

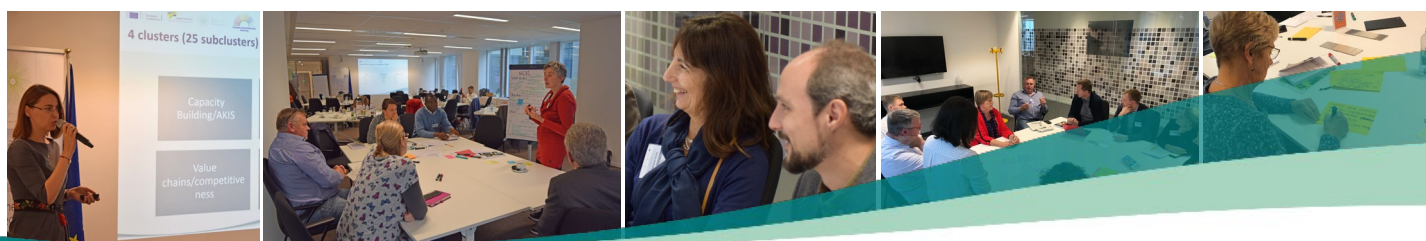


Subgroup on Innovation for agricultural productivity and sustainability

15th Meeting

16 October 2019

REPORT



The Subgroup on Innovation (Sol) met for the fifteenth time in Brussels (Belgium) on 16 October 2019.

The objectives of the meeting were:

- a) to further develop the topics for new networking activities to be carried out in 2020, based on the outcomes of the previous meeting of the Subgroup.
- b) to provide feedback from recent networking activities and to present the upcoming events.

Welcome and introduction

Kerstin Rosenow, Head of Unit DG AGRI B.2, warmly welcomed the participants and presented the state of affairs on CAP and Horizon Europe related matters.

She briefly explained that negotiations on the CAP reform are still ongoing whereas for Horizon Europe, programme negotiations are almost finished.

With the arrival of a new European Commission headed by Ursula von der Leyen a new chapter will start for the European Union. However, as Kerstin Rosenow reassured, EIP-AGRI is firmly anchored in European policies and will be further developed. It was also mentioned that innovation, including the EIP-AGRI, is very important for the new Commissioner-designate for Agriculture.

Kerstin Rosenow drew specific attention to one of the main novelties of Horizon Europe, which is the development and implementation of European research and innovation missions to maximise the impact of EU support to research and innovation and demonstrate its relevance for society and citizens. Regarding the [Mission for Soil Health and Food](#), Kerstin Rosenow mentioned that the appointed Chairperson of the Mission Board (prof. Cees Veerman) is a former Dutch Minister of Agriculture, ex-professor from Wageningen University and Research and also a farmer. He is very prominent in the soil health research and food / soil research. Fifteen eminent people are part of the Mission and have started their work.

The summary of the 2019 **European Research and Innovation days** that took place in Brussels from 24 to 26 September, was then presented to Subgroup members. The event brought together between 3000 to 4000 stakeholders to debate and shape the future research and innovation landscape. The agricultural and forestry research side was well represented in the programme. There were successful interactive sessions (a.o. on rural innovation, the use of natural resources in agriculture, agro-ecology, living labs, ...), using participatory methodologies commonly used within EIP-AGRI events. There was also a bigger session on soil, with around 200 participants. Commissioner Phil Hogan participated in that session. The SCAR AKIS report "**Preparing for Future AKIS in Europe**" was presented.

Kerstin Rosenow also provided the Subgroup members with an update on **EIP-AGRI communication aspects**. By September 2019, there were 7800 Newsletter subscribers, 3058 LinkedIn followers, 5713 Twitter followers and 12749 unique web visits during the month.

Finally, the introductory session was closed by showing an EIP-AGRI Service Point [video about crop diversification in grassland](#) and announcing the release of more videos in the coming months.

Session I: Shaping the work of the EIP-AGRI Service Point for 2020 – Focus Groups and workshops

Introduction to Session I

The main aim of Session I was to further develop the topics for new EIP-AGRI Focus Groups and workshops for 2020.

Magdalena Mach (DG AGRI) provided a [general introduction](#) to this session. She explained how the process of gathering, prioritising and choosing ideas for next year's activities looked like and presented the topics proposed for 2020.

As for every EIP-AGRI annual work programme, there was a need to identify topics for 5 Focus Groups, 2 workshops and at least 1 seminar. Ideas for these activities came from several sources. The most important source was the Subgroup on Innovation. Additional ideas came from Focus Groups experts, the EIP-AGRI website, as well as the DG AGRI and EIP-AGRI Service Point teams. All ideas were analysed and clustered. The 4 clusters were discussed during the Subgroup meeting of 14 June 2019. After that meeting, the results of the breakout sessions were further explored (both by DG AGRI and the EIP-AGRI SP). Leftover proposals from last year and proposals that were handed in later were also taken into consideration. The selection of the AWP 2020 proposals was further guided by the following considerations:

- Relevance for EU Member States
- Added value of the activity
- No duplication of ideas
- Complementarity to other topics
- Interest for ongoing Operational Groups
- Current policy context and future challenges (new CAP, Horizon Europe, ...)

As a final output of this process, the following priority topics were selected:

- **Seminars:**
 - Topic 1: AKIS
 - Topic 2: Soil
- **Workshops:** both prioritised topics are connected with climate change:
 - Topic 1: Interactive innovation for the challenges of the forestry sector
 - Topic 2: New strategies towards carbon neutral agriculture
- **Focus Groups:**
 - FG 39: How to combine wildlife with improving agricultural production
 - FG 40: Industrial crops on marginal lands
 - FG 41: Reducing the use of plastics in EU agriculture
 - FG 42: Innovative practices for sustainable beef production
 - FG 43: Climate smart tropical crops in the EU

All background information on these topics was circulated to the Subgroup members before the meeting.

Interactive sessions on FGs and workshops

After the introduction, Katrien Dejongh (EIP-AGRI Service Point) presented the process for the interactive sessions on Focus Groups and workshops. The main questions to be answered in the group discussions on Focus Group topics were:

- What would be the overarching question to address in this FG?
- What would be specific tasks of this FG?

