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AGRICULTURE & INNOVATION

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## European agriculture on a Mission for healthy soils

- Caring for our soils: EU initiatives connecting research and practice
- Operational Groups update: sharing results for more innovation in the field
- EIP-AGRI Focus Group experts dig into soil issues
- Horizon 2020 thematic networks: good practices that are BEST 4 your SOIL
- Spotlight on plant health

**GREECE:** Small farm, Proud Farm: innovation for new entrants

**HUNGARY:** Research grounded in practice

**ESTONIA:** Multi-actor projects give soils centre stage





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## Welcome to the seventh edition of Agrinnovation!

It is impossible to overestimate the importance of soil. From the food we eat to the clothes we wear, the fulfilment of our very basic needs depends on soils. Well-functioning soils provide us with clean water, host biodiversity, recycle nutrients, regulate climate, and they are the foundation of our European landscape and cultural heritage.

Soil, however, is a finite resource and we need to take good care of it, together. Land degradation, directly or indirectly caused by human activities, is one of today's biggest sustainability challenges. This is why halting and reversing soil degradation features prominently among the UN sustainable development goals for 2030.

The European Green Deal, the EU roadmap for sustainable and inclusive growth, echoes this ambition. Moreover, it puts farmers, foresters and land managers at the heart of the green transition and supports them with proverbial legs and brainpower. The legs are the full range of instruments available under the common agricultural policy (CAP). These include measures such as eco-schemes that reward farmers for improving environmental and climate performance, including managing and storing carbon in the soil. The brain is the knowledge that is brought about by the unprecedented research effort coordinated under the Horizon Europe mission in the area of 'soil health and food'. This mission aims to significantly improve soil health across Europe.

The EIP-AGRI connects available soil knowledge with innovative solutions that work in practice. It is and will be playing a significant role in addressing the problems that soils face, and in helping EU farmers and foresters to become effective stewards of this common good.

The EIP-AGRI makes full use of the innovation potential of collaborative multi-actor projects that work locally as well as across the EU landscape. It can thus greatly enhance the chances of success to counter widespread degradation processes, such as soil erosion and carbon depletion.

Today, more than 200 EIP-AGRI Operational Group projects are working across Europe to devise innovative soil management practices. This for example includes experimenting with cover crops to restore organic matter content, precision farming to help avoid over-fertilisation, or alternative weed control techniques to preserve soil biodiversity. You can learn more about some of these by reading through these pages.

It is very inspiring to see so many people from diverse backgrounds who share the same passion - in this case healthy soils - come together to work for a common goal. This is the very essence of the EU project!

I will let you discover more innovative projects and solutions in this edition of Agrinnovation, which takes us through another great year of EIP-AGRI achievements and inspiring innovations.

Enjoy reading this magazine.

Janusz Wojciechowski  
European Commissioner for Agriculture and Rural Development





## EIP-AGRI Operational Groups update

Next level: sharing project results for more innovation in the field

Across the EU, more than 1500 EIP-AGRI Operational Groups are connecting farmers, advisers, researchers, businesses and others to tackle practical challenges for agriculture and forestry. Many of these Operational Groups are sharing preliminary and final project results, to make them accessible to farmers and foresters and to ensure that innovative solutions are taken up in practice. This includes exchange visits, connecting with thematic networks or even using project results to design future policy measures.

### Exchanging ideas for soil conservation

No man is an island. This also counts for Operational Groups, which can benefit from exchanging knowledge with other projects. This can give them new insights and boost innovation in their field. Partners from the Portuguese and Italian Operational Groups MoreSoil and Agroecological cover first met at the EIP-AGRI workshop 'Cropping for the future', June 2019. Both projects focus on the use of cover crops to improve soil quality and protect crops from pests, diseases and weeds. "We invited the Portuguese group to our final conference in Italy the following autumn, where they presented their project activities", says Agroecological cover coordinator Paolo Mantovi. "Together we visited our experimental farm in Parma. We work on similar themes. Meeting each other was a good opportunity to exchange our results and transfer them to other realities." Agroecological cover later presented their project results at a MoreSoil meeting through video conference.

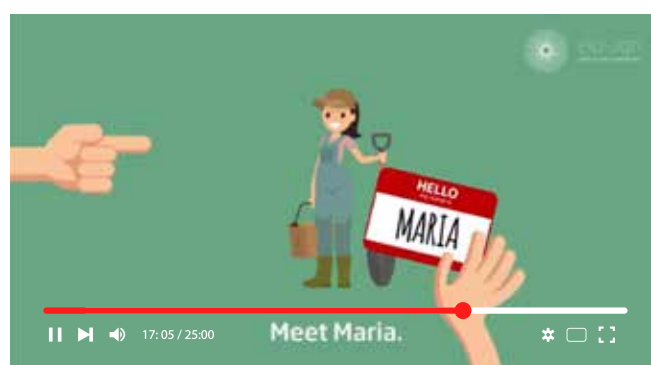
Maria Godinho from MoreSoil partner ESAS also welcomed the exchange of ideas: "Three farmers and four advisers joined our visit to Italy. They returned home full of enthusiasm, eager to try new ways to protect the soil, especially integrating cover crops with minimum soil disturbance. The main reason why we invited them was to give them the chance to see other ideas in practice."

- ▶ Read more about [Operational Group MoreSoil](#), and about [Operational Group Agroecological cover](#) and its follow-up project [H2020 multi-actor project Circular Agronomics](#).
- ▶ Find all [presentations and projects from the EIP-AGRI workshop 'Cropping for the future'](#) on the EIP-AGRI website.



*"The visit to Italy allowed me to see the problems we are tackling in a different context. Bringing research closer to practice this way can only bring benefits, I think. It can improve both scientists' and farmers' knowledge."*

- MoreSoil farmer João Vinagre -



What are EIP-AGRI Operational Groups all about? Watch the [animated infographic](#).



