



# FOOD 2030

## Green & Resilient Food Systems

4-5 December 2023

### Conference Outcome Report



## **Food 2030: Green and Resilient Food Systems. 4-5 December 2023 - Conference Outcome Report**

European Commission  
Directorate-General for Research and Innovation  
Directorate B — Healthy Planet  
Unit B.2 — Bioeconomy and Food Systems  
Contact Rosalinda Scalia  
Email [RTD-FOOD2030@ec.europa.eu](mailto:RTD-FOOD2030@ec.europa.eu)  
[Rosalinda.SCALIA@ec.europa.eu](mailto:Rosalinda.SCALIA@ec.europa.eu)  
[RTD-PUBLICATIONS@ec.europa.eu](mailto:RTD-PUBLICATIONS@ec.europa.eu)

European Commission  
B-1049 Brussels

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EUROPEAN COMMISSION

# **Food 2030: Green and Resilient Food Systems**

***4-5 December 2023***

Conference Outcome Report

Edited by

**Giulia BIZZO**

**Fara LLEDÓ SAN MAURO**

**Daniela LUETH**

**Hans-Joerg LUTZEYER**

**Giuseppina LUVARÀ**

**Giulia MELONI**

**Jorge MOLINA VILLANUEVA**

**Giuseppe PELLEGRINO**

**Rosalinda SCALIA**

**Cindy SCHOUMACHER**

# Table of contents

<b>INTRODUCTION</b>	<b>3</b>
<b>PART 1 – POLICY CONSIDERATIONS</b>	<b>5</b>
<b>PART 2 – KEYNOTE SPEAKERS</b>	<b>10</b>
True cost of food – A nationwide experiment, Amelie Michalke	10
Welcome to the ANDthropocene: navigating our shared food future, Fabrice DeClerck	11
Towards sustainable food consumption, Eric Lambin	12
Climate Smart Chefs, Chiara Pavan	13
<b>PART 3 – THEMATIC ASPECTS</b>	<b>14</b>
1. Food 2030 – a 7-year long success story	14
1.1. Food 2030: telling the story (panel 1)	14
1.2. Food 2030 - Output, impact, way forward (panel 2)	16
1.3. Food 2030's objectives: from vision to reality (panel 3)	17
1.4. Food 2030's objectives: from vision to reality (panel 4)	18
2. How youth can transform food systems	20
3. Where science meets arts	21
4. Thinking out of the box	22
5. It's 2050 - what might the future hold?	24
6. How can the entertainment industry transform food systems for sustainability? Screening of the documentary <i>Eating our way to extinction</i> and interview with film producers and scientists	25
7. Food systems and soil health	27
8. Promising technologies	28
9. International partnerships	30
10. Strengthening food systems resilience	31
11. Getting real – smart deployment on the ground	32
12. Global food systems governance and science policy interfaces	33
<b>CONCLUSION</b>	<b>36</b>
<b>ANNEX I – 'FOOD VILLAGE' EXHIBITION</b>	<b>37</b>

# INTRODUCTION

Food 2030 is a vision and policy framework based on the premise that through a well-governed and more systemic research and innovation (R&I) policy we can develop more impactful solutions to the urgent, complex and interconnected challenges inherent to food systems.

Food systems need to be transformed to respect planetary boundaries, to provide healthy, safe and nutritious food and diets for all and to sustain a diverse, fair, inclusive and thriving food economy.

Food 2030 applies a systemic approach to connect, scale up and boost EU R&I and investments to provide solutions that can deliver co-benefits related to four overarching priorities:

- nutrition for sustainable, affordable and healthy diets;
- climate-smart and environmentally sustainable food systems;
- circular and resource-efficient food systems;
- food systems innovation and empowerment of communities.

Food 2030 began during the 2015 Milan World Expo, which acted as a pivotal moment for raising awareness of food systems challenges. At the EU closing conference on 15 October 2015, with the support of three Commissioners, the European Commission underlined the need to develop a European R&I area for food systems. This ultimately led to the creation of Food 2030, the organisation of its first conference and the publication of the staff working document entitled 'European research and innovation for food and nutrition security'<sup>1</sup> in 2016. Since then, the European Commission's Directorate-General for Research and Innovation (DG RTD) has been advocating and convening events around the urgency of reshaping the European R&I policy landscape for food systems, which had been fragmented, sectoral and focused largely on technology and primary production. Food 2030 has been promoting a holistic approach which has been proven to be fruitful.

The Food 2030 conference entitled 'Green and resilient food systems' was held in Brussels on 4-5 December 2023 and provided an opportunity to look at what has been achieved and how R&I will address the challenges of the future by ensuring that food systems are more resilient, sustainable, inclusive and healthy for all. The objectives of the conference were i) to mobilise Member States and other public authorities, the private sector, industries, start-ups, researchers and academia, youth and civil society organisations and international actors, ii) to raise awareness with all those actors of the key role of R&I in delivering evidence based and innovative solutions that will help in transforming our food systems and iii) to collect inputs on the way forward within Horizon Europe and beyond.

This outcome document summarises the main points raised during the conference, where the new 'Food 2030 Pathways for Action 2.0' report was launched<sup>2</sup>.

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<sup>1</sup> European Commission, Directorate-General for Research and Innovation, *European research & innovation for food & nutrition security*, Publications Office, 2016, <https://data.europa.eu/doi/10.2777/069319>

<sup>2</sup> European Commission, Directorate-General for Research and Innovation, Bizzo, G., Fabbri, K., Gajdzinska, M. et al., *Food 2030 – Pathways for action 2.0 – R&I policy as a driver for sustainable, healthy, climate resilient and inclusive food systems*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/365011>

## **Acknowledgements**

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## PART 1 – POLICY CONSIDERATIONS

**Marc Lemaître**, Director-General in the Directorate-General for Research and Innovation (DG RTD), explained that the food system is facing a wide range of simultaneous and interconnected challenges (e.g., climate change, pollution, resource scarcity, urbanisation, a growing and ageing population, malnutrition, biodiversity loss, soil degradation, food loss and waste, rising food poverty). The need to live within planetary boundaries is key to meeting the EU values of democracy, solidarity, affordability and equity. There is no growth nor increase in welfare, if the fundamental principles of democracy and the safeguarding of our environment are not respected. This is essential to ensure that everybody has access to healthy, culturally adapted and safe food within the environmental limits of our planet, in the long run. Progress towards sustainable and resilient food systems will support the transformation towards more circular and climate-neutral economy. R&I policy will be a key enabler to support the transition towards sustainable, healthy, climate-resilient, and inclusive food systems in Europe and beyond.

Food 2030 sets out 11 Pathways for Action to catalyse R&I in key areas including:

- governance innovation;
- urban food systems;
- sustainable aquaculture and food from the oceans;
- foods based on alternative sources of protein;
- intelligent food packaging, food waste reduction and valorisation within a circular bioeconomy;
- microbiome-based solutions;
- nutrition and dietary shift;
- food safety and food fraud;
- food systems in Africa;
- digital transformation;
- zero pollution food systems.

Innovation in these areas with high global market potential will contribute to European competitiveness and provide opportunities for European SMEs, new business models, technologies, approaches, services and products, across all the food systems-related sectors in the EU – from farm to fork.

Food 2030 and its pathways are being deployed via Horizon Europe, which provides funding to support a diversity of projects and initiatives, in Europe and beyond. Up to now there are over 100 Food 2030 projects for an overall EU financial contribution of EUR 728 million, taking place across Europe and Africa.

Food 2030 also acts as a convening platform and process within which R&I can flourish, a wide diversity of food systems stakeholders can engage, multiple global challenges can be addressed, new knowledge and evidence can be developed and shared, and innovative solutions can be developed, tested and demonstrated. It therefore contributes to maintaining the high EU food safety standards recognised globally, and achieve the objectives of the [Farm to Fork Strategy](#) and the [Green Deal](#).

Marc Lemaître mentioned the launch of the Horizon Europe Partnership on Sustainable Food Systems for People, Planet and Climate in 2024, which will deploy the Food 2030 approach. This partnership should mobilise an EU contribution of EUR 175 million with a total indicative budget of EUR 525 million over the next 7–10 years. It will focus on innovative solutions to implement a systems approach that reinforces the four Food 2030 priorities: nutrition, climate, circularity and communities.

Finally, Marc Lemaître announced the publication of the new Food 2030 Pathways 2.0 report setting out the direction of travel for the remainder of Horizon Europe<sup>3</sup>.

**Claire Bury**, Deputy Director-General, Directorate-General for Health and Food Safety (DG SANTE), reminded the audience how, since 2020, the European Commission has been guided by the goals of the Green Deal and, in the area of food specifically, by its Farm to Fork and Biodiversity Strategies. Transforming our food system for sustainability and resilience is pertinent and urgent to achieve the European Green Deal goals. The food system is highly complex, characterised by uncertainty, multiple drivers, impacts and interconnected sectors, requiring trade-offs. Acting simultaneously on many fronts is the only key to success. This is why a systems approach, as promoted in the Farm to Fork Strategy, is key to understand the challenges and to target transformational change through a coherent set of policies, initiatives and investments.

The EU Code of Conduct on responsible food business and marketing practices was also designed in a collaborative way, involving all stakeholders from the public, private, academic and international world. It is a bottom-up approach where the sense of belonging to a 'community' gives the psychological boost to do better. It covers all the areas important for a sustainable and healthy food system.

Following the Covid-19 pandemic and Russia's war of aggression against Ukraine, food price inflation and the economic downturn made it hard to pursue the direction of travel of the Farm to Fork Strategy. Yet, important progress has been made.

The early delivery of the 'contingency plan for ensuring food supply and food security'<sup>4</sup>, and a special mechanism to monitor this, responded to the strong focus on securing food supply.

To facilitate sustainable food production, a number of initiatives were adopted such as the legislative proposals for new genomic techniques<sup>5</sup> and for plant and forest reproductive materials<sup>6</sup>, or a legislative proposal for EU-level targets for food waste reduction<sup>7</sup>.

The collaboration of the co-legislators is essential to ensure that laws lead to actions on the ground and tangible results.

We urgently need the transition towards sustainable, healthy and inclusive food systems that are regenerative, innovative and respect the planet's limits for our and future generations'

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<sup>3</sup> European Commission, Directorate-General for Research and Innovation, Bizzo, G., Fabbri, K., Gajdzinska, M. et al., *Food 2030 – Pathways for action 2.0 – R&I policy as a driver for sustainable, healthy, climate resilient and inclusive food systems*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/365011>

<sup>4</sup> Communication from the Commission to the European Parliament, the Council, the European Economic And Social Committee and the Committee of the Regions, *Contingency plan for ensuring food supply and food security in times of crisis*, [COM/2021/689 final](#)

<sup>5</sup> Proposal for a Regulation of the European Parliament and of the Council on plants obtained by certain new genomic techniques and their food and feed, and amending Regulation (EU) 2017/625, [COM/2023/411 final](#)

<sup>6</sup> Proposal for a Regulation of the European Parliament and of the Council on the production and marketing of plant reproductive material in the Union, amending Regulations (EU) 2016/2031, 2017/625 and 2018/848, and repealing Council Directives 66/401/EEC, 66/402/EEC, 68/193/EEC, 2002/53/EC, 2002/54/EC, 2002/55/EC, 2002/56/EC, 2002/57/EC, 2008/72/EC and 2008/90/EC, [COM/2023/414 final](#)

<sup>7</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste, [COM/2023/420 final](#)

wellbeing. An extensive consultation with all stakeholders is needed for this. European Commissioner for Health and Food Safety, Stella Kyriakides, underlined and confirmed the need for a holistic approach.

The power of media should not be underestimated, since it can be an enormous catalyst in raising awareness and debunking myths. Including them in the conference programme is an innovative approach in itself.

It is also important to take into account youth's point of view on food system transformation. Indeed, youth will be facing the consequences of the actions – or non-action – taken today. Making them part of the discourse is essential and they may teach us innovative approaches to deal with the challenges we are facing.

It is paramount that science and R&I remain the steady foundation for the need to act and to help us find the necessary solutions. The science-policy nexus is more important than ever to develop innovative and speedy solutions. The Food 2030 pathways for actions demonstrate the holistic, systemic approach that steers R&I policy to transform food systems.

Food 2030 calls for out-of-the-box thinking, with new governance models, capacity building, education and awareness-raising at local, regional, European and international level. Awareness-raising and education have been highlighted by the European Commission's scientific advisers in their opinion on sustainable food consumption<sup>8</sup> as a key point for adapting food systems and involving consumers in the transformation more actively, emphasising the need for more plant-based diets and for more diversified and alternative protein sources.