For the workshop topics, the main questions to be answered in the group discussions were:

- What are the scope, overall aim and specific objectives of the workshop?
- Who should be involved?

A summary of the breakout group discussions can be found in [Annex 1](#).

After the breakout sessions, the main results of the group discussions were presented in the plenary.



Session II: Overview of past and upcoming activities

Ineke van Vliet (EIP-AGRI Service Point) introduced the session and gave a brief overview of [past and upcoming EIP-AGRI activities](#). Four events were highlighted in this session:

Agri-Innovation Summit

Antonella Zona (DG AGRI) presented some key messages from the [Agri-Innovation Summit](#). The event took place in Lisieux (France) on 25 and 26 June 2019. It highlighted the potential of the EIP-AGRI approach to address the challenges faced by European agriculture and forestry, and specifically focused on the transition to agroecology. The event was co-organised by EIP-AGRI Service Point, the French Ministry of Agriculture and the Normandy Region. Despite the complexity of the organisation, the event was a success, with over 450 participants from 26 Member States among which 115 OGs and 40 multi-actor projects. There were 2 round tables, 9 thematic workshops and 8 project visits. Presentations and background documents can be found on the [event webpage](#). The final report and a video will be published shortly.

Workshop 'Small is smart'

Margarida Ambar (EIP-AGRI Service Point) provided the participants with some general information on the upcoming [workshop 'Small is smart' – Innovative solutions for small agricultural and forestry holdings](#), that will take place in Bucharest (Romania) on 29 and 30 October 2019.

The event aims at promoting networking and cooperation among people and projects dealing with innovation and adoption of new technologies in small farm and forestry holdings. The four key areas to be explored are: collaboration in production and processing, short supply chains, land stewardship for ecosystem services and biodiversity, and, bio economy initiatives. The cross cutting topics are knowledge sharing and digitalisation. The programme also includes a field visit to the Romanian Horticulture Institute. More information can be found on the [event webpage](#).

EU Conference on Crop Diversification

Margarida Ambar (EIP-AGRI Service Point) provided the participants with feedback on the [European Conference on Crop Diversification](#) that took place in Budapest (Hungary) from 18 to 21 September 2019. The conference was a result of the collaboration between several Horizon projects working in the Horizon 2020 Crop Diversification cluster. Although it was not an EIP-AGRI event, the EIP-AGRI Service Point was invited to participate in the workshop 'towards a crop diversification network' in which the idea of establishing a crop diversification network was explored. The EIP-AGRI Service Point presented relevant results of the EIP-AGRI workshop 'Cropping for the future' of June 2019 in Almere (Netherlands). Subgroup members were invited to have a look at [cropdiversification2019.net](#) in order to find out more about the conference and its outcomes.

Seminar 'New skills for digital farming'

Fabio Cossu (DG AGRI) presented some key information on the upcoming EIP-AGRI seminar '[New skills for digital farming](#)'. The event is organised in collaboration with the Spanish Ministry of Agriculture and will take place in Spain on 5 and 6 February 2020. The seminar aims to contribute to the design and implementation of approaches and tools that can help farmers and farm advisers develop the skills for the digital transition in agriculture. Earlier EIP-AGRI activities supporting the digital transformation in agriculture pointed to the lack of awareness and skills as an important barrier to the widespread use

of digital technologies on farms. Skills, higher education and vocational education and training will be the focus of the event, with participation of actors of the vocational education and training sector. The call for expression of interest was launched early September and is now closed. More than 300 applications were received, out of which 150 have to be selected. The assessment process of those applications is now ongoing and the programme is being fine-tuned. Fabio Cossu invited the Subgroup members to contact him if they know relevant actors for the event, and referred to the [event webpage](#) for further information.

Session III: Shaping the work of the EIP-AGRI Service Point for 2020 – Seminars

Introduction to Session III

The main aim of Session III was to further develop the topics for new EIP-AGRI seminars for 2020.

Magdalena Mach (DG AGRI) provided an [introduction to the soils seminar](#) explaining why soil is a relevant topic to be addressed in 2020. It receives currently a lot of international attention (e.g. UN declared 2015 the International Year of Soils). There are also a number of international initiatives on soils linking science and policy (for instance the Global Soil Partnership), and healthy soils are also crucial for attaining the Sustainable Development Goals (e.g. SDG 2, 3, 13). It was also an important topic during the Agri-Innovation Summit in Lisieux. The European Commission is supporting soil innovation through a large number of EIP-AGRI soil or soil-related activities. Within Horizon 2020 there are a number of collaborative projects on soils as well. Also in future, soils will be an important topic, bearing in mind e.g. the Soil Health and Food Mission under Horizon Europe.

The proposed 2020 seminar on soils will bring all this work together and will provide innovative ideas for the future research projects.

Inge Van Oost (DG AGRI) [introduced first ideas for the AKIS seminar](#). She first briefly explained the 'what, who and why' of an Agricultural Knowledge and Innovation System (AKIS) and referred to a [brief on 'what is AKIS'](#) that can be distributed to anyone who needs general background information on the topic. She stressed the need to further connect and look for stronger synergies between CAP and Horizon, amongst others through the EIP network. She explained that in future, funding will not only go to innovative projects, but will aim at supporting the whole innovation ecosystem. The CAP AKIS strategic plans will have to explain how the main actors will work together better. The innovation ecosystem can be strengthened by improving farm advice. We move from 'farm advisory systems' to 'farm advisory services'. Farm advisers will have different roles, must be impartial (= new!) and be able to provide innovation support. The CAP AKIS plans will focus on 4 aspects: knowledge flow between research and practice, farm advisory services, interactive innovation projects (OG's, H2020, MAP,...), and, digitalisation in agriculture. There is also a need to look at the role of our networks to strengthen innovation and knowledge exchange on all 9 CAP objectives.

The report "Preparing for Future AKIS in Europe" was distributed to participants. It can also be downloaded from the [website](#). Inge Van Oost highlighted book chapters 1.2.6 to 1.2.9 on empowering AKISs in Europe, chapter 1.5 on designing CAP AKIS plans, chapter 4 on advisory services post 2020, chapter 5.1 on demonstration farms and chapter 7 for examples on digitisation.