*The Portuguese National Rural Network has organised regional thematic workshops and field visits to make project results accessible to farmers. "We bring together Operational Groups working on similar themes, but we also invite other innovative projects. This helps create awareness on ideas that are being tested or that would be interesting to explore. It also helps to disseminate project results to farmers and others in practice."*

- Maria Custódia Correia,  
national coordinator of the NRN -



## Operational Group from start to end...and beyond

**French project Robustagno, one of the first Operational Groups to start, was about making lambs more robust. Now that the project has ended (November 2019), Robustagno 2.0 is taking Robustagno's results to the next level, focusing on digital communication. In all its stages, Robustagno has actively worked to maximise knowledge sharing with other Operational Groups and European innovative projects.**

"With Robustagno, we organised open farm days and shared good practice documents with advisers and vets at dedicated training sessions", coordinator Jean-Marc Gautier explains. "With Robustagno 2.0 we are creating tutorial videos to help farmers apply the good practices developed through Robustagno, for a wide dissemination in the field. We are also designing a digital tool that sends farmers automatic alerts with tailored recommendations for the lambing period, for instance with tips on ewe nutrition during the suckling period."

For Robustagno and Scottish Operational Group Live Lambs, Horizon 2020 thematic network SheepNet became a way to share project results more widely across the EU in the long term. "Taking part in national or European SheepNet events allowed our farmers and advisers to meet other farmers from different parts of the EU, learn more about innovative practices from other European countries, and share solutions for similar issues. It made them so proud that their ideas were appreciated and taken up by others", Jean-Marc says.

The interaction between Operational Groups and a thematic network helped to accelerate the flow of knowledge on lamb health across the EU. Operational Groups acted as local 'laboratories', giving feedback on solutions proposed by other Operational Groups or by the thematic network. New thematic network EuroSheep is now following up on the work of SheepNet. With the previous successful collaboration in mind, Robustagno 2.0 is again actively taking part in this new project.

- ▶ More info on Operational Group [Robustagno](#) in the EIP-AGRI database
- ▶ Find more details on Thematic Networks EuroSheep and SheepNet [on the EIP-AGRI website](#)





## Operational Groups: supporting the design of future policy measures

When launching its calls for Operational Groups, the Irish RDP Managing Authority was thinking ahead. "While we can address general agri-environmental measures through a broad scheme, we found that EIP-AGRI Operational Groups are ideally suited to tackle targeted challenges for specific areas", says Margaret Murray from the Department of Agriculture, Food and the Marine.

In many Irish Operational Groups, farmers are testing specific agri-environmental practices on their own farms. The results are expected to give an indication of the practices that are worth supporting in the future. "It is still too early in the life of many Operational Groups to get concrete results", Margaret says, "but we are discussing how we could use the success of the EIP-AGRI model to prepare the next CAP programming period."

To stimulate knowledge exchange and create awareness on the value of the agri-environmental practices that are being tackled, the Managing Authority is encouraging networking between Operational Groups. "We enable all groups with a similar focus, for instance on peat uplands, water quality, biodiversity and market access, to form a forum where they can meet and share information."

Margaret sees the benefits for future innovation: "There is considerable involvement from the whole community and from local businesses in these Operational Groups. Inclusion of all parties is a very successful element of the EIP-AGRI initiative. The benefits of this collaborative approach, which already engages farmers and other stakeholders in future agri-environmental measures, are already evident. For instance in the Hen Harrier Operational Group, the team has tested sustainable ways to reduce fire risk in upland areas, and thus to protect the habitat of hen harriers and other wildlife. One solution is to put cattle onto the mountains to graze during summer and this also supplements the farmers' income. Through the involvement of other stakeholders, it has become possible to develop a fire strategy for the uplands areas."



The [Irish National Rural Network](#) has published a booklet highlighting Ireland's 23 Operational Groups under the 2014-2020 Rural Development Programme. The booklet is available in English and Irish. It features an infographic and an interactive storyboard showing the locations of the Operational Groups throughout the country. You can [explore all these results on the Irish NRN website](#).

- ▶ **New projects on the horizon:** With around 60 applications approved (April 2020), Hungary will soon see the launch of its first Operational Groups.
- ▶ **Browse all Operational Groups** in the [EIP-AGRI online database](#).
- ▶ **Ideas for OGs:** Every EIP-AGRI Focus Group identifies potential topics for new Operational Groups. [Take a look at the full selection on the EIP-AGRI website.](#) ●





Inspirational idea



## It's a match!

Operational Group and thematic network find farms for new entrants

**Many Dutch farmers have trouble finding a successor for their farm. At the same time, a growing number of young people are looking for a career in sustainable agriculture. To find the perfect match between new entrants and existing organic farms, Operational Group Land in connection offers practical advice, training and good practices from across Europe.**

Project leader Maria van Boxtel explains: "We are setting up a network of so-called 'start farms', where mentoring farmers give new entrants the opportunity to use part of their land to try out farming. Especially for new entrants who do not come from a farming family, this allows them to learn how to farm, and how to run a business and sell a product. This also helps the farmers find a successor. We have up to five good matches per year between new entrants and organic farmers who are looking for a successor." The project explores new ways of financing and organises 'matching sessions', where new farmers can learn which types of farms would best fit their style and talents.

Land in connection closely collaborates with Horizon 2020 thematic network Newbie, the European network for new entrants. "Newbie deepens the knowledge that we share with our farmers by adding scientific knowledge and international experiences from other European countries", Maria says. "In the Netherlands, start farms are a new thing. We have learnt a lot from visits with Newbie to similar initiatives in the UK or France."



The Operational Group and thematic network are producing publications together - in different languages - on access to land and alternative financing models, including crowdfunding. "We are now preparing a checklist for sustainable farm succession with examples from our farmers. Newbie will use this as a tool for farmers in their European network", Maria continues. "We are firmly set in the organic sector, but the collaboration with Newbie allows us to share our results more widely and also reach interested conventional farmers. This may also attract more advisers to our network. We see a lot of opportunities for the future."