Claire Bury concluded by explaining that it is only by nurturing R&I that innovative solutions will convince all and bring affordability and convenience - the two key accelerators - to society at large.

**Raquel Yotti**, Secretary-General for Research in the Ministry of Science and Innovation of Spain on behalf of the Spanish Presidency of the Council of the European Union, addressed the audience with a video message. She stated that Food 2030 can have profound implications for the future of our food systems. In this context, innovation shapes the global markets and transforms the economies and societies; it also stimulates the quality of public services and helps our businesses thrive to achieving the objectives of a green and digital transition.

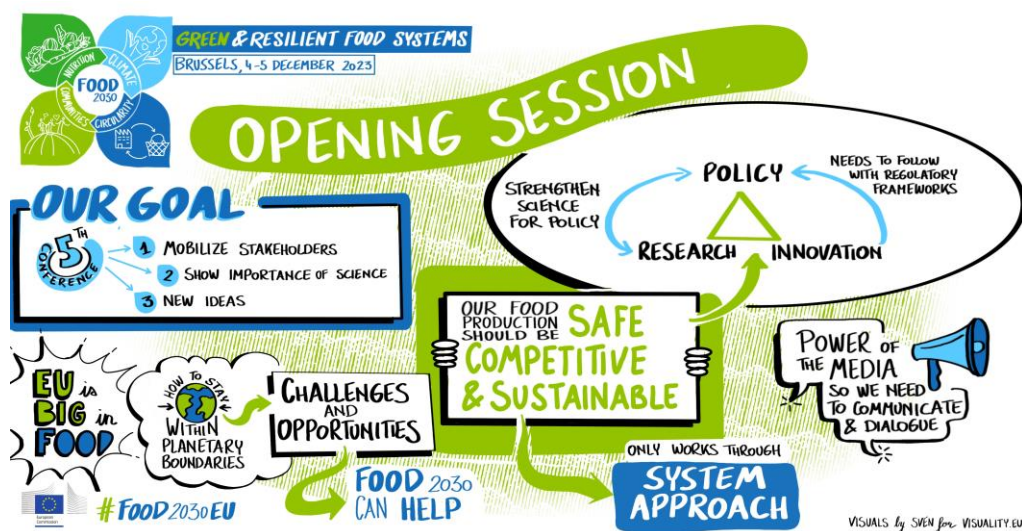
Raquel Yotti highlighted how all forms of innovation are needed:

- from deep tech to governance and institutional innovation;
- social and business model innovation to drive Europe transition towards green and resilient food systems;
- science for policy making process, which needs to be strengthened. This last aspect represented one of the priorities of the Spanish presidency of the Council of the EU.

One key aspect would be to build a market where innovation will lead to a sustainable development and Spain is committed to exploit the full potential of innovation to engineer a more sustainable inclusive and prosperous food system for the collective benefit of all.

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<sup>8</sup> European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors, *Towards sustainable food consumption – Promoting healthy, affordable and sustainable food consumption choices*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/29369>



**Wolfgang Bartscher**, Director-General of the Directorate-General for Agriculture and Rural Development (DG AGRI) expressed his profound pride in speaking at the Food 2030 conference and eagerly anticipated the launch of the [EU Agri-Food Days](#) the following day, recognising these events as pivotal moments in advancing the dialogue on sustainable food systems.

Wolfgang Bartscher emphasised the efforts made in addressing the R&I needs of food systems' actors, enhancing resilience and sustainability across the entire food chain, ensuring that stakeholders had the necessary tools and support to navigate the complex challenges facing the agriculture and food sectors. He reiterated the paramount importance of sustainable food production in ensuring food security, both regionally within Europe and on a global scale. He underscored the array of challenges faced by farmers in securing food supply, ranging from the immediate threats posed by climate change-induced extreme weather events (e.g., droughts, floods, forest fires) to the broader geopolitical conflicts and evolving consumer behaviours that shape market dynamics.

Amidst these complex challenges, Wolfgang Bartscher articulated ambitious objectives for the agricultural sector, emphasising the necessity of producing sufficient food at affordable prices while mitigating environmental impact. Recognising the imperative of supporting farmers in transitioning towards greater resilience and sustainability, he emphasised the multifaceted nature of sustainability, which encompasses not only environmental considerations but also economic viability and social equity. In this context, Wolfgang Bartscher underscored the pivotal role of R&I in driving transformative change across the agricultural landscape. He highlighted the integration of R&I priorities into key Green Deal strategies and policies, such as the Farm to Fork and [Biodiversity Strategies](#), the [Forestry Strategy](#), and the [Soil Strategy](#), as well as the [Common Agricultural Policy](#) (CAP).

Wolfgang Bartscher emphasised that significant developments had already been made in advancing sustainable agriculture, citing the substantial increase in EU financial investment in agricultural R&I for the 2021-2027 period. These heightened investments reflected the EU's constant commitment to fostering sustainability in the agro-food system. Notably, investments in Horizon Europe were projected to reach almost EUR 9 billion, with a significant portion earmarked for R&I initiatives in agriculture, forestry, and rural areas. Wolfgang Bartscher highlighted that EU support mechanisms such as Horizon Europe funding and CAP

interventions played a crucial role in facilitating innovation and knowledge co-creation, leading to the widespread adoption of new, sustainable production methods and business models across the agricultural sector.

Wolfgang Burtscher noted that transition efforts towards sustainability were evident across all sectors, with specific R&I activities targeting challenges unique to sectors such as, for example, livestock production. He stressed the importance of integrating economic, social, and environmental sustainability considerations in providing comprehensive scientific recommendations to inform policy and practice.

Moreover, Wolfgang Burtscher emphasised the collaborative approach in providing scientific support to food system actors, advocating for dialogue and cooperation among stakeholders. He highlighted a range of tools and initiatives, including R&I partnerships, multi-actor projects, real-site experimentations, and thematic networks, as means to ensure that farmers and other stakeholders received the necessary R&I support tailored to their specific needs and contexts.

Finally, Wolfgang Burtscher drew attention to the World Soil Day (held annually on 5 December), underlining the urgency of addressing soil health as a foundational component of sustainable agriculture. He highlighted the [Horizon Europe Mission 'A Soil Deal For Europe'](#) as a key initiative leading the transition towards healthy soils, with targeted efforts to set up 100 Living Labs and promote soil literacy among stakeholders. Wolfgang Burtscher encouraged stakeholders to actively support the Soil Mission through initiatives like signing the [Soil Mission Manifesto](#), thereby becoming integral members of the global soil community.



## PART 2 – KEYNOTE SPEAKERS

This section provides an overview of the main issues raised by keynote speakers that presented their ideas during the various plenary sessions.

### True cost of food – A nationwide experiment, Amelie Michalke

The impact of food systems on human health and the environment is not well reflected in the price of food and food systems-related labour. The focus of this keynote speech was therefore to showcase a case study from Germany in which an implementation of true food prices was attempted. It was then discussed which implications this might have for a future food economy that would better embed environmental and social externalities.

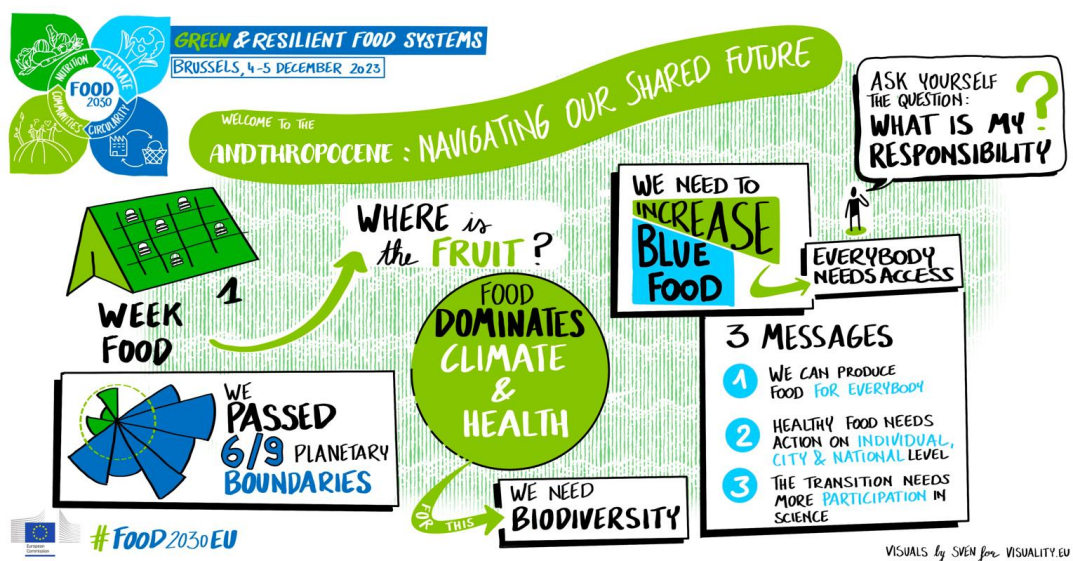
**Amelie Michalke**, Research Associate at the [University of Greifswald](https://www.uni-greifswald.de/), explained that externalities of food production are often not considered in food prices and are therefore disorienting consumers towards unsustainable dietary choices. Sustainable production and the retail of sustainable products should be economically enticing as they reflect the benefits for societal welfare and incentivise the sustainable transformation of food systems. A nationwide experiment on implementing true prices for selected food items shows that internalising externalities must be complemented with measures on education, communication, social justice, and distribution policies.



## Welcome to the ANDthropocene: navigating our shared food future, Fabrice DeClerck

The 6<sup>th</sup> assessment of the Intergovernmental Panel on Climate Change (IPCC) showed that 23 - 42% of global greenhouse gas (GHG) emissions come from food systems. An OECD [study](#) also showed that 'products differ greatly in their GHG emissions intensity, with beef derived from pure beef herds showing a considerably higher GHG emissions intensity than other products', mainly due to land use<sup>9</sup>. The livestock sector produces 14.5% of the global anthropogenic GHG emissions. Crop or livestock production uses about 1/3 of the land surface and 3/4 of freshwater resources globally.

**Fabrice DeClerck**, Director of Science at [EAT](#), explained that inaction on food systems is incompatible with a healthy, safe and just future society. The space of deliberate, democratic, and thoughtful decision-making on food system transitions is rapidly becoming smaller. There is a major risk that further delayed actions on food, climate and environment will force us to make hard choices, rather than thoughtful ones. Food system transitions are deeply personal, embedded in local culture and capacity, and they generate strong emotions. However, these same characteristics make food by far the most accessible, affordable, and effective option in support of transitions to healthy, safe, and just societies. Besides putting emphasis on our right to food, we should pay greater attention to our collective responsibility to food. Because it cuts across so many facets of human identity and well-being, food is particularly well-placed as a solution for disrupting growing 'tribalism' in society. Bringing everyone to the table is an invitation to emphasise our shared humanity, and collective responsibility to navigate towards a healthy, safe and just food system.

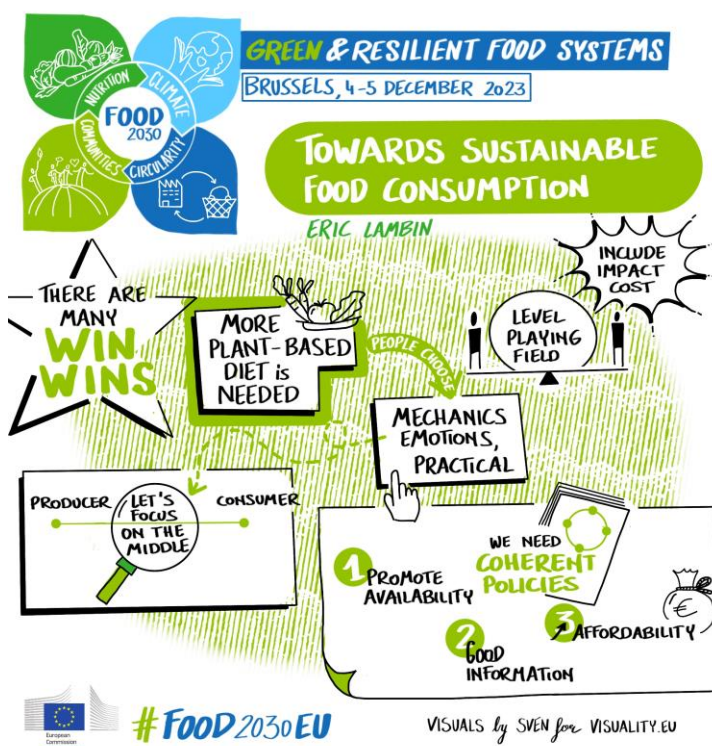


<sup>9</sup> Deconinck, K. and L. Toyama (2022), "Environmental impacts along food supply chains: Methods, findings, and evidence gaps", *OECD Food, Agriculture and Fisheries Papers*, No. 185, OECD Publishing, Paris, <https://doi.org/10.1787/48232173-en>

## Towards sustainable food consumption, Eric Lambin

In order to improve both human health and the state of the environment, there is a need for people to shift their diet. This issue was very much at the heart of the recent Scientific Advice Mechanism (SAM) opinion entitled 'Towards sustainable food consumption'<sup>10</sup>. Consumers should be supported in making healthy and sustainable food choices through a coherent combination of policies that include pricing, information and regulation. Healthy and sustainable diets should be the easiest and most affordable choice.

