



Subgroup on Innovation for agricultural productivity and sustainability

12th Meeting

18-19 October 2018

REPORT



The Subgroup on Innovation met for the twelfth time in Spoleto, Italy on 18-19 October 2018. The [programme of the meeting](#) was oriented towards reaching the following goals:

- Launching a reflection about the challenges and opportunities of future networking for innovation, building upon the experience gained in the current period;
- Discussing the first results of the study on Operational Groups and possibilities to use them;
- Shaping the work of the EIP-AGRI network for 2019;
- Getting feedback from recent networking activities as well as information about upcoming activities.

Session I: Networking for innovation now and tomorrow: preparing for a smarter, modern and more sustainable CAP

Kerstin Rosenow, Head of Unit DG AGRI B2, set the scene [presenting](#) the main features and achievements of the EIP-AGRI network in the current period and the key role that networking will play in the future architecture of the CAP. Achieving the new CAP cross-cutting objective aiming at modernising agriculture and rural areas requires an intensification of innovation-related networking activities, a stronger involvement of research actors and a closer link between the CAP and Horizon Europe. The future CAP networks need to have a prominent innovation dimension because they are essential for facilitating the smooth running of the integrated Agricultural Knowledge and Innovation Systems (AKIS) both at national and EU level.

An interactive session followed, with the objective to discuss opportunities and challenges of future networking for innovation, building upon the experience gained in the current period.

In general terms, the members of the Subgroup on Innovation appreciate the current structure and work of the EIP-AGRI network on both European and national level. The general assessment of the network's activities is positive, underlining the importance of building connections between the CAP and H2020, while adapting to variable conditions, and emphasising greater involvement of farmers and investments in modern technologies. The EIP-AGRI is playing a key role in the innovation process (linking research and practitioners supports and promotes innovative solutions) and in consolidating interactive innovation based on a bottom up approach, where practitioners' perspective is taken into account.

The main elements highlighted regarding the innovation dimension of the future CAP networks are the following:

Opportunities

- Farmers' willingness to share knowledge with researchers;
- Ensure continuation of the current innovation networking dynamics and interactive approach;
- Capitalise on the experience gained and the results achieved;
- Continue the positive experience of the Subgroup on Innovation;
- Provide "tailored" content for different targets; avoid topics which are too general;

- Continue to engage practitioners and create opportunities to gather significant actors;
- Continue and reinforce cooperation with Horizon 2020 (future Horizon Europe): better structure the links between the funding under the CAP and Horizon Europe, with a strategic, long term approach. Strategic planning and keeping the practitioners and farmers at the centre of networking;
- Extend innovation to other countries/regions through digitisation aiming at information sharing, analysis and adaptation to local needs.
- Take action in advance of the new programmes, leading into the future, testing new policy approaches now.
- Leverage the strengths, activities of the two subgroups of the Rural Networks' Assembly (Subgroup on Innovation and Subgroup on Leader/CLLD and their cross-fertilisation).

Challenges

- Maintaining the focus when moving from EIP-AGRI network to a bigger CAP network covering the whole CAP, and not limited to innovation.
- Understanding the full potential of the future networks in relation with the AKIS, keeping farmers at the centre and further involving agricultural education, advice and support services for innovation.
- Building on the existing networks and experiences in order to maintain continuity whilst keeping an eye on the future and changes needed. Maintaining cohesion with existing networks, existing scale but also looking for new partners.
- Maintaining the central role of farmers in the situation of growing networks and increasing requirements. Taking advantage of 'pioneer/influencing' farmers (relevant role of the advisers).
- Looking for new solutions (webinars, teleconferences, etc.) facilitating further interactions but also aiming at replacing traditional meeting in order to save organisational/travelling time.

More details on the outcomes of discussions are summarised in Annex 1.

Concluding the session, Alberto D'Avino (DG AGRI) highlighted some general points emerging from the discussion: since 2014, the EIP-AGRI network and the NRNs have set in motion an enabling environment for innovation in the farming and forestry sector by focusing on interactive innovation. It is important not to stop this virtuous process, to further strengthen the link between the CAP and Horizon Europe and to enlarge the number and types of actors involved (education, consumers...). The working methods of the Subgroup on Innovation are also seen as very positive (specific, practical, result-oriented) and to be maintained in future.

Session II "Fostering a thriving innovation ecosystem by supporting Operational Groups"

Sub-session II A: Feedback from the OG Seminar and first outcomes from OG study

Inge van Oost (DG AGRI) provided [feedback](#) from the [seminar "EIP-AGRI: From Operational Group project to impact"](#), which ended just before the meeting of the Subgroup, and was attended by many Subgroup members.