- ▶ Find out more about Land in connection on [www.landgilde.nl](http://www.landgilde.nl) and in the EIP-AGRI database
- ▶ For more info on Newbie, visit: [www.newbie-academy.eu](http://www.newbie-academy.eu)
- ▶ What can we learn from new entrants to foster innovation in agriculture? Check out the results from the [EIP-AGRI Focus Group on new entrants](#). ●





## Spotlight on plant health

Innovation and sustainable strategies for healthy plants

**Keeping plants and crops healthy is vital for a flourishing agriculture and food production, for maintaining biodiversity, and for protecting our natural environment. In 2020, the [International Year of Plant Health](#), many initiatives are highlighting sustainable ways of protecting plants from an increasing number of health threats.**

New and re-emerging pests and diseases and the impacts of climate change are putting plant health under increasing pressure. Protecting plant health requires integrated approaches and a range of tools to prevent, monitor and manage pests and diseases. Various EU policy initiatives, including the EU Green Deal and its [Farm-to-Fork strategy](#), and the [Biodiversity Strategy](#) are designing long-term solutions to achieve healthier food and more sustainable agriculture and tackle plant health threats. To help European farmers protect their plants and crops from pests, diseases and weeds, many innovative projects are testing viable alternatives to harmful pesticides and herbicides.



- ▶ The [CORDIS Results Pack](#) and [Agri-research factsheet](#) on plant health highlight some of the most cutting-edge projects in plant health research and innovation.
- ▶ An [EIP-AGRI Focus Group on non-chemical weed management](#) identified challenges and opportunities to implement these practices in arable cropping systems.



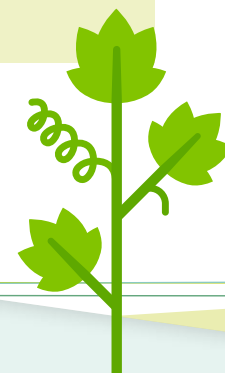
In Tuscany, Italy, an Operational Group is testing non-chemical weed control in vineyards, by cultivating self-reseeding cover crops under the vine rows. Using less herbicides (glyphosate in particular) and reducing tillage intensity may lead to higher soil fertility, lower costs, and a reduced environmental impact. More information in [the EIP-AGRI database](#).



The pea necrotic yellow dwarf virus (PNYD), which is transmitted by aphids, causes great yield losses, specifically in leguminous plants. To reduce outbreaks of aphids and the virus they transmit, an [Operational Group from Austria](#) is developing tailored flower mixtures to create attractive habitats for natural enemies of the aphids. The project pays specific attention to practicality and economic viability for farmers.



Creating more power and precision in mechanical weed control. This is the aim of a [German Operational Group](#), which is combining traditional methods with precision farming techniques. Smart cameras distinguish plants from weeds, for more precise weed control. ●







## Estonia gives soils centre stage

Partnering up in H2020 multi-actor projects to increase soil quality

**Soil health is one of the key topics in Estonia's agricultural policy. As well as a yearly celebration of World Soil Day and a Soil of the Year, Estonia has awarded agri-innovation prizes to projects that make best use of digital soil data. Many Estonian organisations are involved in national and international projects that help improve soil quality and make knowledge more accessible to European land users.**

The Estonian University of Life Sciences is an active partner in Horizon 2020 projects, including the multi-actor projects SoilDiverAgro and iSQAPER. "With iSQAPER we have studied innovative methods to improve soil quality and increase crop productivity", says professor Endla Reintam. "European soils are affected by water and wind erosion, soil degradation and pollution. In many countries, information on soil quality is available but not necessarily accessible to individual land users. This is why iSQAPER has developed a free mobile app that helps farmers assess the quality of their soils."

SQAPP, this Soil Quality Assessment app, gives information on soil texture, organic carbon, soil nutrients and more, for a specific location based on global soil databases. Farmers can also enter their own data, which will make the results more precise. A green, orange or red quality score will give an indication of the condition of your soils. The app provides suggestions for sustainable management options that can improve soil quality. Endla explains, "If your soils are affected by nutrient depletion, the app will provide a list of suggestions, for example applying animal manure, with more information about this practice."

In Estonia, these management practices and the app were tested in close collaboration with farmers. "We had a high turnout at demonstration events, where farmers told us how they would use this information on their farms", Endla says. "Some of our farmers already applied green manure, crop rotations or no-tillage, but they wanted to use the app and attend more demonstrations to get more know-how and new skills to improve the quality of their soils. They told us their goal is to reach higher yields but also to deal with soil threats and protect the environment from the ground up."

► More information on the iSQAPER website: <https://www.isqaper-is.eu>



► Other Horizon 2020 multi-actor projects working to improve soil quality and biodiversity are [SoildiverAgro](#), [SOILCARE](#) and [EXCALIBUR](#). Find the full list on the [EIP-AGRI website](#). ●



## Caring for our soils

EU agriculture on a Mission for healthy soils

**Healthy soils are the basis for the food we grow and for balanced ecosystems that provide clean water, biodiversity and nutrient recycling. Soils are important for our well-being, which is why they need to be preserved and nurtured.**

As part of Horizon Europe, the EU research and innovation programme for 2021-2027, the European Commission is planning to set up “missions” tackling areas of wide societal relevance. Members of the Soil health and food Mission Board have proposed the mission ‘Caring for soil is caring for life’. Its goal is to raise awareness on the importance of soils and to develop solutions for sustainable soil management. It wants to engage farmers, foresters and other land managers, as well as researchers and citizens in implementing these solutions. Why is this mission so important? We asked former Dutch Minister of Agriculture Cees Veerman, who is Chair of the Soil health and food Mission Board.

### ? What does the Soil health and food Mission Board do?

**Cees Veerman:** “The European Commission asked us to propose targeted, realistic and measurable ideas in the area of soil health and food, which would inspire people. That is quite a challenge, especially because missions are a new instrument. The 15 board members have different expertise in the fields of science, farming, public services and business. This allows us to discuss the mission’s goals from different perspectives. In addition, board members are ambassadors for soil health. We communicate widely on its importance and we are engaging with citizens and other stakeholders to hear what their expectations are.

