Theme 1: Learning and knowledge systems, education, extension and advisory services

Lead convenor: Andrea Knierim – andrea.knierim@uni-hohenheim.de

Co-convenors: Alex Koutsouris, Pierre Labarthe, Thomas Aenis, Guy Faure

Rationale

The importance of knowledge as a resource to better face uncertain developments and as production factor for a more sustainable agriculture has been widely acknowledged. Thus, life-long learning is an essential prerequisite for successful problem solving and innovation processes in agriculture and rural areas. For the analyses and the strengthening of the related complex interaction and communication processes, a 'knowledge and innovation system' understanding has proven a powerful concept. In the EU and beyond, it is applied not only in science but since recent it has also become relevant for policy makers and other rural actors, e.g. in the EU rural development realm and for research and innovation policies. Thus, agricultural knowledge and innovation support services have gained a new relevance both in research and practice.

Objectives and orientations for abstracts

Within this framework, we want to address the various functions and roles of education, extension and advisory services to support voluntary change, problem-solving and innovation processes, and up- and outscaling activities for knowledge sharing and interactive transformation. Both theory-related topics as well as empirical research on learning, knowledge systems and innovation processes are welcome. Furthermore, specific attention will be given to challenges and opportunities resulting from recent EU rural development and research and innovation policies. As an **orientation for abstracts** we propose a number of key questions below. However, other related topics are welcome.

- What makes these knowledge services relevant and effective for diverse farmers and farming systems?
- Which environmental conditions and contexts are conducive to their success?
- How can we improve the coordination and alignment of these services?
- What are the charactistics, strengths and weaknesses of multi-actor approaches?
- What are the implications for innovation systems' governance in terms of public policies?
- What is and what can be the role(s) of new technologies (ICT) to strengthen these services in their support of problem solving and innovation processes in various fields of farming and food systems?

Theme 2: Agroecology and new farming arrangements

Lead convenor: Pierre Labarthe – pierre.labarthe@agroparistech.fr

Co-convenors: Stéphane Bellon, Teresa Pinto-Correia

Rationale

Agricultures face dramatic structural changes: sharp decrease in the number of farms, increase in the proportion of waged and migrant workers, new profiles of farmers, new forms of capital in farms (e.g. crowdfunding between farmers and consumers in niches, community farming, transnational investments in land). This growing segregation between production factors (land, labour and capital) in agriculture raises many questions for the evolution of farming systems and a transition to take place, whereas agroecology is increasingly considered as an alternative framework to redesign sustainable farming and food systems. Are these new structures and economic models in line or in contradiction with agroecology? What are their consequences on the collective maintenance of landscapes? How does agroecology support this transition? What does bringing ecological functions into the active management of agroecosystems entail for the assessment of the ecological and economic consequences of this management?

Objectives and orientations for abstracts

The aim of this theme is to gather contributions from various disciplinary or interdisciplinary standpoints to address and discuss jointly the social, economic and ecological functioning and impacts of new farming arrangements. These features need to be analysed at multiple scales (i.e., field, farm, regional, national, European, not least in relation to public policies such as agri-environment schemes).

We suggest following main orientations for abstracts:

- How do new farming arrangements emerge? What actors and which interplay (social organizations and networks)? What building dynamics (including exclusion effects)? How do the arrangements stabilize? How are they organised (from cropping to farming and territorial food systems)? How do they position themselves (ethics, paradigms, economic, practical) in relation to the locally dominant model?
- What are properties and performances of existing or upcoming socio-technical systems (agroforestry, integrated, urban, community supported…)?
- Who are the actors? What are the governance processes? What institutional arrangements facilitate transitions, the involvement of key actors in the process, the interactions among different actors? How are the arrangements valued?
- What setups, tools and methods are there to facilitate the emergence and implementation of such arrangements?
- How do the new farming arrangements co-exist and interact with other farming systems (upcoming and prevailing ones) and with various activities in the territory?
- How can new farming arrangements induce a transition in farming systems (from practice design to political or social support)? Specifically, how do they contribute to agroecological transitions at territorial scale?

Theme 3: Integrating science, technology, policy and practice

Lead convenors: Julie Ingram – jingram@glos.ac.uk

Co-convenors: Andrea Knierim, David Gibbon, Eelke Wielinga, Michael Kuegler, Thomas Aenis

Rationale

Although innovation is understood to involve many actors and processes, innovative scientific and technological research will continue to play a significant role in meeting future (food and environmental) challenges. This is evident from the technological orientation of agricultural policies (e.g. smart farming, sustainable intensification and ecological modernization). Agricultural sciences nevertheless have to operate at the interface between technological, economic, natural and social systems; and between different knowledge systems and policy arenas. They also have to provide credible science in a context of competing narratives, and interpretations, of how to achieve sustainable agriculture.

Objectives and orientations for abstracts

This theme aims to explore how farming systems approaches can provide new insights into science, technology and practice interaction. Specifically the aim is to address following questions:

- How can we jointly develop integrated innovations / solutions (practitioner and scientific) for complex problems? How can we implement these?
- What issues of scientific authority, credibility, legitimacy emerge and can they be addressed?
- How can we foster a dialogue between scientists, practitioners and decision/policy makers? How can this dialogue identify effective approaches and good-practice examples for transdisciplinary farming system research?
- How can we assess the performance and the impacts of collaborative research on societal changes?