Margarida Ambar (EIP-AGRI Service Point) presented [first outcomes](#) of the OGs study conducted by the EIP-AGRI Service Point.

The study is not yet completed. It includes a survey on several aspects of the OG experience so far. 611 Operational Groups were invited to participate in the survey, out of which almost 30% responded. The next step will be to select a few OGs for direct interviews which will allow a more deep analysis of OG implementation.

After the presentation, the Subgroup's members discussed the first outcomes of the study in groups.

The following elements were considered as deserving most interest:

- The presence of farmers within OGs: 8% of OGs miss a farmer/forester. What is the reason for this? No such demand in EU regulation, it exists in some of national rules though. On the other hand: 92% of OGs have a farmer partner which is a success;
- The role of advisers is seen as important for knowledge dissemination. They are present in about 30 to 40% of the groups. The functioning of OGs with advisers is perceived as more effective. Concern was expressed about proper dissemination of knowledge when it comes to groups without advisers on board;
- 75% of OG partners declared to they had already worked together in the past. It is important to discover whether the implemented projects are new ones or whether these are already running projects but with new funding and possibly new partners. The latter case would suggest that partners trust each other as they develop their collaboration. Continuing cooperation is also desirable and logical at local level;
- The level of satisfaction regarding the involvement of groups in collaboration such as H2020 projects is low, which is an issue that needs to be tackled. Facilitation is needed in terms of capacity building, improving motivation, etc.;
- Communication and dissemination are crucial. OGs are willing to communicate and disseminate knowledge taking advantage of numerous publications, events and using social media. However, the question was raised about their effectiveness, visibility and durability as well as about the need for long term dissemination;
- There is a need to explain how to use available databases and whether a tutorial could help with that.

The Subgroup also discussed how to use the study results for networking purposes. The general conclusions were directed at grouping OGs covering similar topics, potentially leading to targeted communication, e.g. newsletters focused on thematic clusters or thematic activities by cluster, possibly including H2020 relevant actors.

It was considered important to find ways to use the OG database set-up by the study to connect OGs working on similar themes. It was noticed that the classification of OGs from this study may provide inspiration for national/regional authorities mapping their OGS in their territories.

Sub-session II B: AGRI-INNOVATION SUMMIT 2019 (AIS2019)

As a continuation of Session II on fostering a thriving innovation ecosystem by supporting Operational Groups, Pascale Riccoboni (French NRN) presented the French proposal to hold a second Innovation Summit following the success of the Lisbon Summit in 2017.

The main aim of AGRI-INNOVATION SUMMIT 2019 will be to gather the OGs and Horizon projects around a theme of common interest, relevant at the EU level. The event is planned to be held in Normandy, France in the second half of June 2019. It would gather around 350 participants both from France and other EU countries. Based on the discussions at the last meeting of the Subgroup on Innovation and on further exchanges with the Commission, it is suggested to dedicate the AIS2019 to the theme of **agro-ecology**.

The members of the Subgroup were asked to provide feedback about the three main themes proposed for the AIS2019, i.e.:

- *How to increase the autonomy of farms, reduce the use of inputs?*
- *What kind of production systems to achieve a sustainable management, use and protection of resources?*
- *How to achieve the integration of agro-ecology with the downstream, the consumer/citizen?*

A group discussion was organised around the two following questions:

- In what way are the themes presented relevant from your perspective – Do you advise additions or changes?
- What specific aspects/topics of the themes would you like to see discussed under each theme?

The main elements emerging from the discussion are listed in the table below.

Alberto D'Avino concluded the session acknowledging the great interest shown by the Subgroup for the theme of agro-ecology. He thanked all Subgroup's members for their useful comments and suggestions that will be taken into account during the preparation of the AIS2019. He invited them to forward to DG AGRI and the French NRN any further suggestions they might have regarding topics and participants for the event. Further details on the Agro-innovation Summit 2019 will be presented at the next meeting of the Subgroup.

Subgroup's indications regarding the AIS2019

A) About the theme “agro-ecology” and the proposed sub-themes

In general the Subgroup welcomed the theme of agro-ecology as it is very relevant within the EIP-AGRI framework. There are many on-going innovative projects throughout the EU related to the transition to agro-ecology, including operational groups and H2020 multi-actor projects.

The Subgroup recommended to clarify the concept of ‘Agro-ecology’ within the AIS2019, as it may mean different things for different people.

Regarding the 1st sub-theme “*How to increase the autonomy of farms, reduce the use of inputs?*” it was noticed that reducing the use of inputs is only one way to increase the autonomy of farms; if the sub-theme intends to deal with the reduction of inputs only it would be better to rephrase it (e.g. ‘how to reduce the use of inputs as a way to increase the autonomy of farms’).