### ? The board has proposed the mission ‘Caring for soil is caring for life’. What is this about?

**Cees Veerman:** “In May 2020 we proposed this mission, which in my view is about ‘getting soils right’ so that people today and tomorrow can benefit from this precious resource. We see soil health as the starting point for a number of services that soils can provide for society, including nutritious and safer food, increased biodiversity and a better resilience to the effects of climate change, including droughts and floods. This mission will combine research and innovation, mainly through “living laboratories”, with solutions for restoring soils and sustainable soil management demonstrated in “lighthouse farms”. The mission will support better monitoring of the status of soils, provide training and advice to land managers, and encourage changes in policies, economic sectors and society. To be successful we need to get farmers, scientists, business communities, politicians and citizens on board to work together and share our vision of healthy soils for food, people, nature and the climate!

#MissionSoil 





#EIPagriSoil 

## Healthy soils for Europe

The EIP-AGRI seminar ‘Healthy soils for Europe’ (date to be announced) will zoom in on soil challenges and sustainable practices that can maintain and improve soil health. Coordinating expert Pandi Zdruli, senior researcher at the CIHEAM’s Mediterranean Agronomic Institute of Bari, Italy: “European soils will face many challenges over the next 20 years, including climate change, erosion and soil contamination. This seminar will show a wealth of good soil management practices that are being implemented by European farmers, including no-till or reduced tillage, cover crops, rotations including legumes, and appropriate irrigation systems. By sharing their benefits for sustainability and profitability with farmers, we can accelerate their take-up for healthier soils throughout Europe”.

- ▶ All updates and results from this seminar will be available on the [EIP-AGRI website](#).
- ▶ [Get a full overview](#) of EIP-AGRI publications, Focus Groups and other events, videos and inspirational ideas focusing on soil health.
- ▶ Follow the [EIP-AGRI soil campaign on Twitter](#) through hashtag #EIPagriSoil to learn more about EIP-AGRI soil activities, inspirational ideas from network members, and other soil highlights.
- ▶ More inspiration for soil health in the [EIP-AGRI brochure ‘Soil organic matter matters’](#)

The Global Soil Partnership provides a platform for governments, research and civil society organisations, farm associations, industry and private companies and others who are actively engaged in sustainably managing and protecting soil for future generations.

- ▶ More details: <http://www.fao.org/global-soil-partnership/en/> ●





# With heart and soil

EIP-AGRI soilmates share their views on soil health

Healthy soils influence our food, our environment, our society and our well-being. This makes soil health a topic that concerns us all. We spoke with six 'soilmates' from farming and forestry, research, citizen initiatives and regional authorities, who are connected by a passion for soils. We asked them **1** what they are doing to improve soil health, **2** what they think the main challenge for the future is and **3** which 'soilmate' or initiative inspires them.

## Marta Pogrzeba *(Professor at the Institute for Ecology of Industrial Areas, Poland)*



- 1** Our research focuses on remediating soils and brownfields that are contaminated with heavy metals. We explore solutions for more soil quality and biodiversity, and lower ecological and health risks. We also test the cultivation of energy crops on degraded areas as a renewable energy source.
- 2** Turning marginal and contaminated soils into areas that can be used for industrial crop cultivation, leaving the healthy, productive soils for food production. This could benefit local farmers and would be a good solution to increase the European bioeconomy.
- 3** My membership in the Soil health and food Mission Board, and participation in EIP-AGRI Focus Groups (soil contamination, industrial crops) allow me to discuss soil health and new approaches with land owners, advisers and other researchers from across Europe. This is very inspiring for my future activities in the field.

## Juuso Joona *(Carbon Action farmer, Finland)*



- 1** At our organic arable family farm we produce food, seed and oil crops in rotations under a continuous crop cover. We give our soils a good structure and the right growing conditions through minimum tillage, organic fertilisation and by avoiding chemical pesticides. With the [Carbon Action project](#), we develop and test soil carbon sequestration methods, train carbon farmers, and connect scientists with farmers and advisers on more than 100 pilot farms.
- 2** Climate change and its consequences. Extreme weather events such as droughts, heavy rainfall and high temperatures are not compatible with current farming practices that are based on intensive tillage, monocultures and external inputs. We urgently need to make a change towards regenerative farming to improve the ecosystem and produce nutritious food in a sustainable way.
- 3** I am inspired by all other farmers around the globe who are making efforts to improve soil health.

## Mariana Debernardini *(Sustainability Liaison for CEJA - European Council of Young Farmers)*



- 1** Young farmers are aware of the importance of soil health and the need to invest in practices that optimise the functions their land can provide. CEJA ensures that European decision makers know what the next generation of farmers needs to become good soil stewards. This includes a fair income, access to land and to the most up-to-date knowledge and innovation.
- 2** Our soils face many challenges, from urbanisation to nutrient loading. This is multiplied by a diversity in soil types, management systems, climate issues and socio-economic contexts, creating a colourful but complex soil quilt across the European Union. Preserving soil quality and governing this diversity is undoubtedly a challenge.
- 3** Rachel Creamer (Soil Biology Group, Wageningen University) fervently supports young soil scientists through research and teaching. Also wine producer and CEJA vice-president Samuel Masse is always pushing the boundaries to improve soil health on his land, by staying curious and open to new ideas.

## Mariska Slot (Agroforestry farmer in *Operational Group bOERbos*, the Netherlands)



- 1 On our farm, we are converting 30 ha of Robinia forest into a biodiverse food forest where animal-friendly and sustainable food can be produced. We are beginning to grow different (edible) plants and trees, and keep cattle, pigs and chickens. We are letting the forest grow and foster more biodiversity, in order to feed soil organisms, increase soil biodiversity, feed the animals we keep in the forest, and feed people - in that order.
- 2 Keeping the soils covered! In my opinion, conventional agriculture is leading to desertification while the soils where we grow our food should be rich. We need a radical change in the way we treat our soils and grow our food, to a system where soils can recover and 'feed' themselves, so they can also feed animals, and us.
- 3 I am inspired by natural farmer Masanobu Fukuoka sowing seeds in the desert, by permaculture adviser Geoff Lawton and agroforestry pioneer Mark Shepard.