**Eric Lambin**, Professor at the [University of Louvain](https://www.uclouvain.be/en), stated that policy interventions should ensure that healthy and sustainable diets are the most affordable, available and accessible choices to help consumers make positive decisions, for them and for the planet. Policy interventions aiming to change consumer behaviour should focus on the whole food environment, where food is obtained, distributed, eaten and discussed. Thus, policy interventions should address not only consumers but also food providers, producers, manufacturers, distributors and retailers. The EU can provide guidelines, adjust subsidies, develop labels, expand its current carbon-pricing scheme, share trusted information about the environmental and health impacts of different foods, among other things, and encourage Member States to act at their level, in particular by creating incentives such as lower value-added tax on fruits and vegetables as well as disincentives such as meat and sugar taxes.



<sup>10</sup> European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors, *Towards sustainable food consumption – Promoting healthy, affordable and sustainable food consumption choices*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/29369>

## Climate Smart Chefs, Chiara Pavan

Business as usual is no longer an option in the way food is produced, distributed and consumed. This keynote speech provided concrete ideas on how chefs and communities of chefs can help to shift from the current food economy to one that is fit for the future and embeds environmental and social needs. Shifting towards a low carbon economy by developing a climate smart cooking and eating culture in the EU food systems is paramount, as developed in the [Climate Smart Chefs LIFE project](#).

**Chiara Pavan** is chef at the [Venissa restaurant](#) (one Michelin star and Michelin green star) in Venice (Italy). She stands out on the gastronomic scene for her commitment to low environmental impact cuisine. She cooks vegetables from her own garden and uses invasive alien crabs from the Adriatic Sea. Chiara aimed to define what sustainability related to gastronomy really means. For her, working sustainably means consciously dealing with the effects of climate change, adapting to changes and adopting new ingredients. She expressed her fear for the future (impact of droughts on crops, invasive species, catastrophic weather events) but reminded the need to face these challenges with courage. This also means adapting our habits to these challenges. For example, the gastronomy sector should learn how to cook with new ingredients, such as invasive species, drought tolerant cereals, insect flours or even cultured meat. Having an open mind will help us to cope with climate related difficulties and challenges.



## PART 3 – THEMATIC ASPECTS

### 1. Food 2030 – a 7-year long success story

#### 1.1. Food 2030: telling the story (panel 1)

This session highlighted the development and implementation of the Food 2030 Research and innovation policy framework and the resulting European projects supported by past and ongoing framework programmes. This panel provided the perspective of three European Commission services: DG RTD and two executive agencies.

**John Bell**, Director for Healthy Planet in the European Commission DG RTD explained how 'business as usual' is no longer an option in the way we produce, process, distribute and consume our food. The food systems of tomorrow need to be radically different from those of today. Indeed, our food systems account for nearly one-third of global greenhouse gas emissions and are responsible for 70% of freshwater withdrawals. The access to water, or biomass, will be the blue and green gold of the future.

After presenting the history of the [Food 2030 policy framework](#), John Bell explained that the European Commission's DG RTD has been advocating and convening events around the urgency of reshaping the European R&I policy landscape for sustainable food systems, to offer a systems-oriented alternative to the fragmented and predominantly sectoral approach.

He then presented what Food 2030 is: our vision, interventional logic and roadmap for R&I policy to drive the transition towards sustainable food systems. Food 2030 is operationalising and setting directionality for R&I policy in support of a just and fair transition to a healthy planet, which, by 2050, is climate neutral and where consumption and production of food operate within safe planetary boundaries. Food 2030 is fully aligned with our EU Green Deal and Farm to Fork Strategy objectives, and with the ambition of the United Nations Food Systems Summit follow-up process and the Agenda 2030 Sustainable Development Goals.

He highlighted that in 2020 the European Commission published the Food 2030 Pathways for Action report<sup>11</sup>, outlining 10 thematic areas where R&I action was needed. This acted as a roadmap to design calls for proposals under the first part of Horizon Europe (2020-2024), in **co-creation** with other European Commission services. With the help of an expert workshop held in March 2023, the pathways were updated with the addition of a pathway on zero pollution food systems.

**Paul Webb**, Head of Department - Green Europe from the Research Executive Agency ([REA](#)), informed how REA has been working at the heart of the Food 2030 research policy effort. REA's role is to manage multinational research projects, giving support, clustering and providing feedback to policy.

He stressed that along these years and in the context of the Food 2030 R&I policy framework, the development of the multi-actor approach has been important in the different calls and topics, and it is a tool to increase the collaboration between REA, policy makers and projects.

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<sup>11</sup> European Commission, Directorate-General for Research and Innovation, Fabbri, K., Froidmont-Görtz, I., Faure, U. et al., *Food 2030 pathways for action – Research and innovation policy as a driver for sustainable, healthy and inclusive food systems*, Fabbri, K.(editor), Ndongosi, I.(editor), Publications Office of the European Union, 2020, <https://data.europa.eu/doi/10.2777/104372>

Paul Webb acknowledged the importance of the future partnership on 'Sustainable Food Systems Partnership for People, Planet and Climate'. This partnership will also be useful and complementary to deploy the Food 2030 holistic approach. This partnership will integrate Member States, associated countries and other food systems actors to reduce fragmentation and aiding inclusiveness. Living labs and real-life solutions are fundamental in this process.

**Angela Liberatore**, Head of Department - Scientific Management, European Research Council ([ERC-ERCEA](#)) presented the report 'Mapping ERC frontier research sustainable food production and consumption'<sup>12</sup>. This report offers an analysis of the portfolio of projects funded by the ERC that are relevant to the Food 2030 R&I policy.

Promoting sustainable food production and consumption is a critical challenge that is closely intertwined with our health and the well-being of our planet. The recently published report of the ERC offers an analysis of the portfolio of projects funded by the ERC and their relevance to the R&I Food 2030 policy, with the primary goal of this policy being to transform food systems and ensure that everyone has access to sufficient, affordable, and nutritious food, enabling them to lead healthy lives.

The report is the result of a collaboration between the ERC and the European Commission's Scientific Advice Mechanism (SAM), in the context of the preparation of a Scientific Opinion on sustainable food consumption. It illustrates how this research actively contributes to the advancement of sustainable food systems, bolstering their resilience for the future.

Angela Liberatore presented some funded projects from this ERC portfolio such as:

- *GasApp*, which developed a smartphone app that can provide real-time information on the edibility and freshness of packaged food;
- *MetaPG*, which identified microbial strains that are currently disappearing in westernised populations as a consequence of urbanisation, industrialisation and high-fat diets;
- *Homo.symbiosis*, which opened up for a new era of individualised preventive care and novel gut ecology-based therapeutic approaches.



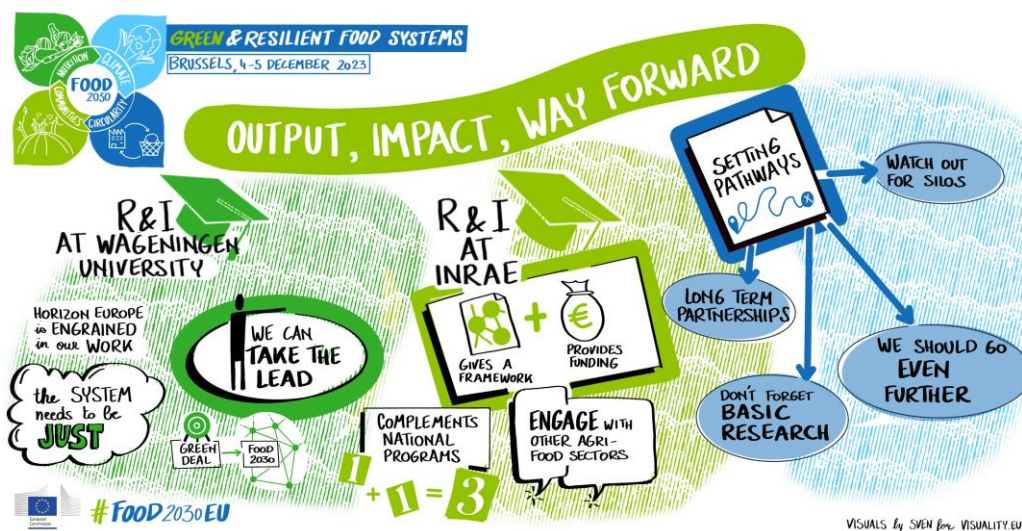
<sup>12</sup> European Commission, European Research Council Executive Agency, *Mapping ERC frontier research sustainable food production and consumption*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2828/106806>

## 1.2. Food 2030 - Output, impact, way forward (panel 2)

Two European research institutions, Wageningen University & Research and France's National Research Institute for Agriculture, Food and Environment mentioned their successful experiences related to Horizon Europe Cluster 6 Food 2030 projects and communicated the impact for the society and food systems achieved by their participation.

**Sjoukje Heimovaara**, President of the Executive Board of Wageningen University & Research ([WUR](#)), mentioned that science has its role to play in the transformation of food systems towards a sustainable future, perhaps more so in a polarised society. At WUR, researchers welcome the opportunities in Horizon Europe and under the Food 2030 agenda to strengthen the contribution of science in co-creating solutions for more sustainable and resilient food systems ranging from soil to seas, from citizen action to global conventions, from corporations to social enterprises. She believes in the need to continue to develop collaboration with all relevant stakeholders on transformative change of the European and global food system, and Food 2030 provides excellent opportunities to do so.

**Philippe Mauguin**, Chair and CEO at the National Research Institute for Agriculture, Food and Environment ([INRAE](#)), stated that Food 2030 has enabled to shift from food science to holistic research on food systems. Researchers in INRAE look forward to continuing contributing to Food 2030 research pathways with EU partners, namely through the new Sustainable Food Systems Partnership. A key to success is to go beyond the traditional R&I players, and to envision the transformation of food systems towards sustainable and healthy diets. This requires co-designing options with all stakeholders and providing evidence for public policies. He explained that achieving climate neutrality and climate resilience of EU food systems deserve more attention since the stability and quality of food provision is increasingly threatened by climate change. Engaging with the many initiatives in the agri-food sector to decarbonise and to adapt to climate change is essential for future proofed EU food systems.



### 1.3. Food 2030's objectives: from vision to reality (panel 3)

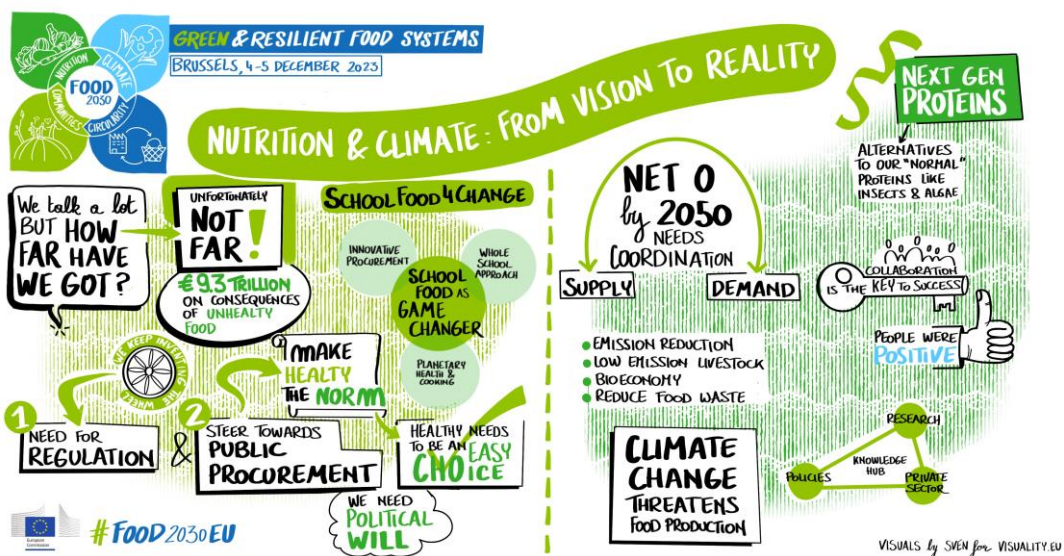
The panel called 'Food 2030 - Nutrition and Climate: from vision to reality' presented the practitioners' point of view through the intervention of relevant experts and projects coordinators.