B) About the topics to be considered during the AIS2019

Many Subgroup members highlighted the importance of *circular economy* within the agro-ecology framework. The integration with the downstream along the supply chain is considered key for an effective transition to agro-ecology: it is very important to integrate the consumers’ perspective and to explore the role of the education systems. Short supply chains and sustainable local food systems were mentioned as interesting topics in this context.

Soil, water, energy and different types of *inputs* such as fertilisers, pesticides and seeds should be considered, taking into account the ecosystem services provided by farmers and foresters. *Animal and plant health* are key issues.

Regarding the production systems the Subgroup suggested to consider in particular: *organic farming, smart farming, integrated agriculture, agroforestry, conservation farming/no tillage and collective approaches*.

Territorial aspects such as landscape management, specificities of mountain areas could also be considered.

C) Methodological aspects

The Subgroup requested to use the AIS2019 as a great opportunity to present good practices and on-going inspiring examples. When defining the themes it will be important to verify if there is a critical mass of OGs, H2020 multi-actor projects or similar initiatives to be showcased in relation to those themes.

Some members of the Subgroup provided suggestions about possible projects to be contacted (information was provided bilaterally to the Service Point).

It was suggested to consider organising a session to discuss if farmers are/feel more empowered by being part of Operational Groups.

Session III: EIP-AGRI work plan 2019

Antonella Zona (DG AGRI): **presented** the activities proposed for the EIP-AGRI work plan 2019. The following networking activities are proposed to be carried out in 2019, based on the indications resulting from the previous meeting of the Subgroup:

Focus Groups	Workshops	Seminars
1. Antimicrobial resistance in the poultry sector	1. Crop diversification and crop rotation to improve farm resilience	1. Skills development for the digital transformation
2. Beekeeping sustainability	2. Innovative solutions and access to new technologies for small holdings	2. Agro Innovation Summit on Agro-ecology (in cooperation with France)
3. Income diversification through niche products (aromatic plants, medicinal plants)		
4. Agriculture in saline soils		
5. Protect agricultural soils from contamination		

Other future activities supported by the Subgroup	
Subject	Format
<ul style="list-style-type: none"> Future of networking for innovation 	To be dealt with in the framework of the networking celebration event organised by the ENRD on 11-12 April 2019
<ul style="list-style-type: none"> Future family farms 	Seems a good topic for 2020 building upon the on-going JRC foresight exercise

The presentation was followed by a discussion about the inclusion of forestry-related subjects into the work plan for next year, which resulted in the conclusion that forestry should have a visible place in the EIP-AGRI work-plan, also considering that there are OGs currently working on forestry-related subjects. The most appropriate way to include forestry into the EIP-AGRI work is not necessarily by organising activities dedicated to forestry exclusively. In this perspective, it was stressed that the forestry sector should be duly represented in the following future networking activities:

- Workshop Opportunities for farm diversification circular bio-economy (last event of the WP 2018)
- Agro-innovation summit on agro-ecology
- FG Income diversification through niche products (aromatic plants, medicinal plants)
- Workshop on Innovative solutions and access to new technologies for small holdings
- Seminar on Skills development for the digital transformation

The Subgroup members subsequently worked in groups to further define the scope and the objectives of the future activities identified. The outcomes of the discussions for each activity are summarised in [Annex 2](#).

The Romanian NRN indicated interest for hosting the workshop about Innovative solutions and access to new technologies for small holdings.

Next steps and closing

The calls for experts for the forthcoming Focus Groups are planned to be launched in December 2018 or early 2019 at the latest. The draft calls will be submitted to the Subgroup members for final comments in November/December.

DG AGRI drew the attention of Subgroup participants to the [coming events](#) i.e. Seminar on 'Digital strategies' that will be held on 12-13 December 2018 and the [workshop on 'Farm diversification and circular bio-economy'](#) of 6-7 February 2019. The Subgroup on Innovation members are requested to spread the information about these events within their relevant networks.

The next meeting of the Subgroup on Innovation is planned for 7th March 2019 in Brussels.

Evaluation questions about the 12th Subgroup's meeting will be sent in the week following this meeting.

The detailed agenda of the meeting and all presentations can be found [on the EIP-AGRI website](#).

Annex 1

Session I: Networking for innovation now and tomorrow

Outcomes of the discussion on opportunities and challenges of future networking for innovation, building upon the experience gained in the current period

Round 1: Digging into experiences

What works well currently (in the current activities)?