## Anna Krzywoszynska (Founder of the *Soil Care Network*)



- 1 The Soil Care Network is an online community of over 350 soil scholars, activists, farmers and other members of the public, united by their fascination for soils. We want to create conversations that go beyond the boundaries of specific disciplines, and share information that is relevant to all areas of life. We publish a monthly newsletter in which we cover soil research, policy, social movements, opinions, soil art and more.
- 2 To build truly sustainable futures, our biggest challenge is to bring the value of soils into the heart of our social systems. This means learning from soils and adapting our models of land use and modes of life to their capacities.
- 3 I am inspired by growers who explore their soils and learn from them and from each other, to become better soil stewards. I am also a great fan of BASE-UK, a farming organisation that brings together farmers who are going through the difficult transition to sustainable soil management.

## Ellen Luyten (Policy adviser at OVAM, Flemish Waste Management Agency)



- 1 OVAM focuses on remediating soils, preventing soil pollution, and sustainably managing waste. We recently started up a programme that explores new policy approaches for soil care, based on a strategy of soil and land stewardship. This means that we want to support the responsible use and conservation of soil as a natural resource for the benefit of society. For this we collaborate with stakeholders from redevelopment projects working on sustainable circular land use, and nature-based remediation projects in nature areas.
- 2 We believe that soil care is everyone's concern and that everyone can become a soil or land steward. To support this, we need a larger knowledge base that is more connected with practical experiences on new soil management systems and practices.
- 3 Personally, I really enjoy permaculture initiatives of VELT, an organisation that shows people how to increase soil health, ecosystem and soil biodiversity on a smaller, 'household' scale.

## Annette Schneegans

(Senior Expert and secretariat of the mission board 'Soil Health and Food',  
Directorate-General for Agriculture and Rural Development, European Commission)



"We currently see how soils are placed high on the agenda, not just in farming practices but also in research, policy, business and society. The mission "Caring for soil is caring for life" seems to be the right instrument at the right time. Together with the EIP-AGRI, the mission has the potential to mobilise people and resources at a larger scale, to create, exchange and apply knowledge and solutions for sustainable soil management. My personal wish is that through this mission, we will all become soilmates!"



## Good practices that are BEST 4 your SOIL

H2020 thematic networks share knowledge for European soil health

**Healthy soils are vital for a flourishing agricultural and horticultural production. They are also better equipped to resist soil-borne diseases causing crop damage. To support European farmers, advisers and researchers, Horizon 2020 thematic network BEST4SOIL collects and shares practical knowledge to help improve, maintain and restore soil health.**

“Soil challenges vary in different countries. The available information on how to tackle them also differs. While some European countries already have a lot of knowledge on their soil challenges, for others this kind of information is fairly new”, says Harm Brinks, coordinator of Thematic Network BEST4SOIL. “We give practical information on four best practices (see text box) to stimulate soil health”, Harm says. “To prevent soil-borne diseases from building up, we also advise growers on how to optimise their crop rotations.”

The BEST4SOIL website provides free tutorial videos

and factsheets, translated into 20 languages, allowing farmers and advisers to immediately put the advice into practice. They can consult an open-access database on soil-borne diseases and nematodes to find information that is tailored to their soil types and the crops they grow. “To build our ‘community of practice’ network across Europe, we will be organising workshops, thematic study groups, training and other activities to connect people and give them the information they need”, Harm explains. “If a local group of growers wants to organise a thematic meeting to learn more about nematode control, or how to make compost, BEST4SOIL network coordinators can support them with dedicated advice and expertise.”

► **More information:** [www.best4soil.eu](http://www.best4soil.eu)

► 34 Horizon 2020 thematic networks (September 2020) focus on soil, nutrients, ecological approaches and many other topics. Find a [full overview on the EIP-AGRI website](#). ●



### Four best practices for soil health



- **Applying compost**
  - Can prevent pathogens from building up, increase soil organic matter content and crop yields
- **Using green manure or cover crops**
- **Anaerobic disinfestation**
  - Can help farmers manage pathogen and nematode outbreaks while sustaining a healthy soil
- **(Bio)-Solarisation**



Inspirational idea



## Low-impact machinery for small farm woodlands

Forest management with benefits for soil and biodiversity

**The Welsh countryside is scattered with small on-farm woodlands. Many of these are under-managed, quite often because they are hard to access with large forest machinery. An Operational Group from Wales has tested the benefits of using smaller, low-impact machinery to reinstate management into these woodlands. This could create more biodiversity, cause less soil disturbance, and benefit the owners.**

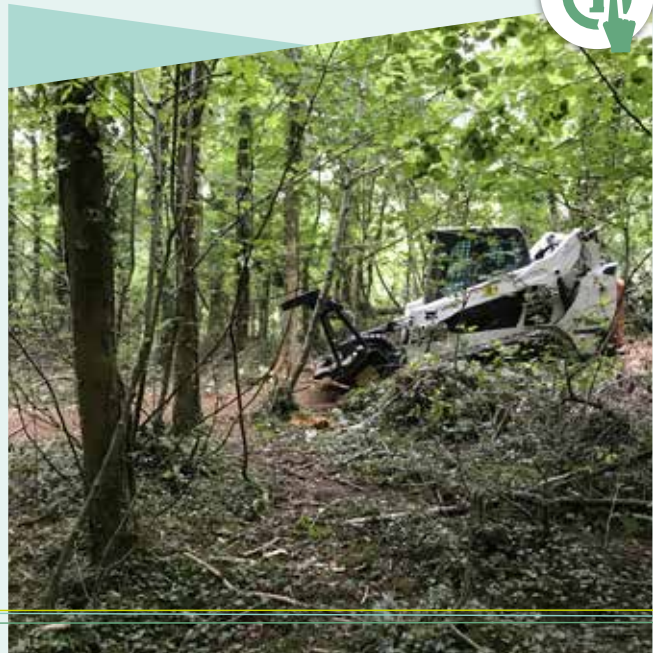
Many on-farm woodlands in Wales are situated on sloping banks, which makes them hard to access. Furthermore, heavy harvesting machines have a relatively high cost, and using them may cause soil compaction and run-off. "We have explored the use of smaller, low-impact machines to help reinstate management in small-scale woodlands", says innovation broker Will John from agricultural advisory service ADAS.

