulture, pasture and grassland management, various livestock species as well as business models and accessing the market.

This brochure follows up on the workshop's [final report](#), and the [booklet](#) that was created for the event, which includes details on Operational Groups that were represented at the workshop. All workshop results can be found online via www.eip-agri.eu.





► Exploring innovation in organic farming

Innovation can be a driving force for creating a competitive and sustainable farming sector that is fit for the future. Innovation can be boosted when people with different types of knowledge and expertise work together and exchange ideas. European agriculture faces increasing restrictions on the use of external production inputs, such as artificial fertilisers, pesticides and antibiotics. Organic farmers have experience in dealing with these issues, which is why organic farming may open new avenues for soil management strategies, weed and pest control, and livestock health and wellbeing for both organic and conventional farmers.

The organic sector has a tradition of close collaboration between farmers and researchers, with farmers and on-farm testing at the heart of this collaboration. Organic farming is a common topic in the EIP-AGRI Operational Groups that have been set up so far. These projects, funded by national and regional Rural Development Programmes, tackle issues ranging from organic cropping systems to horticulture, grassland management and livestock systems. Several Operational Groups with an organic focus have farmers or farming organisations as

partners who want to learn from organic practices – even if they are not certified as organic.

This brochure offers some examples of potential solutions inspired by organic farming. It also highlights the importance of collaboration and of exchanging knowledge between farmers, researchers, advisers and others, through Operational Groups but also in broader European networks.





► Stimulating soil health

Without the use of artificial fertilisers and herbicides, paying attention to a good soil structure and to having sufficient soil organic matter is fundamental to organic farming. It is essential for crops to get a balanced supply of nutrients and stay healthy. It helps to avoid soil erosion and nutrient leaching, and a healthy soil also increases yield and profitability. Useful techniques include reduced tillage, and working with compost and catch crops. While these techniques are especially relevant in organic farming, they can also be applied in conventional agriculture with many short- and long-term benefits.



Improving soil quality for a better yield

The Austrian Operational Group BIOBO is comparing different tillage and fertilisation systems to assess their impact on yield and humus content in the soil. "We are running tests on different organic farms to see how on-farm resources can be used efficiently, to reach optimal soil quality and biodiversity", says farmer Alfred Grand, who is a partner in the Operational Group. "Results from a long-term monitoring project on an organic farm near Vienna will tell us more about how this can allow farming systems to adapt to climate change." Alfred continues: "I am 100% sure that all farmers can benefit from organic research. We even had requests from conventional farmers from the UK, who are interested in organic methods that can offer an alternative to pesticide application."

► **More information** on the [BIOBO website](#) or in the [EIP-AGRI database](#)

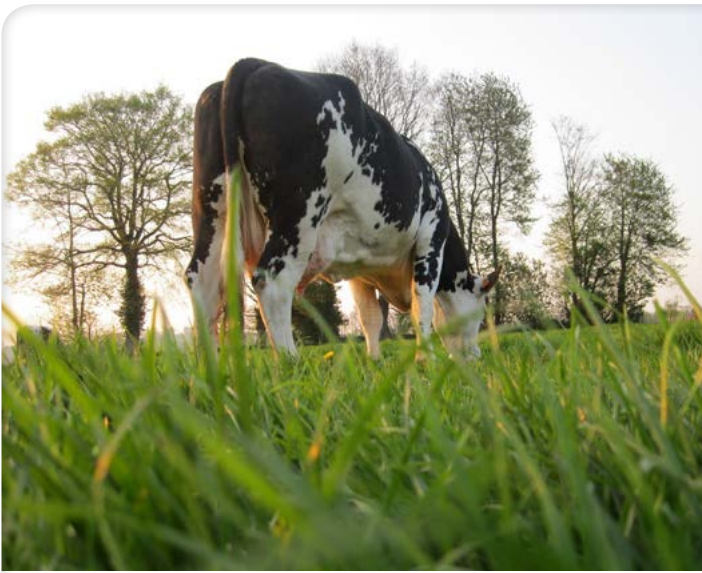


Catch cropping for improved soil fertility

Catch crops are grown in between cash crops. They can improve soil and help catch nutrients, preventing pollution by nutrient leaching. They can also generate additional income when they are grown for forage or as an energy crop. In the German region of Schleswig-Holstein, farmers and researchers of an Operational Group are comparing different catch crops and catch cropping strategies through on-field tests at participating farms and agricultural experiment stations, to determine how profitability can be increased for organic crop production.

