Side Event AgriGHG 2024 - summary & outcomes

Shaping the Policy & Research agenda

Circular Food Systems Network

Objective

The transition to circular food systems is essential for enhancing natural resource use efficiency, reducing food losses and waste, and promoting environmental, ecological, and social sustainability. Despite growing recognition of their benefits, the implementation of circular food systems remains limited due to fragmented research, policy gaps, and a lack of coordination among key stakeholders. Policymakers, researchers, and industry leaders often operate in silos, making it challenging to develop comprehensive strategies that balance economic viability, food security, and sustainability. There is an urgent need for a collaborative approach to identify and prioritize research and policy actions that can drive meaningful change. Addressing these challenges requires a well-defined agenda that aligns scientific research with practical policymaking to accelerate the adoption of circular food systems on a global scale.

The objective of the workshop that the Circular Food Systems Network hosted during the AgriGHG conference in 2024, was to bring together a diverse group of stakeholders to collaboratively identify and prioritize the research and policy needs essential for advancing the implementation of circular food systems. These first steps in shaping the research and policy agenda supports the transition towards circular food systems, promoting resource efficiency, reducing waste, enhancing food security and environmental, ecological and social sustainability on a global scale.

The workshop consisted of two main parts: a presentation by guest speaker Lara Sibbing (Lara Vita Advisory) and an interactive session where small groups discussed present and future agrifood systems through 3D modelling.

Key outcomes

Current system

- Natural ecosystems are marginalized and too separated from agriculture
- Limited integration between crop and livestock farming
- Only a small part of money in the agrifood system goes to farmers
- A lot of food waste, all types of food are available whole year round
- Pioneers for sustainable farming systems are not supported
- Consumers are not aware of where their food comes from
- Large import streams of minerals, fertilizers and livestock feed
- Processing industry, supermarkets and other agrifood multinationals have too much (monetary) power
- Government is too disconnected from the agrifood system and needs of farmers

Future system

- More space for natural ecosystems and where possible, more integration with agricultural areas
- More integration of crop, trees and livestock systems (agroforestry and silvopastoralism)
- Re-utilization of food waste streams
- Less dependency on import of nutrients
- Money flows fairly distributed
- More (financial) support for pioneers
- More connection between governments and farmers (could be via farmer organizations)
- More renewable energy

The workshop

Lara's presentation titled 'From being right to doing it right' explained the current state of research, knowledge and policy on circular food systems. Lara emphasized that, even if not always evident, most researchers (and other food system stakeholders) share the same viewpoints on what the main challenges are in agrifood systems and what needs to be done in order to transform these systems and find solutions for the current pressing issues. Therefore, a lot of knowledge, ideas and solutions are already present and, in that sense, we know what the right things to do are. So, the biggest question mark is not what we should be doing, but how to actually do it (from being right to doing it right). And here, policy and studies on how to foster transformation play a key role in implementation of sustainable, circular agrifood systems.

The interactive session consisted of a 3D modelling exercise in small groups, which actually meant playing and building with toys! With building blocks, clay, miniature animals and others, participants built the current food systems, described key elements, linkages, money flows and stakeholders. The group reflected on the current system, pointing out exciting and frustrating elements, hard truths and bottlenecks for change. Then, the building blocks and other elements were moved around to create a future agrifood system which reflected their preferences and ideas for positive change.

During the plenary closing session, both groups explained the highlights of their 3D modelling session, key elements of change and common ideas on how we would move towards a sustainable, future proof circular agrifood system.

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Reflection

The 3D modelling exercise was an opportunity to reflect on our current and future food system. The conversation that followed centered on the transition between the two, examining what this shift entails. Building on Lara's presentation and the workshop's objectives, the discussion focused on what should be priority for a policy- and research agenda. The purpose of the 3D modelling was to explore which transitions are needed in the system, based on the specific objects that were moved. The workshop revealed these transitions very clearly without rationalizing about what steps should be taking and whether that would make sense, or in which specific order.

One clear transition was the integration of nature with agricultural systems and cities. In the first system, natural ecosystems were separated from cities and agricultural systems. They were at the edge of the table, just about to fall off. With the transition to a future food system, it became imperative to **incorporate more nature in both cities and in agriculture. Agroforestry** was mentioned as a good strategy, it is a form of incorporating more trees and shrubs within and around farmland.