Re-introducing active woodland management can support the natural regeneration of trees and create more diverse tree structures. Using smaller machines may also minimise the risk of soil compaction and sediment loss to waterways. "We have monitored run-off during high rainfall events to measure sediment and nutrient losses. Our goal was to identify the best ways to manage harvesting operations in these locations, for the benefit of foresters, contractors and anybody who is interested in managing woodlands and minimising the impact on the environment.

"While we could not draw any clear results from the tests relating to the impact on soil and sediment losses, we do hope that this might be a stepping stone for a larger project with a longer period of monitoring, and that it can help raise awareness of the issue of soil erosion and implications for water quality when undertaking forestry

operations", Will says. "The farmers who participated in the project were keen to reinstate management in their woodlands for amenity, biodiversity, and financial reasons. They were happy that their knowledge of the merits of managing their woodlands had increased."

- ▶ More information on the [Farming Connect website](#) or in the [EIP-AGRI database](#)
- ▶ Find more inspirational cases in the [EIP-AGRI Brochure 'Innovation for European forestry'](#) ●





## **Subgroup on Innovation** Identifying innovation needs and good practices for EIP-AGRI actions

**The success of the interactive innovation approach, promoted by the EIP-AGRI, strongly depends on the involvement of the EIP-AGRI network members. Representatives from 56 organisations and institutions, including National Rural Networks, farmer organisations, research institutions and advisory services regularly meet in the Subgroup on Innovation.**

All Subgroup members bring ideas and innovation needs from farmers, foresters and others involved in agricultural innovation across Europe to the table, to make sure that EIP-AGRI activities are in line with needs from the field.

“In working with the Subgroup, I became aware that many member states are willing to make farming more sustainable, use less pesticides and better protect biodiversity”, says Bram Moeskops from IFOAM EU. “Many authorities are working on this. I was happy to see that when we meet, we can exchange ideas on how to support farmers to become more sustainable through innovation.”

Anton Jagodic, adviser at the Slovenian Chamber of Agriculture and forestry: “At one point we had severe problems with wolves and bears. In the Subgroup we heard that Germany, France and Spain had similar issues.

We put forward the topic “wildlife and agricultural production”, it was selected, and the Wildlife Focus Group started its work in May 2020.”

The Subgroup’s discussions can help clarify complex issues in policy implementation. They can also offer inspiration for CAP support to innovation or for boosting knowledge exchange at the European, national or regional level, for instance to support networking between Operational Groups. “We now have more than 1500 Operational Groups sharing solutions and innovation for European farming and forestry, and this number is likely to reach more than 3000”, says Annemiek Canjels from the advisory and innovation expert team of the Dutch Province Limburg. “This would not have been possible without the underlying structure that we have now - including the Subgroup on Innovation, the EIP-AGRI Service Point, the interactive EIP-AGRI website and other communication tools that help connect the dots.”

- ▶ Watch the video: Subgroup on Innovation members look back on 5 years of innovating together.
- ▶ Find all the details about the Permanent Subgroup on Innovation for agricultural productivity and sustainability on the EIP-AGRI website. ●







# Research grounded in practice

Hungarian on-farm research network for a more sustainable agriculture

To give European farmers the tools to deal with existing and new challenges, innovative research results need to make their way to the field. To make sure that research topics match farmers' real needs, ÖMKi, the Hungarian Research Institute of Organic Agriculture, has set up an on-farm research network based on the active participation of farmers.

"Participatory research can play a significant role in achieving the transition towards more sustainable agricultural practices", says Dr. Dóra Drexler from ÖMKi. "Our on-farm network tests innovative solutions on Hungarian organic farms, in real-life situations. Since we set up the network, we have gained a great deal of experience in how to reach Hungarian farmers and engage them in a collaborative network that can help expand their practices with effective agro-ecological methods."

With more than 100 farms involved every year, the network is running field trials for issues in arable crops, horticulture and viticulture. "We already take farmers' perspectives into account when defining our research topics. We have for instance explored sustainable alternatives for pest management in wine production, and the reintroduction of traditional tomato varieties."

The main success factor is that participating farmers exchange experiences with each other, with scientists and with others in the network. For each trial, the results are compiled into summaries that are shared with all participants. They can give feedback so that network partners together reach practical solutions adapted to local situations. Results are also shared through regular meetings, workshops and other networking opportunities.

"We applied for membership of the European network of Living Labs (EnoLL). We want to become a stable network that brings together farmers, researchers, and others in the value chain to solve site-specific problems. The solutions that are developed through this collaborative process can be successfully implemented on the farm, and contribute to the further successful development of Hungarian organic agriculture.

► For more information, visit the project website:  
<https://biokutatas.hu/hu/page/show/onfarm> ●





## EIP-AGRI Focus Groups

Experts from research and practice dig into soil issues

Combining the expertise of 20 experts from research and practice, EIP-AGRI Focus Groups take stock of challenges and solutions for specific topics in the field of agriculture or forestry. A number of the 43 EIP-AGRI Focus Groups that have been launched so far (update September 2020) focus on soil-related issues. These include carbon storage in arable farming, soil organic matter, nutrient recycling, and soil-borne diseases. Two recent Focus Groups dug deeper to find potential solutions and good practices for soil contamination and soil salinisation.