Interactive sessions on AKIS and soil seminar

After the introduction, Ineke van Vliet (EIP-AGRI Service Point) presented the process for the interactive session on the AKIS and soil seminar. The main questions to be answered in the group discussions were:

- Based on past work and future challenges: what would be most useful to do now?
- What would be the objectives?
- Who should be involved?

A summary of the breakout group discussions on the seminar topics can be found in [Annex 1](#).

The main results were presented in the plenary, after which Inge Van Oost (DG AGRI) invited the Subgroup members to contact her if they have examples of well advanced AKIS plans, since it is important and helpful to share methodology and good practices about it.

In the plenary, the idea was raised to also look at knowledge and innovation systems of other sectors. People from sectors with well advanced AKIS could be invited to the AKIS seminar, to provide inspiration.

Next step and closing

Subgroup members were invited to evaluate the event through the EIP-AGRI Service Point app.

Antonella Zona (DG AGRI) thanked the participants for their valuable contributions. Based on the input and the results of the discussions in this Subgroup, calls for experts for 2020 Focus Groups will be drafted. Members of the Subgroup will be able to provide comments or input on the draft texts before they are published, through the forum on the collaborative area.

The Rural Networks Assembly will take place in Brussels on 16 December 2019. A state of play of the CAP Reform will be provided and there will be a discussion on current RNs' governance structures and the needs for the new CAP network.

The **next Subgroup meeting** will take place in Brussels (Belgium) on **10 March 2020** where preparations for the future will be discussed. It would be interesting to receive feedback from Subgroup members regarding topics that would be worth developing in the next programming period. It would also be good to get members' recommendations on experiences or speakers that could help in shaping the future work programme. One idea is to present the study of the EU Joint Research Centre "Farmer of the Future" during that meeting.

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

Annex 1: Interactive sessions on AWP 2020

- [Focus Group 39: How to combine wildlife with improving agricultural production](#)
- [Focus Group 40: Industrial crops](#)
- [Focus Group 41: Reducing the use of plastics in EU agriculture](#)
- [Focus Group 42: Innovative practices for sustainable beef production](#)
- [Focus Group 43: Climate-smart \(sub\)tropical food crops in the EU](#)
- [Workshop 25: Interactive innovation for the challenges of the forestry sector](#)
- [Workshop 26: New strategies towards carbon neutral agriculture](#)
- [Seminar 12: AKIS – Agricultural Knowledge and Innovation Systems](#)
- [Seminar 13: SOIL seminar](#)

Focus Group 39:

How to combine wildlife with improving agricultural production

Background information

Different kinds of wild animals may be found on and around farms: dangerous animals like bears and wolves, herbivores like deer and wild boar, and animals that provoke other damage like badgers (holes) and beavers (blocking water courses). In many cases, these animals are valued and protected, and they are important for ecosystems. However, the combination of wildlife with agriculture may lead to conflict – in both ways, i.e. wildlife may cause harm to farmers, but some farming practices might also cause harm to wildlife.

The topic will be approached from two angles:

- Innovative approaches to protect farms from damage caused by wildlife, and,
- How to prevent (new) production or harvesting methods to cause undesired damage to wild animals?

Summary of the group discussion

Main question to be addressed in the Focus Group

What are the challenges/best way(s) to realise co-existence of wild life and agricultural production?

A number of sub questions were identified, such as:

- How can farmers benefit from the wildlife/wild nature around the farm (value chain)?
- What technology is available to protect farms today and what can be improved?
- What can be the role of digitalisation (chips, sensors, drones, noise, virtual fences, DNA detection/identification, satellite, damage monitoring, etc.)?
- What are the positive connections between wildlife and agricultural production?
- How to determine reasonable populations of wildlife in specific regions, with reasonable costs?
- How can wildlife benefit from farming culture?
- What is needed for the coexistence to work in practice?
- What do we know about the spread of diseases from agriculture to wildlife and vice versa?

Specific tasks of the Focus Group

The specific tasks of this Focus Group should be the following:

- To define the scope of wildlife (it can be narrowed down to large mammals).
- To collect best practices and to provide recommendations for agricultural practices in different territories and ecosystems. What is the state of the art in positive agricultural actions for biodiversity?
- To look for opportunities for landscape cooperation for habitat enhancement. Farm level is often too small for effective measures.
- To look at differences and similarities between agriculture and forestry and find ways to cooperate. Many forestry companies have experience in managing wildlife, or in realising a value chain on the basis of wild life.
- To analyse the role of wildlife vs. the food pyramid, where species become a problem when an imbalance is developed. What is the place of wildlife in it and how to find a balance in coexistence with human life and agriculture? Therefore it would be good to include ecological knowledge in the group, to study the role of wildlife in agro-ecological systems, or to determine how to use predator species to mitigate damage from damaging species.
- To provide recommendations on CAP agro-environmental measures, payments for ecosystem services. E.g. compensation for allowing wildlife on the farm, or prepare certain biotopes.
- To provide recommendations on how to involve farmers in policies for wildlife management.
- To improve communication to raise consciousness of farmers and consumers.

Focus Group 40: Industrial crops

Background information

Industrial crops for non-food use or renewable resources may provide new options for arable farming in Europe. Industrial crops can diversify the income of farmers and the supply of raw material, while supporting the deployment of the bio economy by generating additional biomass for industrial use (bioenergy, biomaterials, and fine or bulk bio chemicals). However, there is a concern that these crops may replace food production. Therefore, the Focus Group will explore innovative ways to grow industrial crops while maintaining food production. These may include multi/intercropping systems, and growing crops on marginal lands or in forests. The different applications may include new EU fibre value chain opportunities, using fibres from renewable resources, and the role of biorefinery and crop residues. While reviewing these innovative approaches, the Focus Group should bear in mind climate change challenges and the (potential) contribution of forests.

Summary of the group discussion

Main question to be addressed in the Focus Group

How can industrial crops contribute to new, socially acceptable market opportunities, business models and sustainable farming systems which create value for (arable) farmers in the EU, while not replacing food production?