► **Get more details** on this Operational Group in the [German Operational Groups database](#) or [on the website of the regional innovation office EIP-AGRAR Schleswig-Holstein](#)





► Organic inspiration for livestock

Ensuring animal health and welfare of livestock is very important in organic farming. This means using breeds that are robust and disease-resistant. Housing and feed are both significant elements in keeping animals in good condition. When feed is produced on the farm or nearby, it is easier to ensure that the feed has a high quality and that its source is traceable. Sustainable pasture and grassland management can contribute to a healthier soil, and provide a valuable source of feed for livestock.



Solutions for protein self-sufficiency

Livestock is a significant economic sector in the French regions of Brittany and Pays de la Loire, with a turnover of €10.6 billion. To feed these animals, France and other European countries are depending heavily on imported raw materials that are rich in protein, such as soybean. These resources are subject to fluctuating prices and it is possible that they have been genetically modified.

To become less dependent on imported feed, the Operational Group 4AGEPROD is testing different ways to cultivate and harvest high-protein forage, specifically alfalfa, clover and leguminous pasture. Two types of alfalfa harvesting are being tested on the organic experimental farm of Thorigné d'Anjou. "On our organic cattle farm, we are exploring ways to improve protein self-sufficiency and feed security with various flora grasslands, alfalfa, and combinations of cereals and protein crops", says farm manager Julien Fortin. Crop combinations with the highest protein rates will be evaluated for their feed impact on cattle.

"The farmers involved in this project were particularly looking forward to cooperating with scientists, as they noticed for instance that their mixed grain with peas yield fluctuated from one year to another", says project coordinator Jean-Luc Millécamps. 4AGEPROD is linked to the SOS PROTEIN programme, which includes 70 organisations and over 160 people collaborating and exchanging knowledge.

► **Read more** about 4AGEPROD on [the SOS PROTEIN website](#) or in the [EIP-AGRI Operational Groups database](#)





► New technologies for pest, disease and weed control

As organic farmers farm without artificial pesticides, herbicides and fungicides, it is very important for them to explore sustainable and efficient ways of dealing with pests, diseases and weeds. New technologies and easy-to-use decision support tools can help farmers protect their crops and safeguard yields.



Decision support to manage fungal diseases of shallots

Brittany produces 78 percent of all the shallots produced in France. However, three fungal diseases are causing problems in shallot cultivation: mildew (*Peronospora destructor*) and two *Botrytis* species (*B. squamosa* and *B. allii*). Treating these diseases is complex, because the fungus spores are airborne and current crop protection strategies in the field are not adapted to this concentration of spores in the air.

The French Operational Group VIGISPORES is developing a decision support system that will enable farmers to efficiently protect their shallot and onion crops against these diseases. "We are developing a network of stations that trap airborne spores. This network will be linked to a DNA-based system that detects and counts the fungal spores", says project coordinator Aurélie Juin. "We are running tests on organic and conventional farms. We expect that the results of our collaboration will directly benefit growers of shallot and onion."

► **More information** on the website of Operational Group partner Vegenov: <http://blog.vegenov.com/>



► Developing the market

The organic market presents many opportunities. Organic products from short and organic food chains offer added value both for farmers and consumers. Consumer demand is growing and there is room for new products, new crops and new markets.



Producing organic spirulina using converted wastewater

In Italy, many organic producers are involved in olive oil production. Especially in the south of Italy, huge quantities of olive mill wastewater (OMW) are produced every year. Many organic farmers currently use OMW as an organic fertiliser - but high concentrations of phenol, lipid and organic acid actually make the substance toxic for plants and can inhibit bacterial activity in the soil.

An Operational Group in the Italian Marche region is now developing solutions to convert oil mill wastewater into a raw material that can be used to produce organic spirulina algae. These can then be added as an ingredient in organic pasta, to increase the nutritional value. Farmers will be able to reduce their costs for OMW treatment, while protecting their soils.