Five new Focus Group topics were launched in 2020:

- ▶ Wildlife and agricultural production
- ▶ Sustainable industrial crops in Europe: new market opportunities and business models which do not replace food production
- ▶ Reducing the plastic footprint of agriculture
- ▶ Sustainable beef production systems
- ▶ Climate-smart (sub)tropical food crops in the EU

▶ All Focus Groups have their own page on the EIP-AGRI website. [Visit the Focus Group page to find all topics and results.](#)



## Growing salt-tolerant plants to keep salt levels low in greenhouse soil

**In organic greenhouses, where crops are grown directly in the soil, the use of fertilisers and irrigation can cause salts to accumulate over the years. A German Operational Group is testing whether growing salt-tolerant crops, which are adapted to higher salinity, can help reduce salt levels in greenhouse soils.**

Some vegetables, such as salad greens, parsley and beans are especially sensitive to salinity, which can lead to yield losses. Operational Group coordinator Stephan Jung explains the issues for German growers: "In some Spanish greenhouses, a large amount of water is applied to the bare soil during a winter break, to wash out excess salts from the sandy soils. This leaching technique is more difficult for German clay soils. Most of our greenhouses also do not have drainage systems that could get rid of the excess water. Leaching will also wash out necessary nutrients, which can cause ground water contamination. And even if leaching were applied, it would take weeks for the soils to dry in our climate. Every week with no production means heavy losses for our farmers."

Some salt-tolerant crops can store salt in their biomass and actively help reduce soil salinity. The Operational Group has been testing the most promising plants in close cooperation with two organic farmers. "We have seen that salt-tolerant crops do not work when soil salt levels are already very high, but they can be effective to keep salt levels low", Stephan continues. To avoid salt levels in greenhouse soils going up again, the Operational Group will offer farmers tailored fertilisation and irrigation recommendations.

"Farmers are closely involved in the work of the Operational Group, and that is what makes this so interesting. If an idea is nice in theory but farmers cannot use it on their farms, we need to adjust. Our farmers were very happy with plants such as buck's horn plantain (*Plantago coronopus* L.) and New Zealand spinach (*Tetragonia tetragonoides*). These can keep salt levels low, growing them allows farmers to maintain production while desalinating the soil, and the plants themselves are a new product that farmers can sell. Customers seem to welcome them as new vegetables that can be used for instance in salads."

- ▶ More information in the [EIP-AGRI database](#)
- ▶ Find all results from the [EIP-AGRI Focus Group on preventing, reducing and adapting to soil salinisation on the EIP-AGRI website](#)





## Inspiration to protect your soils from contamination

Soils can be polluted through excess use of chemical fertilisers and pesticides, but also through poor management of animal manure, slurries and sewage sludge. Irrigating with wastewater that contains for instance pharmaceutical pollutants can also contaminate agricultural soils. Prevention is key – and it is cheaper than curing. Sustainable farm management and soil conservation practices can increase soil health and soil fertility, and can help prevent soils from becoming contaminated. The experts from the EIP-AGRI Focus Group on soil contamination listed a number of good practices that farmers may find useful:



- ▶ Keeping the soil covered with crops or vegetation can increase soil fertility and lower the need to use fertilisers and pesticides, reducing the chance of contamination.
- ▶ Crop rotations, combining crops with legumes, and no-till farming can improve soil quality and soil fertility, arming soils against contamination.
- ▶ Precision farming can help prevent an excess application of agrochemicals, and this can prevent contamination. This offers benefits for farm profitability and the soil.
- ▶ Be open-minded! Welcoming innovation and cooperation with researchers can open up new possibilities that work well for your soils.



*"I have converted to organic farming and started taking up agro-ecological principles five years ago. Since then, I have seen a yield increase that is mainly a result of better soil health and fertility. I use organic compost to fertilise my soils, and I grow red and white clover to feed my lambs, cattle and sheep. Red clover is especially high in protein and very nutritious for the animals."*

- Fergal Byrne, Irish farmer and Focus Group expert -

- ▶ Find more tips to prevent and manage soil contamination in the [final report of the EIP-AGRI Focus Group 'Protecting agricultural soils from contamination'](#)
- ▶ To avoid soil contamination, an Italian cooperative of table grape producers is improving soil health and applying efficient fertigation systems. [Watch the video.](#)





Inspirational idea



## The grass is greener on the other side of the pasture

LIFE+ rotational grazing for pasture quality and productivity



The French region La Gatine in the Deux-Sèvres department has a traditional landscape with many pastures. To manage these grazing lands more efficiently, LIFE+ project PTD ('Pâturage Tournant Dynamique') has developed a method that improves grass productivity and quality through rotational grazing.

Over the past few years, more than 120 breeders have been involved in testing the rotational grazing method 'Herby', developed by Life+ project PTD. This method lets the grass grow to a three-leaf stage before animals are allowed to graze it. Project adviser Joséphine Cliquet explains: "We know that when the grass has grown 2 to 3 leaves, its yield is optimal and it has a high nutritional value for the animals. We let the cows or sheep graze one area of the pasture for a maximum of 3 days, so that they don't eat the new leaves or the grass sheaths. They then move to a new section of the pasture where the grass is optimal for grazing."

This pasture management system offers the animals more grass, with a high quality. At the same time, the grass creates a permanent cover that can benefit the soil, enhance carbon storage and biodiversity, and increase resilience to drought. It may also allow farmers to cut costs, for instance for additional feed or fertiliser. Farmer Erwan Marhadour is very positive: "My sheep move between grazing areas every two days. I now have more animals grazing earlier on and later in the season, with fewer animals to feed in the stables during winter or spring. My ewes are in good health, including at the end of the milking period. Their grass feed is leafy and nutritious, so this method is working very well for me."

- ▶ More information and useful videos on the project website: <https://www.life-ptd.com/paturage-herby/>
- ▶ More inspiration for sustainable grazing systems in the [EIP-AGRI brochure 'Sustainable livestock farming'](#)
- ▶ The EIP-AGRI Focus Group 'Grazing for carbon' collected opportunities to increase soil carbon content in grazing systems. Find [all results on the EIP-AGRI website](#).
- ▶ The LIFE programme is the EU's funding instrument for supporting environmental, nature conservation and climate action projects. You can [browse all projects in the LIFE database](#). ●





Inspirational idea



## Small farm, Proud Farm

Supporting new entrants into organic dairy sheep farming

**Young people who want to set up their own sheep or goat dairy farm in Greece are faced with high investments and economic uncertainties. To encourage young farmers and new entrants to take the step into dairy farming, Greek innovative project Proud Farm will support them with tailored management advice, continuous training, and ways to minimise risk, including the use of farm infrastructure.**