Specific tasks of the Focus Group

- Identify innovative ways for farmers to meet the demand for raw materials for fuel, fibre, packaging (e.g. wool), medicines and other industrial uses.
- Review and list the (results of) relevant practical experience and projects.
- Consider the type of support that farmers would need to develop these innovative ideas into workable and socially acceptable business models, integrated into sustainable farming systems. This may include ways to cooperate to reach the market, cooperation between farmers, cooperatives and industry; research into biodiversity and climate impact; valuation of ecosystem services, opportunities to test ideas in multi-actor projects, such as Operational Groups, and more.
- Consider options for sustainable use of marginal lands, such as harvesting wild plants, or growing crops which may help improve or restore these lands by purifying water and soil, or improving soil organic matter content, soil structure, bearing in mind the impact of these actions on climate change and biodiversity.
- Provide specific examples for inspiration, bearing in mind that the specific opportunities will need to be tailored to local conditions.
- Identify research needs from practice, and ideas for innovative projects, including Operational Groups.

Additional points and considerations from the group discussion

- The need to provide a working definition for both 'industrial crops' and 'marginal lands':
 - o 'industrial' - non-food use
 - o Include secondary products, such as energy from greenhouses, or crop 'waste'
 - o Consider sustainable use of wild plants growing in marginal lands

- Climate may further change, possibly increasing the areas considered as marginal lands
- Will shorelines, where algae and seaweed can be grown, also be included as `marginal lands`?
- Consider the environmental pressure of growing or harvesting crops in marginal lands; marginal lands may still be valuable, for instance for biodiversity
- The need to consider the climate and biodiversity impact of the different new opportunities and ideas proposed – include `safeguards` for the climate and biodiversity.
- Connection with the `Green agenda` of the council.
- Impact on rural economy as a whole – options for territorial cooperation.
- Cooperation between different levels: EU – national – regional – farm.
- How to make industrial crops more sustainable, for instance by looking at multifunctionality? Some crops may for instance help to improve or purify the soil, or benefit pollinating insects.
- The role of farm advisers.
- What information/support do farmers need in order to invest?
- Communication on the uses of industrial crops to the general public.
- The need for best practices for organic oilseed rape.
- Life-cycle analysis for food vs fuel crops, and the carbon impact of using crop residues vs leaving them on the land.

Focus Group 41: Reducing the use of plastics in EU agriculture

Background information

For years, the use of plastics in agriculture has helped farmers increase crop production, improve food quality and reduce the ecological footprint of their activity. However, because of the environmental damage caused by plastics, there is a growing recognition by farmers and others in the agricultural community of the need for reduction (reduce, reuse, recycle) or environmentally responsible disposal solutions for these materials. Alternatives are needed. Other types of materials and solutions must be identified, compared and evaluated from different perspectives.

A Focus Group could include the following issues: plastic awareness, alternatives for plastic, use of subproducts of agriculture as an alternative for packaging, smart packaging, consumer perspective and societal challenges (including plastic waste), ways to reduce plastic in agriculture and livestock production.

Summary of the group discussion

Main question to be addressed in the Focus Group

How to reduce (reuse, recycle, reduce) plastic use in agriculture and livestock production?

Group discussion:

- There was a discussion on whether the term “plastics” would not be too broad, but it was decided that it should be kept as such.
- There was consensus that it should not only be “reducing” but also “reusing” and “recycling” of plastic.
- One group argued that the FG should specifically focus on the use of bio-based alternatives (because this would link with the FG on industrial crops), and on the primary sector.
- One group proposed to focus on packaging, but there was no consensus on this proposal.

Specific tasks of the Focus Group

- The FG could start with a mapping of plastic use in agriculture and livestock production. Figures & facts are needed, e.g. on different kinds of plastics and their applications, average life-span,.... It could also give an overview of negative (and positive) impacts of plastic use. It was suggested that – based on the outcomes of the mapping exercise - the FG could be narrowed down, or a specific focus area could be selected.
- It was mentioned that plastics have also helped farmers and also have a positive impact (on production, health, environment: less insecticides, less water, ...). What would be the impact if we reduce plastic use? Could the FG also look at this?
- Assess who is involved in the “plastic” system, value chain analysis (from producer to consumer). Also look at who are the main actors, drivers, innovators?
- Identify current alternatives for plastic use. Identify the possibilities to avoid, to replace, to recycle (e.g. collection infrastructure, develop systems, ...), especially with focus on bio-based alternatives. The FG should propose innovative ideas that farmers can test and apply.

- Farmers are market driven. The markets now ask for less plastics. Farmers want to respond to that market demand, but they have to be offered viable alternatives. For that, the role of the industry is key. The FG could look at ways to collaborate with industry, or other key actors.
- Identify the best use of bio plastics in agriculture and livestock production (where and for what can it best be used).
- More research is needed on this topic, so the FG should also identify further research needs.
- Two tasks were identified, which - although important - fell outside of the scope of this FG. The ideas were:
 - Ways to educate children/consumers
 - Regulation analysis: can regulation help to speed up the use of alternatives?

Focus Group 42: Innovative practices for sustainable beef production

Background information

(Conventional) beef production is under pressure because of, amongst others, its environmental and health impact. The Focus Group will identify innovative approaches to develop more sustainable beef production in Europe, focusing on:

- Sustainability aspects (social impacts, environmental services, economic viability,...)
- Landscape and biodiversity (areas where grazing also benefits landscape and biodiversity, and where growing crops is not an option),
- The possibility to maintain permanent pastures through beef production,
- Beef production versus climate issues.

Summary of the group discussion

Main points of the discussion

Identify and disseminate good practices and research on sustainable beef production; develop a better understanding on this issue; support farmers who are already implementing good practices in beef production to continue, and share their approach.

Main question to be addressed in the Focus Group

Two main questions were proposed:

1. *“How can beef production be sustainable?” / “How to produce beef in a sustainable way?”*, with two notes:
 - o from the perspective of what is possible / feasible for farmers.
 - o concept of ‘sustainable’ referring to the three pillars (economic, environmental, and social). The FG members should make clear the concept they’ll be using.
2. *“How to optimize the minimization of carbon impact in beef production?”*

Specific tasks of the Focus Group

- Identify and compile related research projects and good practices (considering holistic perspective, circularity aspects and innovations).
- Compile and map practices where beef production has positive environmental impact, namely in respect to biodiversity, landscape management, soil fertility, circular sustainability, etc.
- Define ‘sustainable beef production’.
- Discuss how beef production can be compatible with challenges posed by climate change.
- Take stock of results from previous related FGs.
- Provide ideas and recommendations on how to communicate and create public / consumers and farmers awareness: what should be the message(s), how to communicate (tools, approaches, etc.) and who/what type of actors should be involved. This point includes promoting uptake by farmers and encouraging those who are already having sustainable practices, but it also includes the idea that consumers also need to contribute in respect to their choices (right amount of beef in diet and local production versus imported beef) and to the possible rise in beef price that sustainable practices may cause.