- The EIP-AGRI concept has brought a new dynamic all over Europe. Farmers understand we need innovation to move forward. EIP-AGRI network generates a lot of enthusiasm
- EIP-AGRI is closing the gap between researchers and farmers. Contributing to solve real problems in the field, not just linear transference of knowledge
- Co-construction and common interest both at national and European level. Need to be more open to all AKIS stakeholders, thematic networks, how to include farmers in the networks.
- Multi actor project format increasingly taken up and it also contributes to collect farmers/practice knowledge
- Diversity of members in AKIS is important, important that they know each other, build on existing networks
- Seminars and events are nice basis for networking
- National level is very important for awareness on innovation and multi actor approach
- EIP Service Point is doing a very good job
- Innovation Subgroup is very active and solution-oriented, targeted on innovation and OGs

Important things to keep in mind for the future (moving to a wider network, changing context). Suggestions for European level as well as national level.

- How to connect current activities (second CAP pillar only) to the first pillar in future network
- Enough budget for implementing and fostering innovation
- Face to face contact is very important
- Important to keep farmers involved, especially younger farmers/ Need to capitalise on enthusiasm of young farmers.
- Networking is not a goal in itself, it needs facilitation and management, to produce results
- Some lack of networking at some national levels, depending of context and priorities
- Need a link between OGs and H2020: H2020 is required to look for OGs but what is the awareness the other way around?
- Consider mandatory activities of networking via the future (CAP) networking plans
- Future network to consider young farmers and small farmers with special and/or specific needs

- Need for dedicated resources for networking. Multipliers better involved in networking activities
- Keep in mind the language we use: day to day user for results
- Lower the entry level of farmers in the system, in OGs and for entry in H2020 equivalent project. EIP-AGRI system to make it easier for farmers to enter in projects, to inspire people to transfer the knowledge and innovation.
- More Interactive events, not only presentations, small groups with common problems and discussions
- Importance of innovation brokering to connect to bigger farms and help them identify the need to cooperate
- No need for state of the art building, knowledge is already here. Invest in people and incentives, engagement
- Interoperability between databases at national and EU levels, knowledge databases. Websites are different systems, common knowledge is useful for networking.
- Cooperation between farmers

Round 2: Opportunities and Challenges for future networking on innovation

Opportunity	How to deal with it?	Who should be involved?
Farmers are curious	Show things on the field Find the right innovative subject , related to their needs/urgencies Develop new ways to show/learn	Farmers Researchers Government
More possibilities to fund networking	Provide 1 person dedicated to the activity of networking on a certain topic Fund/facilitate the work of active networking/ knowledge sharing participants	CAP co-financers
How to get important issues from pillar 1 e.g. eco-schemes, POs	Establish closer contacts with the persons involved with pillar 1	OP/CMO exp. Activities S3 platforms
Currently a lot of information, results and innovations available	Capitalising, taking advance of it. Connect databases, make info accessible	EIP-AGRI x 2
Capitalise innovation	Extending to other country/region Digitisation might help Extending and adapting duties	Everybody
Climate change	RE-thinking the farming system	Farmers helped by relevant actors

Biodiversity	Taking advantage of new food and feed Using autochthonous breeds to produce in less favoured areas and marginal HNV farming	Everybody
Innovation, circular economy, climate change, bio-economy, aging of farmers, etc. are hot topics	Provide solutions/what kind of solutions Inform/explain/disseminate about solutions New term "circular-bioeconomy"	Everybody
Take action now in advance of new policy/programme	Test new policy approaches	
(re)think links with research projects	No one-shot activities >> Long term (platforms) Build on H2020 project results >> practitioners	EC
Challenge	How to deal with it?	Who should be involved?
Too many events/too frequent travelling /not sustainable	New communication tools/Digital/webinar Train/ferry meetings Less events/ more back to back	EIP organisation
Who has the chance/opportunity to participate? (€, motivation) Diversity needed in subgroup	Arrange the right person on the table > give possibility to this person. Needs preparation of participants, or prepare events differently Practical/ field visits <>policies Make both comfortable	Government or researcher, adviser?
Speak the same or understand each other's language (farmer, researcher, government) Different goals or different interpretation of goals	Make goals more explicit. What is the common interest? = Attract researchers from other sectors for inspiration = Method Soil partnership Portugal	