The first part of the panel addressed the Food 2030 priority on sustainable healthy diets and nutrition.

- **Milka Sokolovic**, Director-General of the European Public Health Alliance ([EPHA](#)), mentioned the need for our food systems to become healthier and more sustainable. A more comprehensive approach is needed to tackle the public health challenges of today. Innovation should strive for social justice, empower and support the most vulnerable populations. Public procurement can shape how governments spend public money, as it can also set the bases and the example for a healthier population, a more sustainable planet and a fair society.
- **Peter Defranceschi**, coordinator of the European project [Schoolfood4change](#), presented some key messages stemming from his experience with the project. He stated that healthy school meals with food education for every child in every school should be a minimum standard across the EU, as school meals do more than providing food. They support preventative public health, social inclusion and equity, and climate change mitigation. SchoolFood4Change shows the impact of schools as catalysts for sustainable food system change through healthy **food procurement**, taking a whole school food approach, and the promotion of healthy eating and cooking (in the school canteens). Cities and regions across the EU show that such an EU minimum standard is everywhere possible and impactful. The EU Child Guarantee (Council Resolution), the EU School scheme for fruits, vegetables and food education, and the Farm to Fork strategy provide a strong legal basis for similar activities across Europe.

The second half of the panel addressed the Food 2030 priority dedicated to climate-smart environmentally sustainable food systems.

- **Jean-François Soussana**, Vice-President of the [INRAE](#), explained that achieving net zero by 2050 requires coordinated changes in supply and demand along food value chains. Transition to climate neutral and climate resilient European food systems requires developing and testing pathways at scale through integrative R&I actions. The stability of food provision is increasingly threatened by climate change. Avoiding and reducing food production losses through investment in resilience requires a knowledge hub approach connecting research, public policies and private sector. A transition towards climate neutral and climate resilient food systems in the EU would unleash large co-benefits for nutrition and health, for biodiversity, soils and water. De-risking this transition is a key issue which requires R&I as well as technical and socio-economic studies.
- **Birgir Smáráson**, coordinator of the project [NextGenProteins](#), explained that alternative proteins are not just about dietary changes, but they are also a fundamental shift towards a more sustainable future for our planet. By exploring new protein sources, we are both advancing food technology and encouraging global communities to engage in sustainable food practices, shaping the future of nutrition and food security. We must develop food systems that are resilient to climate change and have minimal negative impacts on the environment. The success of initiatives like NextGenProteins can pave the way for innovative solutions to global food challenges.



#### 1.4. Food 2030's objectives: from vision to reality (panel 4)

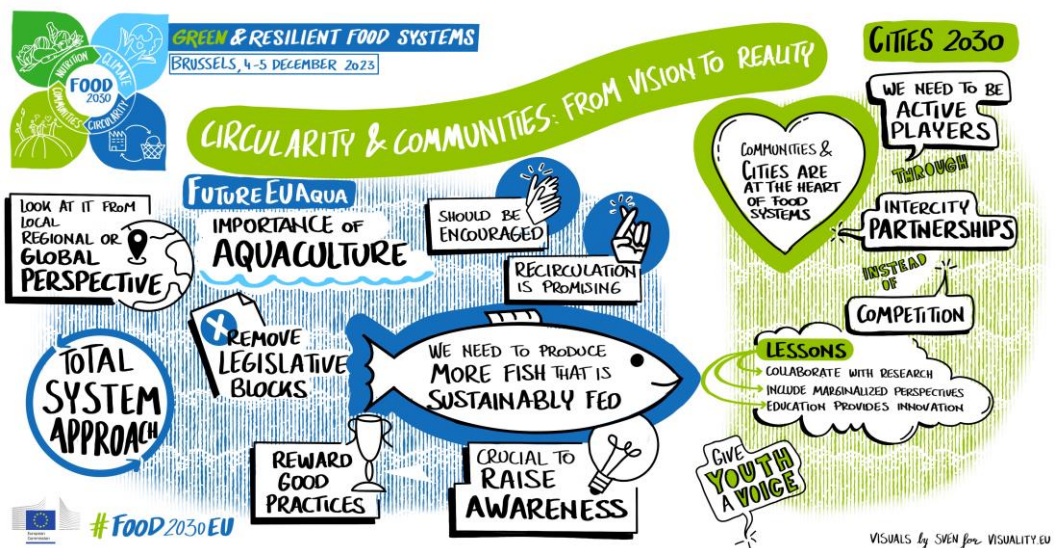
The panel called 'Food 2030 – circularity & communities' also presented the practitioners' point of view through the intervention of both experts and projects coordinators on this subject.

The first part of the panel addressed the Food 2030 priority on circular and resource efficient food systems.

- **David Basset**, Secretary-General of European Aquaculture Technology & Innovation Platform ([EATIP](#)), highlighted that alternative and novel protein sources should be included within any food system approach, not only in terms of direct human consumption, but also as a feed ingredient. Aquatic foods (both animals and plants) offer such alternative, in addition to alleviating pressure on terrestrial land resources. Adopting a systems approach seems self-evident, but it requires the widest consideration, including in terms of legislation, global trade, market demand and production cycles. Aquaculture production is a highly innovative sector proactively engaging in a circular and resource efficient policy agenda. Aquatic foods can offer a sustainable, healthy, low environmental impact dimension to food systems protein production. They should be actively supported and promoted.
- **Åsa Espmark**, coordinator of the European project [FutureEUAqua](#), explained how the tested aquaculture fish performance, health and welfare were enhanced when fed with alternative and low trophic feed ingredients. Aquaculture with the use of recirculation technology saves water and enables aquaculture in areas not otherwise suitable for that activity. However, to improve its sustainability, the technology needs to use less energy and more sustainable feed ingredients that ensure an acceptable level of water quality. On general basis, consumers have limited knowledge about new and sustainable ways to produce fish. FutureEUAqua has performed communication campaigns to increase consumer knowledge on the consumption of healthy fish.

The following part of the panel addressed the Food 2030 priority dedicated to innovation for the empowerment of communities.

- **Anna Scavuzzo**, Vice-Mayor of the City of Milan (Italy), mentioned that prioritising innovation and community empowerment within the Food 2030 framework can positively impact the interconnectedness of partnership, community involvement, and transformative change of European food systems. Milan serves as an example, through the Milan Urban Food Policy Pact (international level) and the Milano Food Policy (local level). Despite existing barriers, a few lessons learned are coming from the experience with other EU cities: collaboration with research bodies, inclusion of marginalised perspectives, and the pivotal role of education in fostering innovative and inclusive approaches to food system sustainability.
- **Daniele Sferra**, coordinator of the project [Cities2030](#), highlighted the relevance of the multi-actor approach to the City-Region-Food-System (CRFS) concept, which has been unanimously recognised both as pivotal and very challenging to achieve, particularly in public institutions that sometimes lack the capacity building for activating intersectoral integrated food systems. The capacity building of public and private stakeholders directly or indirectly involved in the food system and in the effective sharing of knowledge (policies, technologies, practices, etc.) are pivotal for setting enabling conditions of sustainable and balanced development of the food sector ecosystem. Finally, the voice of young generations must be better included and have a more significant role in the food systems dialogues. Children and youngster can be the influencers of adults' sustainable behaviours.



## 2. How youth can transform food systems

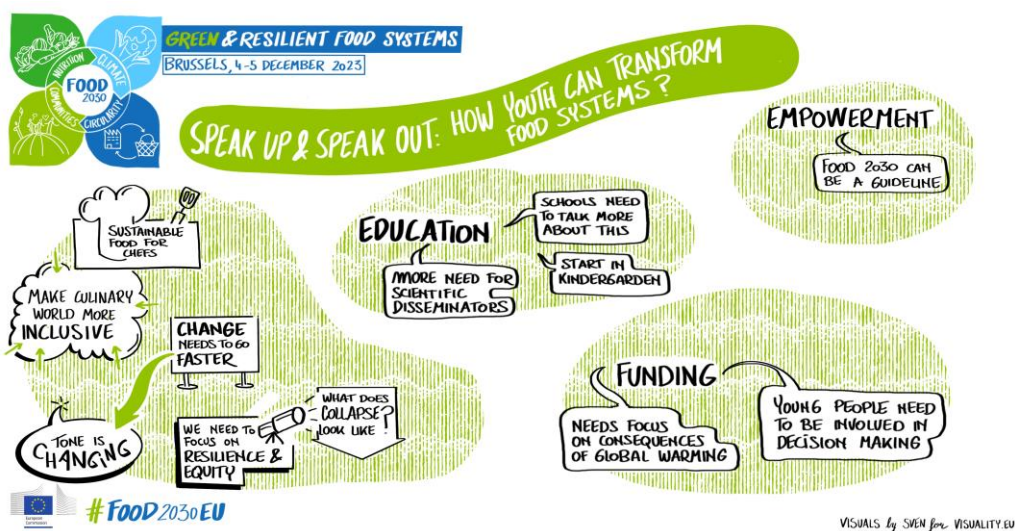
Four young Europeans took part in the session 'Speak up and speak out! How youth can transform food systems'. The session focused on how youth drives and inspires change for sustainable food systems, but also about the challenges youth face about the different intergenerational approaches in considering the sustainability of food systems. The panellists shared their education and working experience – with one of them stating that the Food 2030 research approach will guide her in her professional life.

**Francesca Giopp**, Nutrition & Sustainability Lecturer at ALMA ([International School of Italian Culinary Arts](#)), highlighted the importance of a cultural shift in the food systems and in society. Francesca suggested to leverage upon the key factors triggering cultural and progress towards practical tools that support change. She stressed the importance of startup initiatives, such as the EIT (European Innovation Technology Platform) Food Innovator Fellowship program. Startup initiatives connect researchers, chefs, and industries for a circular food system and the creation of sustainable practices. Lastly, Francesca highlighted the central role of culinary professionals in understanding suppliers, selecting raw materials, and conveying their ethos through a fundamental tool: the menu.

**Isa Stucki**, from the [VUOKKI FOOD DESIGN FACTORY](#), a start-up initiative of the University of Helsinki, presented her personal experience about working with young passionate students who care about sustainable food systems and have innovative and transformative ideas. She recalled that the power of young generations with innovation is a good blend to make transformation happen. Isa also expressed the young generations willingness to have the transformation happening quickly. In her opinion, education has an important role in raising awareness of the challenges that food system is facing. Educating new generations about sustainable food system should start early. Isa invited to focus on consumer behaviour to understand what drives people in making certain food choices.

**Daragh Cogley**, one of the Bioeconomy Youth Ambassadors, expressed his concern about the current climate crisis and its effect on the food systems. He recalled the need to act quickly with the development of sustainable food production. It is necessary to support environmentally friendly types of agriculture that foster true synergies in reducing land use emissions. Daragh also stressed the importance to create contingency plans. Food production should aim at ensuring food resilience in each sector of the food systems. He finally stressed that the role of young generations is to remind that the cost of inaction will be paid by society - an issue currently not sufficiently addressed.

**Ugnė Dirdaitė**, from the Research Council of Lithuania and Bioeconomy Youth Ambassador, mentioned her personal experience in advocating for sustainable food systems in several conferences in her home country and abroad. She met young citizens that are willing to learn and act to transform food systems. As Bioeconomy Youth Ambassadors, she is suggesting the Lithuanian decision-makers to create a national bioeconomy strategy, following the guidelines of the European Bioeconomy Strategy. Ugnė, concluded by saying that in her current job - as responsible of Horizon Europe Cluster 6 at the Research Council of Lithuania – she is well placed to support the implementation of the Food 2030 guidelines.



### 3. Where science meets arts

This session aimed to explore the intersection between science, art, and sustainable food systems. Art is an important vehicle to encourage the uptake of science that stimulates behavioural change. Inter- and transdisciplinary approaches can integrate natural sciences with social sciences and humanities. Diverse voices and perspectives came together in a thought-provoking journey that merged scientific knowledge and artistic expressions to foster dialogue and a deeper understanding of the complex world of sustainable food systems and their need to be transformed.