- Propose suggestions and directions on how to promote good sustainable practices in beef production, in particular addressing advisers and farmers.

Additional points and considerations from the group discussion

- There's a strong need to develop a better understanding on sustainable beef production by the public / consumers: they are confused because they are being permanently 'bombarded' by media with negative messages about beef production and its contribution to climate change. There was a strong focus on this point from several groups.
- The Focus Group needs to embrace a holistic view.
- Include circularity aspects (e.g. territorial dimension, with collaboration among beef farms and crop farms), dual production (beef and milk) and breeds & genetics.
- Suggestion to look for ideas and connections / synergies with the H2020 TN '[BovINE Beef Innovation Network Europe](#)' and from the Animal Task Force seminar "[Animal Production, the Key in a European Sustainable Circular Bioeconomy](#)" (note out of the Sol – in this event's webpage, among 7th ATF-EAAP special session documents, the presentation '[Farmers adopting mitigation best practices - Life Beef Carbon](#)')

Focus Group 43: Climate-smart (sub)tropical food crops in the EU

Background information

A number of OGs in the outermost regions are keen to exchange and develop knowledge on climate-smart ways to produce local food in order to promote food security in these regions. Cash or commercial (export) crops such as banana, sugarcane a.o. cover the major part of arable land. Generally these are produced as monocultures, which are sensitive to pests and diseases and threats posed by climate change. Traditional subsistence/small-scale farming is threatened due to product safety demands and production costs. However, as these systems are more diverse and adapted to local conditions, they are potentially more environment-friendly and resilient to climate change. They can also produce a range of different foods, from staple crops, to fruit and vegetables, as well as animal products. Currently, these regions are generally very dependent on imported food, which implies longer supply chains, with significantly increased air and sea traffic (thus increased impact on climate change).

On the other hand, the cultivation of (sub)tropical crops in continental EU regions is increasing. Spain (Andalusia), for example, is an important European exporter of (sub)tropical fruits (such as custard apple, avocado, mango). But also in other EU regions, specifically in the southern regions of the EU, the number of hectares devoted to (sub)tropical crops is increasing, due to a significant increase in the consumers' demand in Europe. In these regions, (sub)tropical agriculture represents a further step in the development of productive rural areas.

Climate change and the resulting changes in temperature and precipitation may bring further changes in land suitability and crop choices.

The Focus Group will look at:

- Climate-smart ways to produce local food in EU outermost regions (in order to secure sustainable food security under climate change, and to contribute to a more productive and sustainable agriculture and forestry)
- Cultivation of tropical crops in the continental EU
- Opportunities for mutually beneficial knowledge exchange

Summary of the group discussion

Main question to be addressed in the Focus Group

There were different viewpoints between the groups on the scope of the Focus Group. Two proposals were presented:

1. Focusing the work on the EU outermost regions. The focus would be on crop diversification in outermost regions, new products and new ways of producing more sustainably. Although sharing/exchanging experience with the continental EU is important, the participants agreed that it should not be the main driver of the Focus Group. The main/overarching question should be:

“How to improve crop diversification and integrated crop-livestock production systems to make them more resilient to climate-change and economically viable through innovative value chains?”

2. Another option proposed (only) by the last group was to focus on (sub)tropical crops cultivation in continental EU, with a specific focus on pests and diseases:

“Ways to avoid pests and diseases in (sub)tropical crops’ cultivation in the continental EU”

Specific tasks of the Focus Group

- To identify the major constraints and supporting systems to the agri-food development in the outermost regions.
- To identify the best environment-friendly and cost-effective production practices (including short supply chains and product quality differentiation and certification, ways of dealing with pests and diseases, as well as global sustainability and climate change mitigation), with a particular attention to (sub)tropical crops cultivated in the continental EU.
- To propose innovative sustainable farming systems and value chains relying on the efficient use of local resources.
- To identify ways to stimulate and strengthen knowledge exchange between farmers, foresters and researchers from these regions and colleagues from the continent.

Additional points and considerations from the group discussion

- Mapping of the (sub)tropical crops and how they are grown.
- Identifying relevant pest and diseases
- The problem of pest spreading in continental Europe but also in outermost regions and how to prevent it? Phytosanitary barriers are to be kept. The issue is impacting the production at the local level first and then in Europe.
- Pest and diseases: to take into consideration the policy of DG SANTE, and have in mind that proposals that could come from the FG might not be compatible with DG SANTE policy. But in this case, the focus would be on prevention of the spread of pests and diseases in EU.
- Check what the current OGs are doing, to clarify the priorities and the needs.
- Local and sustainable use of resources: how to use less water etc...
- Local knowledge could be applied to new crops in continental Europe. E.g. regarding the selection and cultivation of species that are more adapted to dry conditions.
- Focus on production and supply chains: how to grow those agricultural products, avoiding mono-cropping and avoiding production monopoly. How to avoid mono-cropping, but doing it in a sustainable way? How to make sure that the value stays at the farmer’s level?
- New subtropical crops are cultivated in continental Europe and it would be interesting to get the experience from those regions regarding this.
- Impact of introducing tropical crops in the continent: impact on plants / animals / water supply?
- Look for alternatives: farming systems and value chains taking into consideration knowledge and skills, but also the “food finger print”.
- To develop tropical European value chains: to share the value along the chain.

Workshop 25: Interactive innovation for the challenges of the forestry sector

Background information

Expectations of the EU's forests to meet increasing environmental, social and economic demands have never been higher. The European forestry sector has to address challenges such as climate change, protection of biodiversity, space for recreation and leisure, and energy and raw material needs.

The forestry sector has been duly represented in EIP-AGRI activities. There are a number of recent and on-going research projects and OGs connected to the topic. A specific workshop on interactive innovation for the challenges in the forestry sector is considered as relevant. It offers an opportunity to suggest innovative actions for the future Horizon Europe programme.