Involving all relevant stakeholders of the food/forestry future system	Having the whole value chain involved from production to the market	All at all levels, including EIP-AGRI
How to place the farmer at the middle if network is becoming bigger?	Self-assessment (e.g. advisers/EIP: What I did for farmers today?) Involvement of pioneer farmers, relevant role for advisers Convince farmers and society that farming is at the centre	Everyone who's eating! Key players: farmers, advisers, AKIS
Big groups vs subgroups. It's CAP network enough? Or do we need subgroups?	Better communication, vertically and horizontally, amongst subgroups Good CAP strategy Address first challenge in this table (stakeholders involvement along the chain) Consider EU commitments (biodiversity, bioeconomy...)	Everybody
Functional AKIS to ensure proper networking at national/regional level. Networking should be part of the AKIS process.	Use the subgroup experience Use existing examples	Replicate the actors active in the EU network (Farmers, advisers, researchers, entrepreneurs, rural development actors, etc.)
Retain the bottom-up approach, keep the focus on innovation and new ideas	Maintain one subgroup on AKIS and one subgroup on rural development. These two groups should come together regularly. Leverage the strengths of both groups to cross-fertilise and find relevant funding systems National AKIS and networking activities to feed the EU subgroup	AKIS relevant actors
Keep focus	Build on existing networking experience	EC, MS, Sol
Do not restart from zero	Capitalise on existing tools - share objectives - share tools	Bridge programme period

Annex 2

Session III: EIP-AGRI work plan 2019

Focus Groups

1. Antimicrobial resistance in the poultry sector

Poultry are often raised under intensive conditions using large amounts of antimicrobials to prevent and to treat disease, as well as a disguised means to promote growth. Antimicrobial-resistant poultry pathogens may result in treatment failure, leading to economic losses, and they can also be a source of resistant bacteria/genes that may represent a risk to human health.

Recent scientific evidence has shown that resistance to antibiotics is not only due to the natural ability of a tiny fraction of the bacteria with unusual traits to survive antibiotic's attack, thus enabling resistant strains to multiply. It also stems from the transmissibility of acquired resistance to other unrelated bacteria species, in particular through transfer of extrachromosomal DNA fragments called plasmids that provide a great number of different resistances. Resistant bacteria thwart antibiotics by interfering with their model of action via a range of effectors' mechanisms which are specific to the type of resistance developed.

The emergence and spread of resistant bacterial strains like *Campylobacter* spp, *Escherichia coli* and *Enterococcus* sp. from poultry products puts humans at risk of harbouring new strains of bacteria that resist antibiotic treatment.

Regarding the projects and experts working on this topic, the experience of the European Joint Programme 'One Health' <https://onehealthjep.eu/> might be useful.

Main question: How to fight the spread of antimicrobial resistance in poultry?

Tasks:

- Investigating the reasons for using antimicrobials in different poultry production systems
- Review knowledge about effective monitoring systems which capture the evolution of antimicrobial resistance in poultry bacterial pathogens and allow for adequate and timely reactions. Identify innovative hygienic and treatment practices (housing systems, feeding, heating, etc.) in order to produce with less, or even without antibiotics.
- Analysing the economic implications (cost-benefit, risk, investment needs).
- Documenting good practices.

2. Beekeeping sustainability

Beekeeping as an economic activity plays a crucial role in the sustainable development of rural areas: it creates jobs, supplies honey and other apiculture products and provides an important ecosystem service via pollination, which contributes to the improvement of biodiversity by maintaining the genetic diversity of plants.

The beekeeping sector faces growing problems due to serious mortality of bee colonies. The main reason is usually considered to be infectious diseases and parasites (notably Varroa) and science and veterinary practice currently provide insufficient effective prevention and control.

Other stressors playing a role in the health of bees, yet not fully understood: lack of sources of food due to intensive agronomic practices; risks arising from the use of pesticides and other Plant Protection Products to deal with plant pests and diseases.

Climate change can have a negative impact on the productivity of honeybees by altering plant flowering time, increasing water stress especially in situations of drought and thus reducing pollen and nectar availability, inhibiting movement, affecting bee communications, causing physical damage of hives, colony starvation and delaying bee forage activities.

Ultimately, the sustainability of the beekeeping activity, in economic and environmental terms, depends on innovations in the treatments of bees, reducing where possible the other stressors, and on the diversification and increase of the added value of the hive products, as well as in adaptation to the climatic variability.

Main question: How to ensure sustainability of beekeeping in the face of challenges linked to climate change, pests and diseases and intensification of agriculture?

Tasks:

- Stimulate innovation in beekeeping production through the diversification of products combined with the introduction and optimisation of new techniques of production.
- Identify sustainable practices, including non-chemical alternatives (i.e. preventive practices such as crop rotation, use of biological control and landscape management) for plant pest and disease prevention and control.
- Harvest the existing knowledge on ways to monitor the effect of environmental and climatic conditions, beekeeping practices and agricultural practices on bee health.

The conclusions from the discussion of the Subgroup on Innovation members were to concentrate the work of the Focus Group on bee production but to also identify challenges and opportunities posed by other policies (e.g. environmental, pesticides, landscape management) and other sectors which are influencing beekeeping production and consider the broader role of the beekeepers, not limited to the production itself.