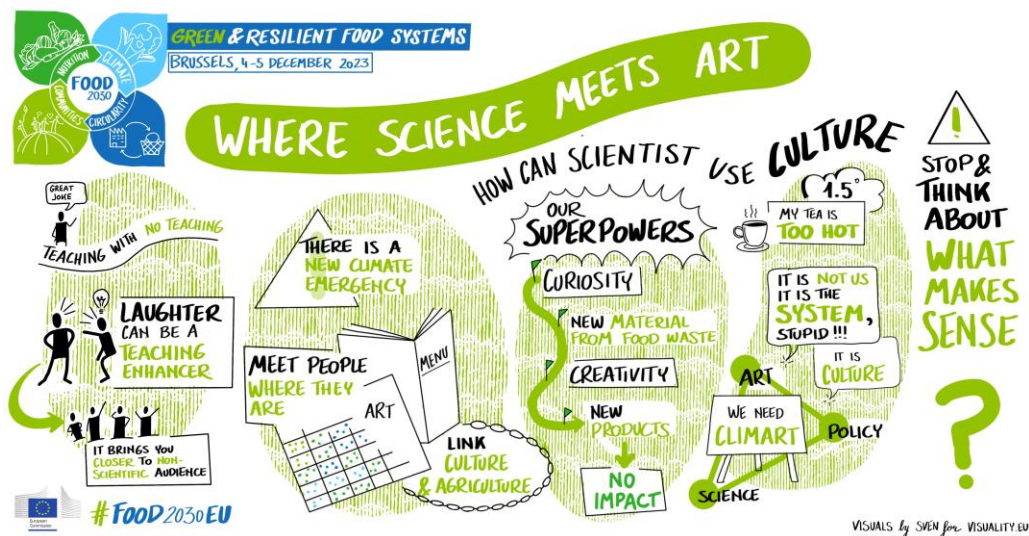
**Aleksandra Ziemińska-Buczyńska**, Researcher and Academic teacher, performed on stage the 'teaching with no teaching' method. When scientific facts are wrapped into a humorous story, the audience can gain new knowledge without even realising it. That is why laughter can be used as a teaching enhancer, because it makes the audience relax and therefore learn more effectively. So, when the story is funny, the facts within the jokes will be better memorised and remembered longer. Overall, researchers who present their work in a humorous way reveal their 'human face', becoming closer to a non-scientific audience explaining the importance of science in their everyday life.

**Dani Burrows**, Director of Care at [CLIMAVORE](#) (Honorary mention S+T+ARTS Prize 2023), spoke about the new seasons of the climate emergency. The way we eat needs to move beyond notions of sustainability towards models that are socially reparative and ecologically regenerative. Creating critical meditations in the form of art evolves into long term processual interdisciplinary practices in collaboration with communities. There is a need for reconnecting culture and agriculture. There are no sustainable food systems without an engaged civil society. Thus, food justice manifests itself through a process of interdisciplinary collaboration to inform, empower and advocate together.

**Josean Vilar**, CEO & Creative Director of [Naifactory Lab](#) and member of Remix El Barrio (Winner of S+T+ARTS Prize 2021), underlined that *homo sapiens* are intelligent and creative by nature, but we must ensure that those abilities are applied in the right direction. Our planet is a closed system in which everything we manufacture sooner or later ends up in nature. Therefore, our duty should be to design for that encounter to be positive and regenerative. In that sense, solutions can and should come from many different sources and it is important to

be open and curious, to be permeable to what we do not know and to let ourselves be influenced without fear, because history shows us that what is marginal in an era can end up being overly important in the next one.

**Martin Hablesreiter**, co-founder of the artistic duo [Honey & Bunny](#), stressed that the focus should be on food systems, not consumers. As such, policy makers and system designers are the ones in charge of behavioural change, while citizens need to hold them accountable. Citizens must act politically to change food systems to save democracy, biosphere, and equality – to save human existence. Culture is human made – therefore always changeable. In fact, by creating sustainable narratives, arts and policy can change culture – therefore they can change systems.



#### 4. Thinking out of the box

The objective of the session was to provide inspiration for futuristic innovations, crazy ideas and novel approaches to transform our food systems. The conversation dived into what it would take to feed people on Mars but also how to fundamentally change the way we live and connect to food by using creative architecture. The food we eat might change fundamentally: new transformative fermented food and food ingredients are being developed and more are on the horizon. Our gut and how important it is for our health and wellbeing has made it to the headlines.

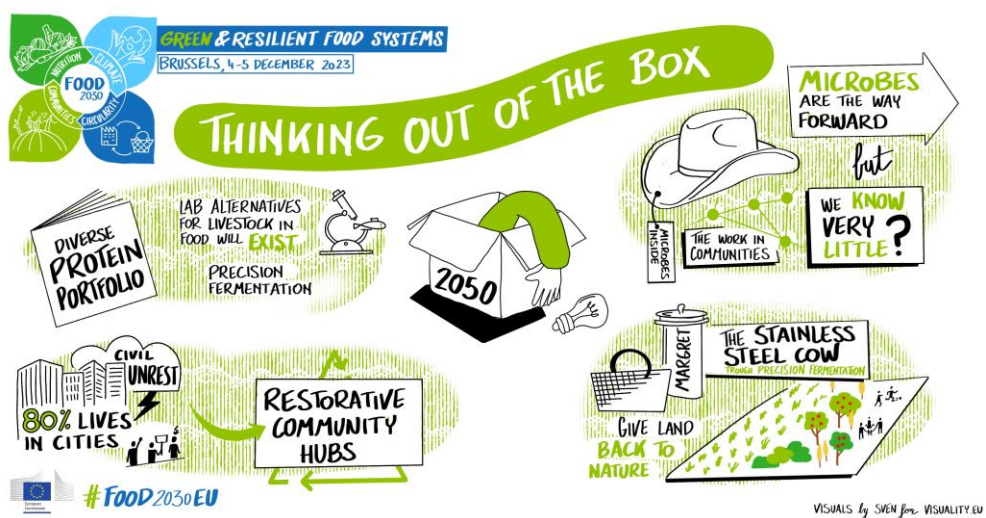
**Lenore Newman**, Director of the [Food and Agriculture Institute at the University of the Fraser Valley](#) and co-author of the book 'Dinner on Mars', highlighted how new technologies are contributing to sustainable food systems, and how they often work with traditional agricultural practices. At the same time, food and agriculture innovation is happening in unexpected places and we need to rethink training if we are to build sustainable food systems.

**Doina Petrescu**, Professor of Architecture and Design Activism at the University of Sheffield and co-founder of [Atelier d'Architecture Autogérée](#) (AAA), stated that, by 2050, city-based food systems will need to be:

- **Regenerative:** Cities should not expand anymore by claiming land from agriculture, but should return land to agriculture, or integrate forms of food growing in existing urban spaces.
- **Distributive:** Cities need to encourage ecosystems of diverse food practices. Urban spaces should welcome urban farms, markets, restaurants with multiple roles, such as climate refuges, biodiversity reserves, oxygen buffers, spaces for energy, education, culture, socialisation. These assets should be managed collectively, as new forms of urban commons.
- **Resilient:** The food systems should be able to recover from climate disasters, pandemics and wars. Not only the systems but also the people that operate them, because resilience is also an inner process of becoming more flexible, robust and skilled.
- **Just:** Food ecosystems will need democratic governance. Securing food for all might involve not only a political and economic transformation, but also new collective agreements to protect what life on earth depends upon: land, water, clean air.

**Antton Alberdi**, Associate Professor at the University of Copenhagen and founder of the [Earth Hologenome Initiative](#), informed the audience that nearly 90% of the bacterial species (out of 30 000) genomically characterised in wild animals' guts in 2023 are new to science. They contain thousands of genes with unknown functions and hold a biochemical potential we cannot even imagine. The sequencing of millions of microbial genomes, combined with the prowess of advanced artificial intelligence (AI) engines, will empower us to design microbial consortia that enable tailoring nutrients, textures, and flavours to our preferences, shaping the landscape of future foods. Sophisticated in vitro configurations that replicate natural environments, such as animal guts, will not only facilitate the engineering of food production systems but also provide a controlled laboratory setting to scrutinise how novel foods interact with consumers and their associated microorganisms.

**Hille van der Kaa**, Chief Communication Officer of the company [Those Vegan Cowboys](#) and co-founder of [Food Fermentation Europe](#), introduced the audience to the concept of the stainless-steel cow to make cheese. This is done together with farmers and dairy cooperatives, to enhance the impact. Hille foresees that in 2050 80% of all cheeses will be animal free (in the western world). This will make a huge contribution to animal welfare, the environment, and the future role of the farmers.



## 5. It's 2050 - what might the future hold?

Several perspectives were discussed for possible long-term visions for R&I policy in supporting the transition towards sustainable healthy and inclusive food systems by 2050.

**Francesco Branca**, Director of the Department of Nutrition and Food Safety at the World Health Organization ([WHO](#)), recalled to the audience that unhealthy diets kill 8 million people every year. Obesity kills an additional 5 million and is responsible for up to 3% GDP loss globally. Food system transformation requires a radical shift towards more plant-based diets and sustainable intensification of production, as well as a more equitable distribution of resources. Francesco Branca considered the need of policies to improve the food environment and make healthy foods more available and affordable, and unhealthy foods less affordable and valuable, through taxation and subsidies, regulation of food and beverage marketing to children, information to consumers through campaigns and point of purchase communication (through front-of-the-pack labelling). Public food procurement and service policies supporting healthy diets may nudge dietary changes. Public investments, such as agricultural subsidies, can support the transformation of food systems, and social support policies will be needed to improve the affordability of healthy diets. Research can help to define a more efficient use of current resources, identify new food sources to address food and nutrition insecurity and protect health within planetary boundaries. Waste reduction, aquatic foods, new animal feeds and more sustainable production methods may be targeted.

**Irène Tolleret**, Member of the European Parliament and chair of the cross-party [European Food Forum](#) (EFF), considered that the agri-food sector should be preserved as a strategic sector in terms of budget. Greater coherence is needed between the requirements the EU imposes on farmers and those governing imports from third countries. Extending mirror clauses in the framework of trade agreements is essential to reduce carbon leakage and to improve the ability of EU farmers to compete on international markets. MEP Tolleret called for a more active dialogue with all actors in the food chain. The European Food Forum allows Members of the European Parliament to establish an open dialogue with food supply chain actors, civil society organisations, research organisms and academia, and other public institutions. Innovators and researchers can play a key role in helping farmers and all stakeholders in the food chain to make their environmental transformation a reality. Furthermore, adequate and faster EU legislative procedures are needed to put innovations in the market.

**Felipe Ortega Schlingmann**, Head of the Bioeconomy Division at the [European Investment Bank \(EIB\)](#), informed that sustainable food production should be facilitated through **investments** in productivity gains while the environmental footprint needs to be minimised, value-chains be adapted to climate change and encroachment into high environmental value land be reverted. To reduce pressures on current food value chains, innovative alternative food sources are to be developed.

Felipe Ortega Schlingmann considers that where commercial banks face difficulties appraising high-risk innovative projects, it requires a solid institution that has the professional and risk-bearing capacities to ensure financing of future technical progress at all levels of the food value chain. The EU's contribution to global challenges has the potential to develop disruptive, highly efficient and effective production, transport and storage technologies. Those can be commercialised at a global level so as to discover new markets and increase productivity and overall welfare while respecting environmental constraints.

A globally operating public bank, like the EIB, can undertake several actions to support a sustainable, healthy and affordable food value chain. Those could simultaneously

**Patricia De Clercq**, Secretary-General of the Flemish department of Agriculture and Fisheries, stated how food is the basic need of every human being and providing healthy and sustainable food is a shared responsibility of producers, consumers and authorities.