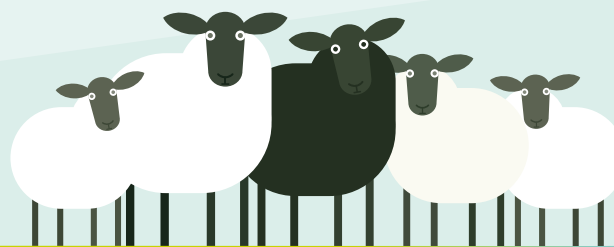
Proud Farm coordinator Nikolaos Koltsidas explains: "New entrants have to invest time, money and effort in preparing the barn, buying the equipment and animals, providing feed and setting up production and sales. It can take more than two years and over 200 000 euros before these investments are rewarded with an income." The project is setting up five fully equipped dairy farms with a capacity of 100 animals each. "This number can provide a basic farm income, can be held by one person and can enable farmers to grow their flock quickly", Nikolaos says. New farmers who take part will be able to use the farm infrastructure for three years. They are only asked to invest in their own flock; the project will provide feed and support services.

"The barns will be designed with a system that optimises the conditions for the animals. We will be developing a mobile application that gives our farmers information on all standard operating procedures, supporting them in every step they take on the farm. They will receive daily information on their flocks and their income over feed cost. To fully prepare them, we will provide them with a complete educational programme covering animal health, nutrition, production and financial management of the dairy farm."

These three years will allow the farmers to become productive and start preparing their own new barn with their productive flock and with more knowledge. "We hope that this will help avoid bureaucratic delays, save costs and ensure the financial health of this local ecosystem. The interest is really high. For young people who are finishing school and others who are leaving the coal mines in our region, a farming career can be an attractive option. We hope to provide them with a sustainable option for the future."



- ▶ For more information, check the project website: [www.proudfarm.gr](http://www.proudfarm.gr)
- ▶ Proud Farm was one of the projects represented at the EIP-AGRI workshop 'Small is smart' (Romania, October 2019). [Find all projects and workshop results on the event webpage.](#) ●







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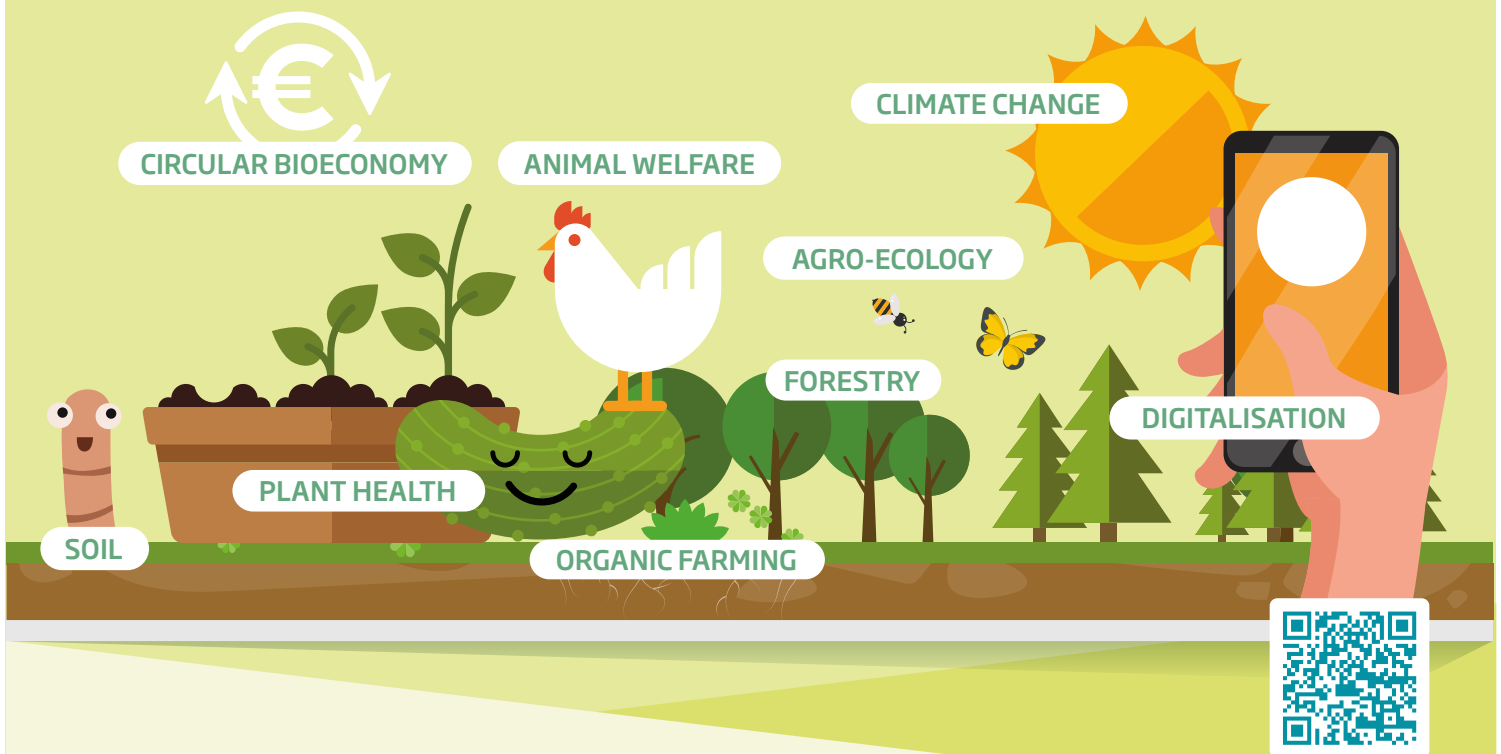


## Farming and forestry topics in the spotlight

The EIP-AGRI regularly highlights important themes for European farming and forestry on the EIP-AGRI website and through social media.

- ▶ Innovation on key topics from European agriculture and forestry
- ▶ EIP-AGRI activities, publications, videos, inspirational ideas,...
- ▶ Dedicated thematic newsletters
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