Existing projects to be taken into account:

- BeeScanning (identification of Varroa for prevention of attacks/infections) – OG, Sweden
- BeeNet: Italian beekeeping monitoring network
- events focused on Varroa – Spain
- projects and initiatives - Slovakia, Romania, Lithuania
- study by the Universities of Dundee and London on decline of honeybees – UK

3. Income diversification through niche products (aromatic plants, medicinal plants)

Many industrial materials such as essential oils, pharmaceuticals, colorants, dyes, cosmetics and biocides are obtained from plants. Some species of medicinal and aromatic plants are cultivated for such industrial uses, but most are still collected in the wild. The need for renewable sources of industrial products combined with the need to protect plant biodiversity creates an opportunity for farmers to produce such crops.

However the competitiveness and sustainability of the value chains working with emerging wild resources (such as medicinal, aromatic and spicy plants, mushrooms, Fig of India - "*Opuntia ficus indica*", strawberry tree - "*Arbutus unedo*") is often under pressure from various issues, such as availability of information and technical support, need to link between the economic actors in the value chain and distrust in regard to collaborative approaches (especially regarding marketing/commercialisation).

Main question: How to create diversification opportunities for farmers through cultivation of aromatic and medicinal plants?

Tasks:

- Benchmarking of good practices and/or sharing of experiences of approaches/methodologies.
- Capacity building in collaborative solutions, in particular for marketing.
- How to foster integrated links between production/agribusiness/applied research in an efficient and sustainable way.
- Identify innovations in production, transformation and organisation that increase the competitiveness of this area.
- Inventory and characterise varieties and ecotypes of native flora, taking into account local conditions and climate change.
- Identify crops with higher demand / market value.
- Identify studies about the multiplication of different species in production/micropropagation and improved technical routes for the different modes of production, with special emphasis in organic farming;
- Post-harvest techniques and processing solutions.
- *The Sol members discussed on how to help farmers integrate in the development of new products and new markets aiming at diversified use of food, feed and human and animal health / wellness products. The risk of a rising demand versus a current contradictory regulation on health products (homeopathy, essential oils ...) was identified. The main points raised were as follows:*
 - *Farmers need help at every stage of the production process*
 - *Research about plant varieties and new products from the plants*
 - *Technical and farm management challenges for production*
 - *Processing after harvest, solutions for logistics, cooperation*
 - *Value chain, new markets, marketing help for farmers*
 - *Products linked to health / wellness / food with extra value in the context of a need for traceability. Opportunity in blockchain technology*
 - *Importance of a policy approach / assessment for health/well-being products*
 - *As potential participants of the focus group the following groups were indicated: farmers, researchers, cooperatives, business / marketing experts.*

4. Agriculture in saline soils

Soil salinisation is one of the major soil degradation threats occurring in Europe. Excessive soil salinity reduces the yield of many crops. This ranges from a slight crop loss to complete crop failure, depending on the type of crop and the severity of the salinity problem. Drivers of salinisation can be detected both in the natural and man-made environment, with climate change also playing an important role.

Salinisation is often linked to arid irrigated lands where prevailing low rainfall, high evapotranspiration rates and soil characteristics impede soil leaching, thus causing salt accumulation in the upper layers. While moderate problems are reported even when irrigating with water of sufficient quality, constant or increasing soil salinity is chiefly caused by the use of highly saline irrigation water such as groundwater suffering from seawater intrusion.

Soil salinity is a major factor limiting crop production and land development in coastal areas and is a major cause of desertification in the Mediterranean countries. As a result of climate change coastal areas are increasingly dealing with brackish or saline groundwater resulting in salinization of agricultural soils and consequent impact on the agricultural production. Along the Mediterranean coast, the problem of soil salinity is increasing due to scarcity of precipitation and irrigation with low quality water.

Main question: How can soil salinity be managed to maintain field productivity?

Tasks:

- Review existing knowledge about measuring soil salinity and crop tolerance.
- Identify innovative methods for treatment of saline soils.
- Identify cost-effective and sustainable practices to reduce soil salinisation and/or its effects (e.g. proper management of soil moisture, irrigation system uniformity and efficiency, local drainage, and the right choice of crops).
- Use woody perennials to reduce salinisation.
- Reduce an organic inputs to reduce salinisation.

5. Protect agricultural soils from contamination

Soil plays a central role in food safety as it determines the possible composition of food and feed at the root of the food chain. The most frequent contaminants of agricultural soil in Europe are heavy metals and organic contaminants, resulting from intensive industrial activities or waste disposal. Approximately three million sites are estimated to have been potentially affected by activities that can pollute soil.