**GREEN & RESILIENT FOOD SYSTEMS**  
BRUSSELS, 4-5 DECEMBER 2023

**IT'S 2040: WHAT MIGHT THE FUTURE HOLD?**

**WHAT NEEDS TO CHANGE?**

**OUR VISION**

PLANT BASED  
SUSTAINABLE INTENSIFICATION  
EQUITABLE  
CHANGE SUPPLY & DEMAND through REGULATION and PUBLIC INVESTMENT

WE EXPECT MUCH FROM AGRICULTURE  
WE NEED SUSTAINABLE FOOD AUTONOMY  
KEEP ALL-ACTORS ON BOARD  
FOOD EDUCATION  
TRADE POLICY  
FOOD POLICY

IDENTIFY GAPS  
WE NEED FINANCIAL INNOVATION TO FUND THE CHANGE  
ACCESSIBLE & AFFORDABLE  
HEALTHY FOOD FOR EVERYONE  
POSITIVE IMPACT ON NON-COMMUNICAL DISEASES  
WE ARE LINKED  
GLOBAL MARKET

NEED TO DEFINE PARTICIPATORY POLICY METHOD from the BOTTOM  
SET COMMON GOALS  
FAIR DISTRIBUTION OF COSTS & BENEFITS  
OPPORTUNITY COST

**#FOOD2030EU**

Visuals by SHEN for VISUALITY EU

Day one of the Conference was closed by a screening of the documentary [\*Eating our Way to Extinction\*](#), an interview with the executive producer **Magnus Hollo** and a panel discussion between the audience and the executive producer **Mark Galvin**, the medical practitioner **Gemma Newman** and the Oxford professor **Marco Springmann**<sup>13</sup>.

<sup>13</sup> This last part of the first day of the conference was meant as an occasion for participants to face uncomfortable questions and scenarios. It was not a panel guided by the European Commission representatives nor does it necessarily represent the European Commission position on the issues discussed.

detrimental effects on land use (37% of all land use for animal agriculture), water use, biodiversity, soil health and acidity of the oceans. Animal agriculture is recognised as the number one reason for global warming by the majority of all main science and political data. However, the media and consumers do not behave and perceive it as such. The debate has been focused on issues such as plastic usage and household recycling, but this is not enough to get real movements in tackling the main cause of climate change.

In order to facilitate real change in behaviour towards a more sustainable future, the general public should embrace the need for change from current food systems. The media, film and TV industry is only partly successful in driving this behavioural change, but must play a critical part in this going forward. The time is now for media to partner with governments and all other stakeholders more proactively, to focus on the real issues and take part in changing the agenda to stop the warming of the planet.

After the screening, several points emerged during the discussion between the audience and the panellists.

Biodiversity loss jeopardises ecosystems, leading to water and food insecurity, unpredictable weather, and global conflicts. Western diets contribute to a 'Global Syndemic' with increased diseases' risks. Cramped animal conditions and antibiotic resistance pose threats, with pandemics becoming more likely. Despite these challenges, rethinking food systems offers an opportunity for positive change.

Global guidelines and initiatives advocate for a shift towards plant-based diets to safeguard health and the planet. Several national dietary guidelines in many countries and professional initiatives support this shift. Public health interventions could facilitate change toward this direction. Efficient farming, crop diversification, reforestation, and conservation agriculture are crucial steps. Our choices today shape the world for future generations, urging us to embrace sustainable food systems for a thriving planet.



## 7. Food systems and soil health

Healthy soils are vital for food systems, providing 95% of our food and essential ecosystem services, such as nutrient cycling and carbon storage. They support thriving communities of soil biota and economies. However, soil degradation poses risks, releasing pollutants into groundwater and food chains, threatening food safety and the environment. Recognising the critical role of soils, the food industry is increasingly investing in the development of sustainable, carbon-neutral value chains. This emphasis begins with robust soil management practices, underscoring the urgent need to establish reliable indicators and methodologies to monitor and certify soil health.

The [Horizon Europe Mission 'A Soil Deal for Europe'](#) aligns closely with the nexus between soil and food, recognising that healthy soils are essential for securing nutritious and abundant food supplies. By fostering healthy soils, the EU Mission Soil seeks to improve food security, and supports the transition towards sustainable, healthy and inclusive food systems, in line with the objectives of the European Green Deal and the Farm to Fork strategy.

This session was chaired by **Michael Niejahr**, acting Deputy Director-General at DG AGRI and Mission Manager for the EU Mission a 'Soil Deal for Europe'. He framed the session by highlighting the importance of soils for sustainable, inclusive, and healthy food systems. He also recalled that 60% of soils are considered unhealthy, and mentioned the EU framework towards healthy soil (the EU Soil Strategy, the proposed Soil Monitoring Law<sup>14</sup> and the EU Mission 'A Soil Deal for Europe'). On the Mission Soil, he elaborated on its main objectives, in particular on the use of living labs to scale the adoption of sustainable practices. He concluded by highlighting the importance of getting all the actors of the value chain involved and specified the objective of the session: to discuss how R&I policy can contribute to enhancing soil health and facilitate the transition towards sustainable, inclusive, and healthy food systems.

**Alessandra Zampieri**, Director of Sustainable Resources at the [European Commission Joint Research Centre](#), emphasised the foundational role of healthy soils in sustainable food production systems. The [JRC's EU Soil Observatory](#) has shown that at least 61% of the soils of Europe are experiencing degradational processes. She underscored the pressing need for a better understanding and quantification of soil degradation processes, particularly those related to pollutants, to safeguard food security and safety. She advocated for R&I programs to develop technologies that can effectively monitor and mitigate threats to soil health, thereby supporting the transition to nature-positive food systems. Additionally, she highlighted the significant impact of supply and value chains associated with food consumption and production on soil health, stressing the importance of addressing challenges such as emissions reduction and food waste to facilitate a green transition in the food industry.

**Anna Krzywoszynska**, Associate Professor of Transdisciplinary Human-Environment Relations at the [University of Oulu](#) and a Member of the Mission Board for the Soil Deal for Europe Mission, addressed the societal challenge of restoring soil health. She emphasised the need for a paradigm shift in agricultural R&I, moving away from a one-size-fits-all approach towards practices that prioritise soil and agro-ecological specificities. She advocated for a renewed focus on local adaptation and knowledge-intensive, experimental approaches to food production that empower farmers to innovate towards more diversified

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<sup>14</sup> Proposal for a Directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law), [COM/2023/416 final](#)

food and farming systems. She also emphasised the importance of shifting R&I efforts from laboratories to fields, engaging farmers as well as other members of the food system as co-innovators in the regenerative agriculture journey.

**Bart Vandewaetere**, former Vice President of [ESG Engagement at Nestlé Europe](#), highlighted the indispensable role of soil in the food industry. He discussed Nestlé's commitment to regenerative agriculture and its efforts to transition towards a more sustainable and resilient food system. These nature-based solutions have a proven potential to address climate change while supporting farmers, and protecting, preserving, and restoring natural resources such as soil, water, and biodiversity. He underscored the importance of scaling up regenerative agricultural practices and adopting a landscape approach that involves collaboration between stakeholders across the food supply chain. He emphasised the opportunity for R&I policy to mitigate the risks for farmers during their transition by scaling up existing solutions. To expand regenerative agriculture and ensure profitability, entire farms must be transformed through a landscape approach involving collaboration among agri-commodity companies, food producers, farmers, and policymakers, necessitating the crucial implementation of an EU Food Investment & Resilience Plan to drive innovation, encourage support, and promote regenerative practices.

**Cindie Christiansen**, founder and Executive Director of [Foodprint Nordic](#) and a signatory of the Mission Soil Manifesto, emphasised the critical role of regenerative farmers in building healthy soil and promoting sustainable food production. Regenerative farmers are aligning in networks, such as the [European Alliance for Regenerative Agriculture](#), representing the new generation of farmers dedicated to building healthy soil and growing nutrient-dense food. She highlighted the challenges faced by regenerative farmers, including limited access to resources and education, and called for social innovation programs and farmer-first policies to support their efforts. She stressed the importance of aligning future research with the principles of biomimicry to develop innovations and promote regenerative practices. She emphasised the need for consensus on defining terms such as 'healthy soil' and 'regenerative agriculture' to support the European Green Deal and hold corporations accountable for their commitments to soil health and the regenerative transition in the food system.

## 8. Promising technologies

This session, chaired by **Jean-David Malo**, Director of the European Innovation Council and SMEs Executive Agency (EISMEA), showed best practices to foster sustainable food system transformation by using promising technologies. The discussion outlined possibilities in the public and private sector, and highlighted solutions for consumers to positively contribute to sustainable food system transformation. The session focussed on the role of technologies, what might be barriers of adoption, and how to overcome them. Key aspects were how Europe deals with technologies compared to the rest of the world, and what should be the role of ethics in technology development and employment. Current promising technologies were highlighted and a sneak pre-view into the potential future was given.

**Eveline Peeters**, Associate Professor at the [University Brussels](#), inspired the audience for the future use of synthetic biology and microbial technology to support the transformation to sustainable food systems. Synthetic biology holds promise to transform the food industry towards better sustainability, addressing challenges such as environmental pollution and climate change. By reengineering biological systems, synthetic biology can reduce the environmental impact of food production (e.g., drought-resistant crops, microbial protein as a meat alternative). The global rise of food tech start-ups employing synthetic biology approaches underscores its potential. To mature further in food applications, synthetic biology needs to enhance the complexity of engineered biological systems. Success stories exist, such as microbial production of human milk oligosaccharides, but shortcomings arise

from the complexity of these products compared to natural food products. Future research in synthetic biology will focus on the engineering of more complex biological systems like microbial consortia. Sustainability and socio-economic considerations should guide further application development. A holistic perspective, incorporating circularity and sustainability across the entire food supply chain, is crucial. The role of synthetic biology extends beyond food production: for example, by providing sustainable packaging solutions. Ethical frameworks should accompany research and development early on, due to potential disruptions to existing value chains and economic models.

**Liesbeth Luijendijk**, Director of AgroFood & Environment of [OnePlanet Resesarch Center](#), showcased ground-breaking innovations in nano-and digital technology. The innovation centre, a collaboration of imec, Wageningen UR and Radboud, develops nano- and digital technology innovations that contribute to solving the major societal challenges in the areas of climate, sustainability and preventive health. In this last domain, the aim is to develop technologies to measure and monitor health and empower people to use this information to prevent disease and live a healthier life. For example, an ingestible sensor could measure gut health and its link with the diet. A combination of the data that comes out of the sensor with AI for monitoring enables early signalling and intervention (e.g., personalised dietary advice). In the agriculture domain, some work is developed on future technologies that enable the transition towards sustainable food production, in precision agricultural production systems like agricultural robots and indoor autonomous farming systems are used. The systems of tomorrow (to enable regenerative agriculture) must be smaller, more robust, yet fast, efficient and economically viable. This asks for innovation: miniaturisation, for cheaper more robust sensors and for autonomous edge AI. It is important that the EU keeps supporting this innovation (as it is currently done as part of the Farm to Fork strategy).

**Talis Tisenkopfs**, Senior Researcher at [Baltics Studies Centre](#), outlined promising technologies currently explored in academic research and how to bring these to the market. He showcased some relevant company examples, and three actions that agri-food businesses can consider while striving to become more eco-efficient and circular: 1) reframing the bioresource use, technologies, products, and markets; 2) collaborating with other actors; and 3) ethicising the circular business practices. He used the company Fibenol as an example for the mentioned actions. Fibenol opened in 2023 a demo plant for production of biomaterials from wood residues. It uses a wood fractioning technology which converts 90% of hardwood residues into high value bioproducts, such as lignin, wood sugars and micro-cellulose. Products are sold to industrial clients worldwide. The example illustrates a radical innovation when the business completely redefines its way of operation and enters or even creates new markets. Regarding the second action, Fibenol's collaboration included participation in five Horizon Europe multi-actor projects, a membership in the [Bio-based Industries Consortium](#), and many more. Regarding ethics, it is not only about anticipating whether other people will act upon you with good intention and hoping that you will do the same. Ethics nowadays should be much more a proactive disclosure of your own good intention. The 'new' ethical paradigm is based on an openness drive, that is becoming an underlying principle. Many case studies in the CIRCLE project testify to the openness culture among business managers. However, formulating, materialising, and communicating ethical values specific to circular bioeconomy is not an easy task because circularity is such a broad concept and a variety of practices.

**Ingrid Boom**, Public Affairs adviser at Colruyt Group, showcased technologies used for enforcing and communicating sustainability to consumers, and several aspects of sustainability in retail, driving sustainability goals across the whole food system. She highlighted that retailers can contribute to a sustainable food system across the entire food supply chain, from farm to fork, despite low margins and using technology. Longer-term collaboration across the food chain and broad partnerships are key factors for success.

Several examples where technology may play a role include sustainable packaging, net-zero transports, more efficiency through AI at store level, circular water use and communication towards the consumer. Clear data governance with well-defined roles for different actors is needed for speeding up data sharing and for agreeing on the nature of shared data and sustainability standards, which should all be fit for purpose. Producer needs, government needs, and consumer needs are not the same. Still, interoperability of data sets is key. Retailers have a role to play in nudging consumers towards a more responsible consumption, by investing heavily in several focal points such as eco-labelling and nutritional labelling. Technology can play a role in some of them, especially to avoid green washing. The consumer is looking for solutions in terms of budget and sustainability and health and convenience, with a different order of priorities depending on the consumer. At the same time, retailers are operating in a highly competitive environment in which many other actors – beyond retail – influence consumer purchasing preferences.