The focus of this workshop will be on: a) the role of the forestry sector in climate change adaptation and mitigation, b) forests and circular bio economy. The forest sector in Europe has experience in working within a cycle, as the primary materials at the base of the sector, if properly and efficiently managed, can regrow naturally. This makes the sector particularly adapted to incorporation into the circular economy.

The workshop will bring together OGs and other innovative projects working on these questions.

Summary of the group discussion

Results of Group 1

Scope, aim, objectives:

- It would have to **be clarified** what we mean by “**the forestry sector**”. Is it only the production forests, or also the natural forests?
- Most of the OGs are dealing with forestry aspects related to climate change. There are not too many OGs on forestry and the bio economy. That's why the **overall aim** could be to bring together OGs and other innovative projects on forestry related to climate change challenges, but also to introduce these OGs to other topics and innovative practices e.g. related to forests and the circular bio economy + what could be the role of EIP-AGRI in this?
- **Key issues** that could be addressed in the WS are:
 - Innovative forest management practices
 - New ways of valorisation
 - New solutions to combat and prevent forest fires
 - Role of foresters in the context of bio economy
 - What would be the most responsible ways in which to use trees and wood?
 - How to make natural forests more resilient
 - How to develop a forestry knowledge and innovation system (forestry-KIS)

Who should be involved? METSA group (on forests and circular economy), SODRA (industrial association of forest owners), fire-fighters, foresters and forest associations

Results of Group 2

Scope, aim, objectives:

- Identify the **values of forests** as seen from different angles, such as forest industry, biodiversity, tourism and local economy, health and well-being, ecosystem services, high-value materials from forests.
- The workshop may cover **different topics** in parallel or consecutively, such as:
 - How can forestry (further) contribute to the circular economy?
 - How to best integrate forestry and agriculture?
 - Good forest management practices, for instance to limit the risk of fire.
 - Forest industry innovation models to inspire agricultural innovation (not only looking at new products, but at the whole chain).
 - Measuring forest values (figures!) and potential trade-offs between values.
 - Linked to the above, short term vs long-term objectives in forest management.
 - Climate effects of different management choices, scenarios and innovative solutions.
 - Communication on forest values, including carbon sequestration.
- Share **good (new) practices** for forest management, monitoring and early warning systems to prevent forest fires, pests, environmental damage to rivers etc. – for instance using infrared images, drones,...
- Discuss and develop **long-term scenarios** for natural woodlands, managed forests and agroforestry in different parts of Europe (South, North, East/Central, Atlantic) bearing in mind the likely effects of climate change. Discuss what may happen, and how to find sustainable solutions to optimise management choices so forest values may be maintained.
- Connect Operational Groups and other innovative projects working on the issues mentioned above, or on related relevant questions.

Who should be involved? Operational Groups, forest managers (public and private), forest farmers/foresters, forest owners' associations and cooperatives, researchers, market representatives/industry (e.g. IKEA), FAO (forest sector outlook study), relevant H2020 projects, Managing Authorities, FG experts

Results of Group 3

Scope, aim, objectives: The group had a short discussion on the role of forests as a solution. It was argued that many citizens do not fully realize that once there is a forest, it needs management, and/or that all kinds of products can be harvested from forests, or even that forest may be established with a harvesting goal. Therefore the scope of the workshop should be on *the understanding of how sustainable forest management works*, and not just focus on the provision or exchange of technical solutions. The aim of the workshop would be to have a broad discussion amongst different stakeholders on the role of forests as a solution.

Who should be involved? Policymakers, researchers from other fields than forestry, companies, Greenpeace, WWF, bird life organizations, private and public foresters, owners and managers.

Results of Group 4

Topics to be addressed are:

- Challenges that the forest sector is facing.
- Global challenges to which forests can contribute positively - e.g. improve health and wellbeing of people, their role in marginal areas around urban areas, contribution of forest to climate change challenges (solutions that forest can support / bring).
- New functions for forest areas (C sequestration, temperature and air quality in urban areas, territorial development, stop land desertification, prevent landslides resulting from floods, etc.).
- What is 'sustainable' forest management? (3 pillars)
- New sources of income from forests and their ecosystem services.

As part of its **objectives**, the workshop could:

- Showcase what's happening on the ground, develop some scenarios related to climate change impact.
- Support skills transfer (e.g. tree management, etc.)
- What are the challenges for the forest sector on the longer run (2030-2050)? Build a roadmap with steps to take and roles for different actors.

Workshop 26: New strategies towards carbon neutral agriculture

Background information

The focus of this workshop will be on: new methods of production versus carbon neutrality; soil management and greenhouse gas emissions; management of chemical and organic fertilisers; crops and emissions. The workshop will bring together OGs and other innovative projects working on these questions.

Summary of the group discussion

Results of Group 1

Scope, aim, objectives:

The workshop could focus on the following **key issues**:

- New production methods and how to help them forward (so that they can gain territory) + showcasing.
- Monitoring tools to assess the impact of practices (connect to digitalisation, precision farming) + best practices.
- Should the WS only focus on crops? Or also animals? The group decided to keep it broad, but to exclude forests since there will be a specific WS on forestry.

Who should be involved? Technology providers (re. the topic of monitoring tools); Dr. ir. Sjaak Wolfert (WUR) (re. the topic of monitoring tools)

Results of Group 2

Scope, aim, objectives:

The group had serious doubts on the title. Carbon neutral agriculture will not be possible. It may only be possible if the boundaries of the system are reconsidered, and if for instance renewable energy on the farm is included in the calculations, or if a broader rural area is taken into account.

Some of the **alternative suggestions** – which also point to scope:

- How can agriculture be part of the solution to mitigate climate change?
- How to seriously decrease the negative climate impact of agriculture and foster agriculture as part of the solution?

Results of Group 3

Scope, aim, objectives:

- After a long discussion, the group decided that the scope of the workshop should be the **whole food value chain**. Therefore, **another title** of the workshop was proposed: *New strategies towards carbon neutral food chains*.
- The **overall aim** would be to share existing strategies towards carbon neutrality, to show good examples, experiences and good practices, also good policy practices, and to start working on the development of lessons learned and recommendations.
- The **specific objectives** are to work on the following topics: carbon sequestration, agro-ecology, breeding, packaging/logistics, processing.