Human activity introduced heavy metals (such as cadmium, arsenic and mercury) to soils through mining, smelting, industry, agriculture and burning fossil fuels. Materials containing heavy metals, including paint, electronic waste, and sewage – also contribute to the burden of heavy metal contamination. Organic (carbon-based) chemicals, including some pesticides, are also part of the problem with many still being widely deposited on agricultural soils today. Organic pollutants include pesticides.

Plants grown in contaminated soil can accumulate heavy metals and organic pollutants in the shoots and roots. When these plants are used as fodder for livestock and domestic animals they can enter the human food chain threatening human health.

Main question: How to prevent soil contamination by applied products that come from waste management and/or how to address the problem of contaminated soils?

Tasks:

- Identify the main soil pollutants and the particular challenges which each of them pose.
- Review existing knowledge about ways to measure soil contamination and share information.
- Identify Innovative methods to prevent soil contamination in particular through improved waste management on farm.
- Develop a set of good practices on preventing and remedying soil contamination from various sources.
- Use crops that remedy soil contamination.
- Management practices to diminish high levels of cadmium in soil (some crops are better at diluting cadmium).
- Use of sewage from biogas plants; waste water could contain heavy metals.
- Explore the wider impact of soil contamination on soil biological functions (e.g.: less Nitrogen fixation).
- Treatment for soils contaminated with lead from bullets or batteries.
- Explore good practices in collaboration, involving municipalities, industry, healthcare organisations and society.
- Good practices for sewage sludge and its application.

Workshops

1. Crop diversification and crop rotation to improve farm resilience

A workshop connecting innovation actors (OGs, H2020 projects, etc.) linked to crop diversification may also address the opportunities deriving from new crops from marginal lands. The workshop may involve the existing crop diversification cluster supported under Horizon 2020 (<https://www.cropdiversification2019.net>) and be coordinated with the cluster mid-term conference planned for September 2019.

Two priority topics were taken into consideration:

- Crop diversification / Promising crops from marginal lands;
- Innovative solutions for small farms.

	Explore crop diversification and crop rotation to improve the resilience of the farm; including enablers and drawbacks of arable crop diversification	Promising crops for marginal lands
Conclusions	<ul style="list-style-type: none"> • Despite the fact that good crop rotations bring many benefits (soil fertility, reduced risk of weeds, pest and diseases, increased soil organic carbon content, increased resilience and economic stability of the farm, ...) these good crop rotations are not widely implemented. • It helps the sustainability of the farm. • The balance between short-term economic benefits and long-term benefits like reducing risk, environmental benefits and resilience can be made clearer. It takes time to see the benefits and it is part of a transition process. The knowledge for such a transition process is there from the past, but is getting lost. This knowledge on how crop rotation can improve economic stability can be collected and exchanged with farmers through demonstration projects. To identify the gaps in knowledge. 	<ul style="list-style-type: none"> • There is a big demand for biomass, so there is a need to optimise the use of marginal lands. There are different possibilities: biofuel, solar energy, wild species for medicinal crops. It supports the viability of the rural economy so there is a link with smart villages and rural development and it could be important for the rural economy. New business models can be explored. A balance must be reached between putting land into production and taking care of the environmental sustainability (e.g. low input farming) and ecosystem services, climate change and biodiversity. There is a need to exchange information on how to innovate on marginal lands. Possibilities for agroforestry and medicinal plants and new types of animals. This covers an important area in Europe.

	<ul style="list-style-type: none"> • It links with climate change and other objectives of the future CAP. 	
Background	<ul style="list-style-type: none"> • Cooperation between different types of farms is a way forward and is tackled in the Focus Group on mixed farming systems. • A lot of Operational Groups are working on this topic and there are H2020 projects as well. • This topic has been touched upon in different Focus Groups but has not been taken up in a specific EIP-AGRI event. • There is a link with the production of protein crops. • New machines need to be developed for harvesting new crops. 	<ul style="list-style-type: none"> • This has not been addressed in any other EIP-AGRI activity. There are Operational Groups in Italy working on this topic.

The Sol members highlighted the importance of raising awareness for farmers on the multiple benefits of crop diversification such as economic, technical, ecological benefits, and access to new end products in food or feed.

A need to present good examples from different regions focussing on short and long term results was underlined as well as a need to talk about what does not work and why.