## 9. International partnerships

This session, chaired by **Leonard Mizzi**, Head of Unit ‘Sustainable Agri-Food systems and Fisheries’ at the Directorate-General for International Partnerships (DG INTPA), provided a platform for a dynamic and insightful discussion featuring three distinguished experts in the field. The session focused on the transformative potential of international partnerships in addressing the complex challenges of our time and advancing global sustainability agendas.

**Hugo de Vries**, Research Director at [INRAE](#) and coordinator of the EU funded project ‘[FOODPaths](#)’ that is preparing the EU Sustainable Food Systems (SFS) partnership, shared his expertise and pivotal role in building up the Partnership, shedding light on the development of the international dimension of this critical collaboration. The European Partnership on Sustainable Food Systems enables to globally exchange on co-benefits and trade-offs of food system approaches. Multi-scale orchestration of food system approaches is the only sensible way to reach sustainable food systems globally and locally. A European Partnership on SFS is not inclusive if the rest of the world (players) is absent.

**Irene Annor-Frempong**, Lead for the [AU-EU FNSSA International Research Consortium](#), with her deep knowledge and contributions to the establishment of Food and Nutrition Security and Sustainable Agriculture (FNSSA) priorities, discussed the forthcoming AU-EU International Research Consortium (IRC) platform for FNSSA, highlighting the importance of international collaboration in addressing global challenges. The IRC will provide access to a large database of FNSSA projects, skills, and events to facilitate cross-country, cross-disciplinary, and cross-sectoral learning to bring results to the end-users. It will avoid unnecessary duplication, enhance scaling, improve targeting of R&I investments, facilitate effective governance of joint programmes, and catalyse higher impact. The IRC presents a two-way communication in the AU-EU science-policy interface and within the FNSSA partnership. It therefore affords easy partnering with institutions across Africa and Europe to bring results (i.e. practice) to policy. The IRC knowledge platform on AU-EU collaborations presents structural, practical, and participatory interaction between partners to promote joint funding opportunities on priority FNSSA topics and improve the contribution of projects to European and Africa development goals as well as to global targets e.g., SDGs.

**Angelo Riccaboni**, Chairman of the [PRIMA](#) Foundation, and an expert in fostering R&I partnerships, provided valuable insights into the water, agriculture and food systems nexus, emphasising how such partnerships can drive innovation, research, technology transfer, and capacity development on a global scale. Technological and organisational R&I are key to promote the transition towards more sustainable agrifood systems. To this purpose, in the Mediterranean area, greater attention should be given to the adoption of innovations by communities and SMEs. PRIMA is a successful example of R&I International Partnerships

fostering collaboration, exchange of knowledge and innovation in a critical area (i.e., the Mediterranean), based upon the principle of equal footing. Now more than ever, it is important to invest in cooperation and science diplomacy to find solutions able to address the common challenges we are facing, leaving no one behind. For solutions to be effective, more attention should be given to the nexus among water, energy, food and ecosystems. In fact, sustainable agrifood systems are essential to meet the global targets that the International Community has agreed upon in terms of climate change adaptation and mitigation, as well as for the implementation of Agenda 2030.



## 10. Strengthening food systems resilience

As shown by the COVID-19 pandemic and Russia's war of aggression against Ukraine, catalysing food systems transformation also requires building adaptive capacity and resilience from farm to fork. Food systems resilience, crucial in addressing global challenges such as climate change, biodiversity loss, and food insecurity, encompasses the capacity of food systems to withstand and recover from shocks and stresses while maintaining their functionality and sustainability<sup>15</sup>. To achieve resilient food systems, R&I is needed to identify and develop effective response mechanisms to mitigate the effects of shocks and stresses, and thus reduce vulnerability. To this end, Food 2030 provides a framing and multi-actor engagement process within which citizens, national, urban and local governments and a diversity of stakeholders, including the private sector, can work together in a balanced way, thereby mitigating risks and vulnerabilities and building resilient food systems.

This session provided a platform for a dynamic and insightful discussion featuring four distinguished experts in the field. **Klaus Berend**, Director of Food Safety, Sustainability, and Innovation at DG SANTE, chaired the session.

**John Ingram**, who leads food systems research at [Oxford University's Environmental Change Institute](#), emphasised the importance of clarity when discussing resilience by

<sup>15</sup> Zurek, M., Ingram, J. et al. (2022) Food System Resilience: Concepts, Issues, and Challenges Annual Review of Environment and Resources, 47: 511-534.

answering five critical questions: 'Of What?', 'To What?', 'From whose perspective?', 'Over what time period?', and 'For what purpose?'. He highlighted that of the three resilience-building strategies (Robustness, Recovery, Reorientation), only the third strategy, 'Reorientation' involves rejecting the status quo. He also noted that while resilience and sustainability are distinct concepts, the 'Reorientation' strategy contributes to both.

**Faustine Bas-Defosse**, Director for Nature, Health and Environment at the [European Environmental Bureau \(EEB\)](#), underscored the need to reshape the human-nature relationship within the current extractive paradigm of the food system. She emphasised the importance of research in informing a transition to sustainable and resilient food systems, advocating for a food systems approach to policy making and governance structures. She also stressed the necessity of bridging the science-policy divide to ensure that scientific evidence on 'food-climate-nature-pollution' nexus informs policy objectives and targets at all stages of decision-making.

**Ondina Afonso**, Head of Quality & Research at [Sonae MC](#), highlighted the crucial role of retailers in the agri-food sector and the need for strategic partnerships across the entire value chain. She emphasised that retailers bring valuable insights and information to research and development projects, enhancing their adaptability to real-world contexts. She also emphasised the importance of digitalisation in strengthening partnerships within the food system.

These insights collectively emphasise the multidimensional nature of resilience-building in food systems and underscore the importance of interdisciplinary collaboration, strategic partnerships, and informed governance structures in fostering sustainable and resilient food systems.

## 11. Getting real – smart deployment on the ground

This session, chaired by **John Bell**, Director of Directorate Healthy Planet at DG RTD, showcased practical and tangible best practices to foster sustainable food system transformation, to show possibilities in the public sphere, inspire public stakeholders, and show consumers ways to positively change their behaviour. The session focussed on drivers of successful and smart deployment and how to make solutions safe and inclusive. Deployed solutions need to be scaled and replicated for impact. The session concentrated on how to make this happen and what are the needed preconditions at local, regional and national level. The participants to the session highlighted financing and network possibilities for change on the ground, with key examples for immediate and long-term benefits for European citizens and the environment.

**Hila Cohen**, Deputy Head of the [UN WFP Innovation Accelerator](#), focussed on how the WFP pilots implement and scale new ideas, when it comes to adopting novel technologies, designing and executing its programmes. Hila gave a few examples of success factors from the experience of the WFP Innovation Accelerator. The Human Centred Design (HCD) is a key mindset and methodology used at the WFP Innovation Accelerator. When solving a problem, you need to understand the reality and the daily actions of the user. If you assume that their reality is like yours – the innovation you are working on will not solve their problem, and thus the chances of adoption and repeated use will be significantly reduced. For any innovation, one of the key indicators of success is the team behind the innovation/venture. That is why when the WFP Innovation Accelerator select ventures/start-ups to its programs, it thoroughly assesses the capabilities and experience of the team, including assessing the diversity within the team. There is a growing number of solutions and start-ups that want to solve the most challenging problems (e.g., food insecurity and climate change). Any actor in an innovation ecosystem needs to define what is their value added to that innovation. In the

case of the WFP Innovation Accelerator, the goal is to support teams in their different maturity levels - whether it is implementing the solution to assess its feasibility or supporting in scaling innovations (including assessing a sustainable business model and advising on access to financing that will enable the growth of the impactful innovation).

**Line Gordon**, Director of the [Stockholm Resilience Centre](#), focused on deployment that enhances resilience, providing a Swedish example of sustainable food system transformation on local level, taking into account the recently published Nordics dietary guidelines. The global challenges we are facing need to be translated into national targets and pathways that are appropriate in each socio-cultural setting. This includes setting targets and indicators for changes from production to consumption, across sectors and agencies with different responsibilities. In the current state of polarisation and misinformation, it is more important than ever that smart deployment is based on evidence and independent science. The Nordic Nutrition Recommendation is an important effort of science-based evidence that accounts for both nutrition and environment. A Swedish example of a citizen assembly on food has shown that if a diverse group of citizens gets to understand an issue, they can come up with quite radical proposals on how to achieve change.

**Betina Bergmann Madsen**, Chief Procurement Officer at the Municipality of Copenhagen, showcased the Copenhagen's innovative and ambitious food strategy including sustainable food procurement, the obstacles she faced and best practice. Procurement officers have a unique opportunity to bring the political goal to life by writing the supporting criteria and implementing them through the public contract. This can be the decisive factor that contributes to get the food chain towards a more sustainable direction, which then can create noticeable changes in primary production also in distant countries. In Copenhagen, [Our approach to food](#) supports the implementation of the Danish official dietary guidelines but also the creation of a more resilient food system. There is a [Legal Guide on Farm to Fork Procurement](#) with information on how to open tenders to SME and farmers and link the school children closer to the farms, as well as global guidelines by the WHO that must be shared through networks nationally and internationally.

**Christian Bugge Henriksen**, Research Group Leader at Copenhagen University and coordinator of EU funded project [CLEVERFOOD](#), shared his experience with EU projects driving dietary shifts by a holistic approach taking the whole food system into account, explaining how joining forces of EU funded projects will make an impact. Silos should be broken down and projects and initiatives that are sharing a similar vision of transforming the food system should be brought together. Food security and green transition are not opposites, but the shift towards a healthy and sustainable food system that is at the same time fair for both farmers and consumers, is the only way to ensure food security and social stability. Living Labs are an important mechanism for supporting food system transformation at the local and regional level. In the [FoodSHIFT 2030](#) project, the Living Labs have been effective in building new and stronger partnerships between local food system stakeholders, and motivating municipalities and metropolitan regions to develop a food policy and sign the Milan Urban Food Policy Pact. Cities and citizens have a key role in transforming our food system. 75% of the European population lives in urban areas, and if citizens can be empowered to make the best decisions for their own food consumption and demand healthy and sustainable food from farmers that are paid a fair share of the price for the food they produce - the food system can then be truly transformed.

## 12. Global food systems governance and science policy interfaces

This session fostered an interactive discussion on the crucial role of science-policy interfaces in shaping global food systems and the need to strengthen governance to align with the

objectives of the [post-UN Food Systems Summit](#) (UNFSS) agenda and the [Sustainable Development Goals \(SDGs\)](#) of Agenda 2030.

The session was chaired by **Maria Cristina Russo**, Director for Global Approach & International cooperation in DG RTD.

**Jacqueline Broerse**, Professor at the [Athena Institute Vrije Universiteit Amsterdam](#), emphasised the need to expand the traditional Science-Policy Interfaces model to include society, advocating for science-policy-society interfaces. She highlighted the importance of establishing better links between scientific communities, policymakers, businesses, civil society, and marginalised groups. She underscored the necessity for a 'systems approach' and more inter- and transdisciplinary research to address the complexity and urgency to deliver co-benefits while minimising trade-offs in the process of food system transformation. Additionally, she stressed the importance of capacity building to translate evidence into action and gather support from stakeholders at various levels to create support and ownership concerning the transformation of our food systems.

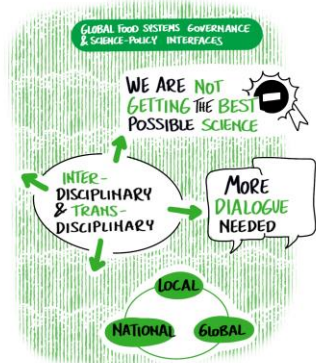
**Patrick Caron**, Director of the [Montpellier Advanced Knowledge Institute on Transitions](#) at the University of Montpellier and Vice Chair of [CGIAR System Board](#), underscored the significance of pooling collective intelligence from different sectors to drive food systems transformation, as it intersects with food, social, environmental, climate, and health-related challenges. He emphasised the need for sharing actionable knowledge, improving institutional arrangements where dialogue and convergence can take place, strengthening the capacities of non-traditional stakeholders and having a better connection and articulation between experts from different sectors. He also highlighted the importance of learning from diverse Science-Policy Interface practices and creating safe spaces for reflection and collaboration, as demonstrated by the [Montpellier Process](#) aimed at designing transformative pathways across climate, biodiversity, health, and food systems.