Who should be involved? All actors from the food chain, cooperatives, policy makers, advisers and consumers.

Results of Group 4

Scope, aim, objectives: Three main objectives were identified:

1. **'How to know?'**, 'How do farmers know?': identify tools that help farmers to measure carbon emissions from their practice and tools that identify the benefits from their practices.
Example: "ClimaCheck" is an existing tool developed by a German Chamber of Agriculture
2. **'How to become** carbon neutral / decrease C impact?': how to do it, from a farmer's perspective. What practices are there? What is the existing knowledge?
Adopt an entrepreneurial perspective in the workshop: consider farms as businesses, keep / support farms competitiveness (balance in respect to inputs/outputs from farm - no decrease in farmers income).
How to upscale? How to promote the uptake of these practices by farmers?
Experiences from advisory services; OGs working on related topics;
Incentives (subsidies, etc.) – existing, future; role of future RDP policy in this, e.g. eco-schemes
3. **'How to enable'** - Enabling the transition: show to farmers the benefits of becoming carbon neutral, identify existing incentives; the role of advisory services in this, multipliers (on economic advice); identify and discuss processes that enable the transition: tools, activities, etc.; the role of AKIS.

Who should be involved? Farmers, farmers associations, advisers, researchers, OGs (showcase), H2020 & LIFE projects, projects from DG CLIMA, industry (providers of different technologies / tools), policy-makers, MAs, multipliers

Seminar 12: AKIS – Agricultural Knowledge and Innovation Systems

Background information

EU member states are now preparing their CAP AKIS Strategic Plans. All the member states have to deal with AKIS, and there are many questions (on how to design it, which content to choose after the SWOT analysis, etc.). The concept itself is quite new to many and most relevant groups do not know about their role and the strong impact of a well-functioning AKIS. For 2020 a specific event on this topic is thus considered relevant and important.

It is also a challenge to explore how support to AKIS may encourage peer-to-peer learning, advice and knowledge exchange, going beyond the circle of advisers and information providers. Some ideas that were mentioned included new approaches such as a 'farminar' - combining the seminar with a webinar for farmers, where farmer speakers could also show aspects of their farm via videos, and allowing interactive participation by farmers from their farm. An element of the seminar and 'farminar' could be new models or technologies for farm to farm communication and new methods for dissemination of project results, including videos for peer-to-peer learning, advice, smartphone, YouTube, writing articles, e-learning, social media, infographics. This would also be relevant for demonstration farms.

It is also important to focus communication efforts on Member States' progress in CAP strategic plans and AKIS, for instance by developing a (web-based) 'inspiration box' and articles and case studies.

The DG AGRI unit dealing with rural development could be involved, explaining the situation with current knowledge exchange and advisory measures 2014-2020.

Summary of the group discussion

Results of Group 1

Based on past work and future challenges: what would be the most useful to do now?

- Create awareness on AKIS, look at the roles of different actors in it - how to prepare and involve those:
 - Particular focus on farmers and advisers; consider their own perspective: how they see a well-functioning AKIS and how they see their role in it.
 - New skills / skills development for AKIS, e.g. farm workers and digitalisation.
 - The Joint Research Centre is conducting a study on 'Farmers of the Future', identifying different types of farmers, related skills, etc. on the longer perspective. The study is ongoing and would be ready by Summer 2020.
 - Advisers - new roles, new skills - quality of advisory services; skills development and coaching for advisers (as innovation brokers, facilitators, going outside specific agricultural / forestry sector, cross-border collaboration); need for continuous education and access to updated information / knowledge, back-office for advisers, language skills.

- Funding for advisory services (and their new roles), examples from MSs.
 - Take on board the experience from already existing innovation brokers.
 - Bring different actors from the same country together during the seminar and challenge them to draw their own AKIS.
 - Important to have NRNs participating.
 - EUFRAS has been promoting cross-border knowledge exchange. Their experience could be useful for the seminar.
- Support national / regional entities working on the AKIS strategic plan and in programming their upcoming RDP:
 - Take into consideration that it's not always the RDP MA who is responsible for the programming. It varies from country to country – e.g. different entities in NL, PT.
 - Take into consideration the graph from the PROAKIS study characterising MSs' AKIS and use it as a basis, inviting speakers from the different parts of the graph to describe their AKIS (to make it concrete).
 - Link CAP strategic plans to intervention measures – how to make AKIS happen!
 - Highlight examples of practices that speed up the uptake of research findings by practice, examples where research is fully integrated in advice (real integration).
 - Examples on how to define a good AKIS strategy.
 - Digitalisation and the need for skills development.
 - Regionalised MSs – designing their AKIS strategic plan.
 - Exchange of practices between MSs.
 - Identify tools, actions, initiatives for a well-functioning AKIS:
 - Tools such as demonstration farms – funding, incentives and support for them.
 - Regional platforms supporting a well-functioning AKIS.
 - Digital tools (e.g. webinars)
 - Videos (e.g. in YouTube)
 - Programmes similar to ERASMUS, supporting farmers' knowledge exchange
 - Take on board good practices from other sectors.
 - Build on results from "[EIP-AGRI Workshop: Enabling farmers for the digital age: the role of AKIS](#)".
 - How to ensure that good practices, approaches, processes and systems put in place so far are not lost and that people are not reinventing the wheel?

What would be the objectives?

1. Create awareness on AKIS and look at the roles of different actors in it. How to prepare and involve the different actors?
2. Support national / regional entities working on the AKIS strategic plan and in programming their upcoming RDP.
3. Identify tools, actions, initiatives for a well-functioning AKIS.

Who should be involved?

Different actors in AKIS with particular focus on farmers and advisers, MAs / entities working on AKIS strategic plans, NRNs, innovation brokers / ISS

Results of Group 2

Timing of the event: it was mentioned that this seminar is a priority to a lot of people, so the sooner, the better.

Main objectives of the seminar:

- To help Member States build effective and performant CAP AKIS Strategic Plans.
- To prepare advisers for their (new) roles.
- To showcase good practices.
- To raise awareness and understanding of each actor's role in AKIS.