Theme 4: Smart technologies in farming and food systems

Lead convenor: Laurens Klerkx – Laurens.Klerkx@wur.nl

Co-convenors: Andrew Wilcox, Pierre Labarthe, Julie Ingram

Rationale

Smart Farming indicates application of different forms of digitalisation in the agriculture sector, such as sensor driven agriculture (e.g. Precision Farming), the use of Big Data for analytical purposes to inform decision making, application of the Internet of Things (e.g. in quality control, producer-consumer relationships), and (autonomous) devices such as robots and drones. Digitalisation is not only a technological matter. It is also associated with new actors from outside agriculture (SMEs, upstream and downstream, service firms, etc.) and with new relations between actors. Whilst the potential benefits of these technologies are very easy to understand at a local scale, their potential impacts on farming systems have not been fully evaluated. Digitalisation is likely to affect and possibly disrupt the agricultural sector beyond the farm gate, influencing supply chain processes, logistics or consumer related information, knowledge and innovation systems, and can have pervasive social, economic, ecological and ethical consequences.

Objectives and orientations for abstracts

This theme provides an opportunity to engage in a constructive dialogue between farmers, educators, scientists and industry about the systemic impacts of Smart Farming within social, political and environmental contexts, from different (inter-)disciplinary angles. It will also explore the questions that Smart Farming raises for agricultural policy and research and innovation policy and agricultural practice and will address questions such as the one listed below.

Defining Smart Farming:

- How to classify Smart Farming technologies in an effective way?

Smart Farming and farm diversity:

- Who are the beneficiaries and losers following the adoption of Smart Farming technologies in agriculture? How can this be qualitatively understood and quantified this in a meaningful way?
- What are the effects of farming scale on the uptake and application Smart Farming? What are the relationships with Smart Food Chains?
- Are there any common themes regarding barriers and facilitators of Smart Farming technologies between different types of farmers?

Smart Farming and sustainable development:

- Will Smart Farming make agriculture more or less sustainable or will it improve food security?
- How does Smart Farming interact with different models of agriculture (i.e. sustainable intensification, agro-ecology, vertical farming, etc.)?
- To what extent can we effectively model the impacts of Smart Farming? Are the same models applicable for a range of Smart Farming technologies?

- What significant changes will Smart Farming facilitate (positively and negatively) within rural societies and their structures and affect factors such as employment opportunities, income, social cohesion etc.?

•

Smart farming and knowledge and innovation systems:

- What are the implications for land managers' learning and experiential knowledge production following wide scale adoption of Smart Farming?
- How does Smart Farming affect organisations that support learning and innovation in agriculture such as research and advisory systems?
- How is Smart Farming integrated in new policy or governance models supporting innovation in agriculture?

Smart farming and ethics

- What are ethical implications of Smart Farming in terms of for example organisation of farm work, animal rights and welfare, power structures in value chains? How do human and animal systems respond to artefacts such a sensors and drones and how do they co-evolve?
- How are issues such as data ownership, data sharing and data protection organised? What novel organisational forms emerge around Big Data and the Internet of Things? How localised or global are such data networks and how do they influence decision making in value chains?

Theme 5: Sustainable agrifood systems, value chains and power structures

Lead convenor: Eelke Wielinga – eelke.wielinga@gmail.com

Co-convenors: Ann Waters-Bayer, Ika Darnhofer, Giuseppe Feola

Rationale

Farmers and pastoralists value their autonomy regarding what to produce and how to produce it. Yet they increasingly feel constrained in their choices. The power structure along the value chains as well as various national and global trends narrow their 'room for manoeuvre'. Powerful players affect farmers directly, but also indirectly by influencing the public discourse and thus the availability of resources and information. When striving for sustainable agrifood systems, innovative farmers and pastoralists often find allies in citizen-consumers who oppose the hegemonic globalized industrial food system.

Objectives and orientations for abstracts

We seek contributions that assess various power structures and their diverse impacts on the sustainability of agrifood systems (at farm, community and landscape level). We also seek contributions assessing various forms of resistance and various alternative initiatives. We are interested in the role that networks and local multi-stakeholder platforms play in enabling diversity and place-based sustainable agrifood systems.

We thus seek abstracts addressing – but not limited to – following questions:

- What strategies contribute to successful initiatives through which farmers and pastoralists seek to bypass established power structures, often in collaboration with citizen-consumers (e.g. community-supported agriculture, food co-ops, regional quality food associations)?
- What links are there between various power structures and the rise in farm abandonment?
- What insights can we derive from analysing the contrasting discourses held by various groups: what issues do they address and how do they frame them?
- How has the fall of the milk quota system affected power distribution among actors of the dairy chain?
- How do initiatives that focus on power and justice link to sustainable food production practices?
- While there are numerous fairly robust tools to assess environmental sustainability and economic viability, few tools satisfactorily assess social equity issues (e.g. risk vs. profit distribution along the food chain, shared organisation and democratic governance of food networks). Why is this the case and how can it be addressed?
- How has the theme of food sovereignty and food justice – and more generally social justice in the food chain – been developing? (e.g. is there an emerging 'domestic fair trade' discourse?)
- What approaches and policies are supportive for high-nature-value farming, thus strengthening the position of farmers in those areas?
- Agricultural research is part of the agrifood system. What power issues are at play in promoting certain topics and approaches above others? What changes can be observed in the influence of family farms on the research agenda?