► **Read more:** spirulinamadeinmarcheblog.wordpress.com

► Inspiring innovation through networking

The organic farming sector has a tradition of farmer-led innovation and on-field research. Farmers often share expertise and tend to have close connections to consumers and others in the value chain. New opportunities can be created by opening the sector to more collaboration with conventional farming, and by inspiring and being inspired by European knowledge and research networks.



► Horizon 2020: building European knowledge networks



Horizon 2020 research projects can inspire Operational Groups with additional knowledge. The multi-actor project LANDMARK, for instance, is conducting research on sustainable management of land and soil in Europe. "One of our three project outcomes will be the Soil Navigator, a practical decision support tool for farmers and advisers that will help them get a better understanding of the multifunctionality of the soils on their farms", says Francesca Bampa from LANDMARK. "We tested the tool during a field trip in Italy with the help of an Operational Group from Emilia-Romagna that works on soil conservation. We look forward to gaining more contacts from the EIP-AGRI network to collaborate and test the tool further."

- **More information** on [LANDMARK](#) and the [Soil Navigator tool](#)
- [EIP-AGRI Brochure on Multi-Actor Projects](#)



Horizon 2020 thematic networks collect existing knowledge and best practices on a specific topic, and bring partners from research and practice together to stimulate knowledge exchange. "The thematic network OK-Net Arable focuses on improving organic farming", says coordinator Bram Moeskops. "To encourage knowledge exchange amongst farmers, but also between farmers, farm advisers and researchers, we have created an Organic Knowledge Platform."

- **Find out more** about [OK-Net Arable](#) and the [OK-Net Knowledge Platform](#)
- Or read the [EIP-AGRI Brochure on Thematic Networks under Horizon 2020](#)

► Helping you to get connected: the EIP-AGRI Network

The EIP-AGRI Network offers opportunities for you to connect, share knowledge and ideas, and find partners. The EIP-AGRI website has an [area dedicated to Operational Groups](#). It brings together information, publications, news items and more from across the EIP-AGRI website that is particularly relevant for Operational Groups.

Want to read more?

- Browse all results from the [EIP-AGRI workshop 'Organic is operational'](#) on www.eip-agri.eu
- Check the page of the [EIP-AGRI Focus Group on organic farming](#) to read the report, factsheet and brochure



INSPIRATION FROM ORGANIC FARMERS

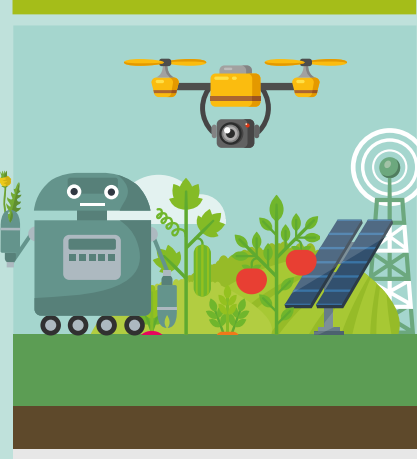
SOIL MANAGEMENT



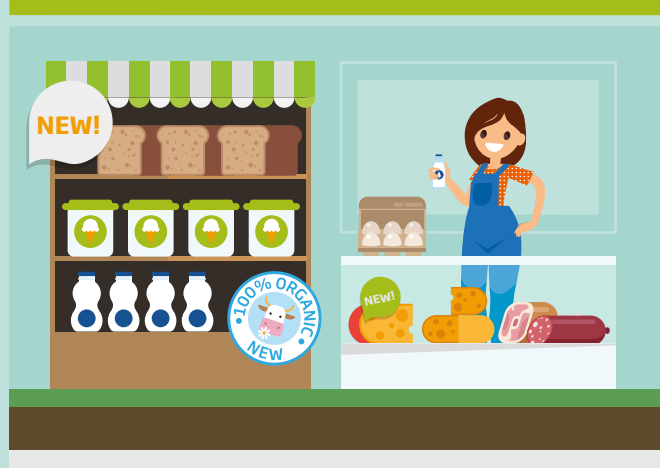
ANIMAL HEALTH & WELLBEING



WEED AND PEST CONTROL



DEVELOPING THE MARKET



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