Key issues that can be addressed in the seminar are:

- Common understanding of AKIS.
- How to build an “umbrella” AKIS based on the different AKIS parts (being regional parts, or per topic,...); how to unify the different parts, and also: how to unify the **management of the different AKIS** parts (governance, coordination,...).
- Aspects related to the **knowledge flow between research and practice**, e.g. role of researchers, but also: how should administrations deal with these knowledge flows? how to relate to administrations that deal with research?
- Aspects related to the role of **farm advisory services**:
 - How to cope with the new roles of advisers?
 - What does “impartial” advisory mean?
 - How to shift to the new roles: what is the role of legislation, role of training, what new ways of training will be needed, ...
 - A better understanding of what will be new
 - What do advisers give advice on? Not only technical aspects, often also health issues, mental health, ...: how to deal with this?
 - How will advisory services be financed ? (e.g. if more finance has to go to the training of advisers, where will this finance come from?)
 - What are the time-lines? What are implications for private versus public advisers?
 - How to monitor the quality of the advisers?
 - How do advisers (but also farmers or training institutions) have access to new knowledge
- Aspects related to training and education institutions or organisations, (including demonstration farms):
 - How to keep them up to date?
 - How to access new knowledge?

Who should be involved?

- Managing authorities
- Representatives of AKIS
- All AKIS actors: advisers, farmers, farmer organisations, researchers, ...
- Policy makers (also from CAP)

Seminar 13: SOIL seminar

Background information

Soil is the key resource for agriculture. Soils are object of increased (political) attention at European Union and global levels. The theme is highly relevant in the EU political agenda as it is directly linked to the Mission area: 'Soil health and food' of the Horizon Europe framework programme.

It will be a broad event:

- focused on soil management aspects,
- linked to the above mentioned mission in the area of Soil Health and Food, and,
- linked to previous EIP-AGRI soil or soil-related events

The seminar will bring together work done so far, and new aspects on sustainable soil management.

Summary of the group discussion

Results of Group 1

What would be the most useful to do now?

- Ask farmers what would be useful for them to help them to improve soil health
- Identify relevant goal conflicts and ways to deal with them and optimise farming systems:
 - For instance short term (food) production vs long term soil health (and sustainability of food production)
 - Use vs restriction of herbicides and the effect on soil management and soil carbon
- Identify good practices for soil and water management – providing multiple benefits in terms of soil health and climate change, and (soil)biodiversity, nutrient recycling, circularity
- Promote concrete actions and good (project) examples. For instance: how to accelerate smart farming and precision farming to improve soil protection and soil health
- Discuss with farmers which incentives would help them to develop and adapt such good practices to their own farming situation, and what would be needed to make new technologies accessible and feasible
- Promote and communicate about soil as a 'central actor' to society as a whole
- Find (new) viable ways to mitigate or avoid:
 - Soil erosion/climate change
 - Loss of soil organic matter
 - Overloading soils (and water) with nitrates
- Promote circularity – especially for climate change and nutrients

- Develop practical measuring methods for soil health and soil fertility (e.g. the `teabag` method¹ or burying knickers (underpants)²)
- Consider the benefits of organic farming
- Consider farming methodologies and their impact on soil health, soil biodiversity, carbon, climate, nutrients (e.g. ploughing vs low-till and no-till systems)

What would be the objectives?

- To identify farmers' needs to manage and improve the health of their soils, while (re)aligning with society's needs.
- To identify goal conflicts and ways to deal with these.
- To find incentives for farmers to manage their soils well, including ways to measure if they are on the right track.
- To discuss policy implications.
- To identify knowledge gaps.
- To showcase good (project) examples and discuss how to stimulate further action.
- To find/discuss ways to integrate more soil experts in agricultural advisory services.
- To give soil, and soil organisms a 'voice'.
- To provide EIP-AGRI contributions to the EU soil mission (this is actually the overall context of the seminar).

Who should be involved?

- Farmers
- Participants in Operational Groups and other innovative projects dealing with soil health and good soil management
- 'Witnesses' speaking for the soil and soil (micro-)organisms
- Researchers
- Advisers, especially soil experts
- Policy makers for a panel of decision makers to discuss the policy implications during the seminar
- NGOs
- Multipliers
- Certifiers
- Carbon farming initiative (DG CLIMA)

¹ The **tea bag method** is a simple technique to assess impacts of agri-environmental measures on soil functioning. Tea bags are buried in the ground, dug out again after a while and weighed. The weight loss indicates how much plant material, in this case tea, has been decomposed.

² Burying underwear is an irreverent way to measure microbial activity in soils. Sterile and lifeless soil will keep underwear intact, but organically thriving soil will eat away at the briefs, leaving nothing but the elastic waistband. Dig up the pants after just two months, and it is possible to judge how healthy the land is.

Results of Group 2

This topic has relation to different, not yet covered, debates like

- The difference between organic and traditional farming
- Using soil to take up unusual elements e.g. egg shells
- Water use and water management
- Lost soil management (de-pollution)

What would be the most useful to do now?

- An exercise on the Guidelines for sustainable management (FAO/EU Global soil partnership).
- Breakout session on the definition of soil health.
- Breakout session on raising awareness on the topic.
- Breakout session on (easy to do and not too expensive) measuring methods for farmers.
- Exchange of knowledge/good practices/results of innovative activities.
- Work on skills of farmers and advisers: field visits or 'farminar'.

What would be the objectives?

1. To promote sustainable management of soils/sustainable productivity as a long term activity; contribute to the research agenda of the Horizon programme; get acquainted to the use of the FAO definition of sustainable soil management.
2. To raise discussion on:
 - the general level of understanding soils,
 - the knowledge of soil health,
 - the awareness on how soils function (from farm to consumer level),
 - the awareness on the impact of current and future agricultural management on the soil (e.g. use of pesticides).
3. Improvement of the skills of farmers and advisers on soil management.
4. Better knowledge on how to measure (simple tools for farmers) the impact of soil management change.

Who should be involved?

- Farmers, foresters and their associations
- Operational Groups and other relevant projects
- Advisers
- Territorial planning professionals
- Actors from the city (city wastes)
- Researchers
- National soil partnerships and similar organizations
- Managing authorities/rural networks