In particular, the following points were raised:

- *Importance of traceability issues in new food markets.*
- *Specific focus on marginal lands: access to new crops and new products. Marginal lands in a given region may not be marginal in another region: learn from other countries!*

Relevant participants/target groups were identified as follows:

- *Farmers / farmers` organisations*
- *Advisers*
- *Supply chain and cooperatives (very important that they know that farmers are willing to produce, and market is willing to buy)*
- *Representative of food chain / value chain: from farm to fork*
- *Researchers : not too many, this is a topic for transfer*

An important fact has been noted that new markets, new food regimes come from new trends: new populations in Europe (immigrants), new food regimes (protein crops alternative to meat), etc. but also new expertise, new knowledge (some immigrants are agronomists).

2. Innovative solutions and access to new technologies for small holdings

Conclusions	<ul style="list-style-type: none"> • Access to new technologies is more difficult for small farms because of cost, technologies not adapted to small sizes, poorer digital infrastructure in remote areas where many small farms are located • Small farms can be innovation leaders (but it was mentioned that only 2% of small farms in Poland declared that they are interested in innovation) • There is an East-West digital divide and small farms are concentrated in some Eastern European areas • Importance of small farms for lively rural areas and “risk of extinction” in some areas (e.g. in Lithuania where 3% of farmers own 50% of land – inverse trend in other areas like NL where average farm size is decreasing)
Background	<p>Issues to be addressed based on the discussion:</p> <ul style="list-style-type: none"> • Marketing potential and short supply chain • Accessibility of new technologies and benefits that can be derived from these • Social innovation aspects • Cooperation between small farms - big farms • Also consider agro-forestry farms • How to upscale the results of EIP-AGRI projects and make them available to small farms? • Check overlap with H2020 project on similar topic (Evora University leading)

The Subgroup on Innovation members suggested to include in the scope and tasks the following themes:

- Explore access to markets, business models and supply chains contributing to enhance cooperation and scaling up small farming
- Collect existing innovative solutions (tools, resources, etc.) for farmers (free or cheap). Pay attention to profitability (free or cheap resources)
- Capacity building: e.g. for digitisation (knowledge transfer), demonstrations (peer to peer learning: H2020 Agridemo, Plaid, Farmdemo.eu, Nefertiti)
- Good practices and examples to cope with limitations to land access and land governance. E.g. Galician Land Bank (citizens offer their lands, which are abandoned or not in use, for farmers), Minipaper from FG24 on barriers and solutions for access to land, capital, labour and markets
- Substitution services and organisational support (e.g. cooperatives, advisory bodies).

The relevant stakeholders to be considered are:

- Primary target groups:
 - Young/new entrants farmers, EIP-AGRI FG24, H2020 Newbie
 - Small-scale farmers
 - Organic farmers (usually they're more open and keen to innovate, playing the role of pioneers. Many of them are small-scale farmers)
 - Provider of solutions and services for farmers (start-ups, SMEs, smart farming enterprises, etc.)
- Secondary:
 - Advisers
 - Short supply chain associations
 - Cooperatives
 - Substitution services (farmers and enterprises providing those)
 - OGs

Seminars

1. Skills development for the digital transformation

The issue of skills development driven by the digital transformation is raising huge interest from various sides to continue the activity of the EIP-AGRI network, and it is an important challenge for agricultural knowledge and innovation systems in the EU. A seminar on this priority topic would sensibly continue the work of the EIP-AGRI network to support the digital transformation in agriculture and forestry.

Increase digital skills for farmers, advisers, rural area actors, SMEs in the agri-food sector, end users, administration – how to implement a strong back office function?

Set up and strengthen the organisation of these actions through AKIS plans and a strong EU agenda for advisers and digitisation by:

- Identifying digital skills and developing them
- Providing advisers with skills to fulfil the digital demand
- Creating strong back-office systems
- Implementing locally

The Sol members indicated the following objectives:

- Identify examples of good practices/show cases
- User experiences – how do you know what works?
- Designers curriculum – education
- Show the range of skills needed for the digital transition e.g. block chain, IoT
- Identify good training methods
- Identify trainings to train yourself in the digital age (quick follow-up versions/updates)
- Identify key actors to support farmers in the digital transition
- Starting point = workshop Latvia, elaborate further on that

Main actors to be involved:

- Farmers
- Advisers
- Suppliers
- Start-ups
- Digitalisation Connect
- Partners in digi projects of H2020 and so on
- Those who provide training and education on digital transition

Who should be involved?

- Same as above +
- Influencers/decisions makers on
- AKIS systems
- Digital-Agricultural agenda's
- National digital agenda's

2. Agro Innovation Summit on Agro-ecology (in cooperation with France)

The contribution of the EIP-AGRI network to the Agro Innovation Summit on Agro-ecology organised in cooperation with France will be considered as a seminar. The comments of the Subgroup on this activity are summarised on [page 6](#) of this report.