Moreover, in order to close nutrient cycles, **crop and livestock systems need to become more integrated**. When increasing circularity within a farming system, focus can be on recycling waste streams for (organic) fertilizer or livestock feed. This can replace external inputs and decrease imports of synthetic fertilizer and/or livestock feed. Not only does recycling waste benefit local nutrient cycling and close nutrient loops, it also substantially decreases nutrient losses and pollution and also increases self-sufficiency of resources.

In the 3D model of the current food system, major food losses were present. Research on **re-utilization of waste streams and their associated trade-offs** was indicated as essential for closing nutrient cycles. The re-utilization of waste streams from the food system can include post-harvest losses and by-products during food processing, as well as household waste streams. In many countries, food losses and waste are already (partly) re-used in the food system and form valuable resources for fertilization or livestock feed. It is crucial to ensure food safety in the re-utilization of food losses and waste. The successful adoption of waste re-utilization practices depends on the adoption of good management practices, technology, and knowledge. For countries to integrate these practices, research is needed to assess country-specific needs, available waste streams and potential opportunities.

Additionally, it is essential to assess sustainability trade-offs (e.g. fertilizer and feed value and quality, emissions during processing) and economic viability of specific technologies. Lastly, ensuring food safety and public health is critical when using household waste streams for livestock feed.

When focusing on decreasing greenhouse gas emissions from the food system, decreasing fossil fuel use throughout the entire food production chain plays a major role. Policies to encourage **the production of renewable energy and decrease fossil fuel use** are therefore important. This can be done through, for example, incentivizing the use and production of green ammonia or the production of green gas or electricity through bio digestion of manure and/or crop by-products.

A system change is needed for all actors and pioneers involved in the food system, as the built 3D systems revealed that the existing actors wanted to maintain the status quo, according to the group. The profits generated throughout the entire food system are often not well distributed, with farmers mostly getting only a small part of the profits from agricultural products, while agrifood multinationals and supermarkets profit from large margins and revenues. As a consequence, farmers do not have much leverage to invest or experiment with innovative measures which would increase sustainability of farm practices. More specifically, pioneering farmers are not supported in the current food system, even though they aim to transform to more sustainable farming practices. If production costs rise without adequate support for farmers, it directly threatens their income and reduces incentives to invest in more sustainable practices. Therefore, in a new system, money flows were directed more towards farmers and there was **more (financial) support for pioneers.** Pioneers had experimental space to test whether their practices indeed contributed to more circularity and sustainability.

Agricultural subsidies form an important financial stream for farmers to ensure economic sustainability of their business. Through these subsidies, governments can steer development of food systems (e.g., in the European Union, the CAP is used to incentivize farmers to adopt sustainable management practices). Although there seemed to be a close connection between governments and industry in the 3D model of the current system, in the 3D model of the new system, the government was less connected to the industry and positioned closer to farmers.

These connections revealed that it is vital to ensure **fair and true pricing of products**, and that **profits are fairly distributed** across stakeholders and actors in the agrifood system, as discussed by the participants. Governments can interfere with market forces on agricultural products to ensure livelihoods of farmers while developing more sustainable agrifood systems.

Transitioning to more circular farming systems will require financial investments, financial support for farmers during transition periods, and fair pricing mechanism to ensure that products from circular farming systems remain competitive in the market. It is therefore important to **analyse the costs of this transition**, for farmers, governments (e.g., through subsidies) and other stakeholders/investors in order to determine the economic impact of a transition to circular farming systems (from farm to regional and/or national scale) before implementation. While environmental and sustainable benefits of circular agrifood systems are evident, it is important to assess the economic sustainability of such systems as well as ensuring the livelihoods of farmers. Research on the economic viability of circular farming systems is therefore important and should be focused on assessing specific circular farming systems, economic benefits, investment costs, etc.

Finally, the transition from the old to the new system also brought a notable shift in the role of science and research. In the old system, science was placed at the boundary of the system as a wise owl that analyzes the system from a distance. However, in the new system, science moved into a more central position, allowing for **better participation and stronger connections to real-world practices.** The importance of interdisciplinary research was emphasized again. Specifically, it was stated that social sciences — such as political science, communication science, transition research, psychology and behavioral science — must play a greater role in studying the transition to (more) circular food systems.

Want to know more?

Contact us

Circular Food Systems Network

The Circular Food Systems network is a network under the Global Research Alliance on agricultural greenhouse gases. The objective is to develop an active international network of researchers in the field of circular food systems, where knowledge can be shared and collaboration between research groups can increase the development and implementation of circularity withing the agri-food system.

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