**Stefanos Fotiou**, Director, [Office of Sustainable Development Goals](#) at the Food and Agriculture Organization of the United Nations (FAO), advocated for investing in the next generation of food systems leaders to navigate complexity and drive transformative change on agrifood system. He emphasised the centrality of equity and co-creation in the transformation process, stressing the need to address the crisis of trust and legitimacy. He urged for swift change rather than incremental improvements, emphasising the importance of scaling up solutions that challenge existing mindsets and power relations.

Collectively, these insights underscored the importance of broadening stakeholder engagement, fostering interdisciplinary collaboration, and prioritising equity and transformative change in shaping global food systems governance.



## BREAK OUT SESSIONS : PART 2



VISUALS by SPEN from VISUALITY.EU




## CONCLUSION




The Food 2030 conference provided food for thought on various issues. It enabled to showcase important Food 2030 projects and solutions, gather support for the system approach proposed within Food 2030 and set out ideas on future research needs. Important discussions took place on how Food 2030 can be implemented in the last three years of Horizon Europe (2025-2027), and with the candidate Horizon Europe Sustainable Food System Partnership for People, Planet and Climate. Several thematic areas have been explored such as the link between soil health and food, food system resilience to climate change, sustainable healthy diets, and the changing gastronomy industry, cross-cutting issues related to science for policy, how to strengthen science-policy interfaces and foster international partnerships for improved food systems governance. During the conference the key role of youth in transforming our food systems towards more sustainable and resource efficient systems was underlined. The discussions also went beyond expected themes with reflections on how the arts and the entertainment sector can help to think outside the box and convey scientific findings, create new powerful stories and narratives, raise and thereby create awareness and foster behavioural change.




In his final wrap up, **Peter Wehrheim**, Head of Unit of unit B2 'Bioeconomy and food systems' in DG RTD, reminded that our food systems are an integral part of the bioeconomy, at the heart of which we are witnessing a bio-revolution. Without sustainable food systems, there cannot be a sustainable and circular bioeconomy and vice versa. He then welcomed participants to join the next major event planned on 11-17 March 2024: the Bioeconomy Changemakers Festival, with high level discussions in Brussels on 13-14 March 2024 and more than 30 'satellite' events organised by partners across Europe.




## ANNEX I – ‘FOOD VILLAGE’ EXHIBITION


During the two days of the conference, a ‘Food Village’ exhibition was hosted on the two levels of the foyer of the conference venue. The exhibitors were mostly EU funded projects that emerged from the Food 2030 pathways and other relevant initiatives, which were able to display their results and connect with the attendees.

	Stand name	Description
 <p><b>Food 2030 Pathway ‘Governance for food systems change’</b></p>	<p>Food 2030 networks by <a href="#">CLEVERFOOD</a></p>	<p>Based on the EU Food 2030 Policy Framework, the Farm to Fork Strategy and the Fit for 55 Package, the EU-funded CLEVERFOOD project engages with European citizens, including children and youth, and stakeholders from the farm and food sectors to transform the European food system. CLEVERFOOD provides targeted support for ongoing and emerging projects, partnerships and networks implementing a pan-European Food 2030 multi-actor and public engagement mechanism. The project is establishing an interlinked multi-level structure of connected Policy Labs and Living Labs to pave the way for a more regenerative, resilient and plant-based food system. CLEVERFOOD is also developing models for transformative multi-level food system governance and strategies for advancing food policies and legislation.</p>
 <p><b>Food 2030 Pathway ‘Urban food systems transformation’</b></p>	<p><a href="#">FoodCLIC</a></p>	<p>All citizens should be able to fill their plate with nutritious, safe, sustainable and affordable food. However, Europe’s urban areas are struggling to ensure availability and consumption of healthy, sustainable food among deprived and vulnerable groups. With this in mind, the EU-funded FoodCLIC project is creating more sustainable urban food environments by building strong science–policy–practice interfaces (i.e. food policy networks) and experimenting with innovative approaches and business models in Living Labs across eight European city-regions. Activities are supported by an innovative conceptual framework (the CLIC), which emphasises sustainability co-benefits, spatial linkages, social inclusion and sectoral connectivity. FoodCLIC also supports multi-stakeholder engagement, including deprived and vulnerable groups.</p>
 <p><b>Food 2030 Pathway ‘Food from the ocean and freshwater resources’</b></p>	<p><a href="#">NewTechAqua</a></p>	<p>In Europe, aquaculture accounts for about 20% of fish production and directly employs some 85 000 people. EU aquaculture is renowned for its high quality, sustainability and consumer protection standards. Increasing the sector’s production and competitiveness is a priority. The EU funded NewTechAqua project has developed and validated technologically-advanced, resilient and sustainable new solutions to expand and diversify EU production of finfish, molluscs and microalgae. The solutions are grouped (feed, Industry 4.0 sustainable farming,</p>

		genetics, new species and new products) and validated on conventional (Atlantic salmon, rainbow trout, seabass and seabream) and emerging (greater amberjack, meagre, Senegalese sole and grey mullet) finfish species, molluscs (Pacific oyster, mussel) and microalgae.
 <p><b>Food 2030 Pathway 'Alternative proteins for dietary shift'</b></p>	<a href="#">Giant Leaps</a>	<p>The footprint of our food system can shrink as consumers turn to alternative dietary proteins from animal-based proteins — what experts call the dietary shift. This would lead to, among others, fewer greenhouse gas emissions and less use of energy, water and land. The EU-funded GIANT LEAPS project seeks to accelerate this dietary shift, which is in line with the farm-to-fork strategy and contributes to the EU Green Deal target that aims to improve the well-being and health of citizens, by providing strategic innovations, methodologies, and open-access datasets. The work is supporting policymaking towards the dietary shift, value chain actors in their decision-making, and the public for their healthier and more sustainable dietary choices.</p>
 <p><b>Food 2030 Pathway 'Food waste and resource-efficient food systems'</b></p>	<a href="#">SISTERS</a>	<p>In the EU, around 89 million tonnes of food waste are generated annually; an estimated 20% of the total food produced is lost or wasted. The EU is committed to reversing this trend, which has a huge environmental impact. In this context, the EU-funded SISTERS project is designing the first European short-chain platform for farmers to sell their discarded production. Smart and reusable food containers are being designed to diminish food losses during transportation, and bio-based and home-compostable packaging solutions will be implemented to improve the preservation and quality of food. Bringing together 18 partners from eight EU countries, the project aims to address the issue of food waste and its impacts, and lead towards more sustainable consumer behaviours.</p>
 <p><b>Food 2030 Pathway 'The microbiome world'</b></p>	<a href="#">HealthFerm</a>	<p>Food fermentation is a natural process in which food components are converted by microbial growth of desired yeast and bacteria and enzymes. It is an ancient technique purported to promote the growth of beneficial bacteria in the gut. Food and health experts on the EU-funded HealthFerm project are advancing fermentation technology and enabling the transition from traditional to sustainable grain-based fermented foods. These will be rich in protein and designed to offer maximum health benefits to EU consumers. For optimal results, they will unravel the relationship between fermentation, the gut microbiome, grain-based foods and health. Moreover, they are identifying and employing suitable microorganisms in the development of novel grain-based food sources and assessing their impact on gut health.</p>

 <p><b>Food 2030 Pathway 'Nutrition and sustainable healthy diets'</b></p>	<p><a href="#"><u>PREVENTOMICS</u></a></p>	<p>Many chronic diseases have multiple causal factors, which can be modulated through diet and the correction of nutritional habits. The disease-inducing factors include alterations in lipid and glucose metabolism, chronic inflammation, oxidative stress and gut microbiome dysfunction. The strategy of personalised nutrition is growing in popularity and requires adequate delivery tools as well as an understanding of diet variables for personalisation, and the removal of barriers in the way of healthy habits. The EU-funded PREVENTOMICS project has built a new paradigm in personalised nutrition strategies based on multi-omics data paving the way towards a more accessible personalised nutrition. The project effort includes the integration of genetic, nutritional and psychological data with metabolomics technologies and computational modelling to evaluate the incidence of disease-inducing factors on the organism.</p>
 <p><b>Food 2030 Pathway 'Food safety systems of the future'</b></p>	<p><a href="#"><u>FoodSafety4EU</u></a></p>	<p>Food safety is a top priority for the European Commission. The central goal is to assure a high level of protection of human health through safe products by the food industry - the Europe's largest manufacturing and employment sector. The EU-funded FOODSAFETY4EU project has designed, developed and released a multi-stakeholder platform for the future European Food Safety System (FSS). The platform established a network of FSS actors at national, European and international level. It enables them to access resources and data efficiently, synchronise food safety research strategies, share and exchange scientific knowledge and contribute to transparent communication regarding the FSS. The FOODSAFETY4EU platform maximises cooperation within the system and with the civil society boosting the co-creation of strategies and their translation into policies and funding programmes.</p>
 <p><b>Food 2030 Pathway 'Food systems Africa'</b></p>	<p><a href="#"><u>INCiTIS-FOOD</u></a></p>	<p>Current African food systems are experiencing severe challenges in delivering desired outcomes of food and nutrition security, environmental conservation and sustainable livelihoods. Consequently, a quarter of those residing in African cities remain food insecure and malnourished. Within 4 years, the EU-funded INCiTIS-FOOD project will improve food and nutrition security in African city regions and reduce the food-system-related environmental footprint while contributing to circularity. INCiTIS-FOOD is co-creating circular agri-food technologies, practices and business models that focus on soilless crop farming, recirculating aquaculture systems and insect farming. A core part of the project is the establishment of eight Living Labs located in six countries across three African regions. The project also empowers communities through the Open Calls funding, supporting external Local Innovation Hubs.</p>

 <p><b>Food 2030 Pathway ‘Data &amp; digital transformation’</b></p>	<p><a href="#"><u>Data4Food2030</u></a></p>	<p>The digital transformation of food systems has entered a twilight zone: data-driven innovations have proven to be promising, but it is still unclear how to upscale adoption and have broader acceptance. The Data4Food2030 project aims to improve the data economy for food systems (DE4FS) by expanding its definition, mapping its development, performance and impact to create new insights and opportunities. This contributes to a more competitive and sustainable food system in the EU and supports implementation and adaptation of relevant policies such as a Digital Single Market, Green Deal and the Common Agricultural Policy. Data4Food2030’s approach is targeted at an improved future state of the DE4FS from which clear design principles, recommendations and solutions are derived for improving and adapting policies and practices at public and private level. As an essential part of the project, stakeholders are deeply engaged to provide input to various DE4FS concepts and evaluate several project outcomes to increase the impact of the project. Nine case studies provide real-life examples of the DE4FS at micro- and meso-economic level, deploying data and technologies, which are used for mapping and improvement to promote data-enabled business models. In this way, Data4Food2030 creates credible pathways to navigate properly through the twilight zone towards a fair, inclusive and innovative DE4FS.</p>
 <p><b>Horizon Europe Mission ‘A Soil Deal for Europe’</b></p>	<p><a href="#"><u>SOIL O-LIVE</u></a></p>	<p>The olive tree is one of the most important oil-producing crops in the Mediterranean region. However, olive growers face many challenges due to intensive agriculture applications, land degradation, biodiversity impoverishment and functionality loss. In this context, the EU-funded SOIL O-LIVE project will implement a set of multidisciplinary and interdisciplinary projects. The aim is to diagnose the environmental situation of olive grove soils on a broad scale. The project targets the most significant areas of olive production in the Mediterranean region. SOIL O-LIVE analyses the impact of pollution and land degradation on olive groves’ soils, investigate the relationship of soil health status with the quality and safety of olive oil, implement effective soil amendments and ecological restoration practices, and define rigorous ecological thresholds for healthy European olive groves.</p>
 <p><b>EU Bioeconomy Youth Ambassadors</b></p>	<p>FoodPrint by <a href="#"><u>Bioeconomy Youth Ambassadors</u></a></p>	<p>Youth Ambassadors lead by example, inform and inspire their communities on sustainable circular bioeconomy and bioeconomy related-fields (e.g. food systems, forestry, agriculture, fisheries, bio-based sectors, nature-based solutions, blue bioeconomy, rural development, ecosystem services, climate change, biotechnology...). They are dedicated individuals or groups of individuals eager to reach out to communities, students and civil society, and to engage decision-makers, and raise</p>

		awareness on social media to raise awareness about the role of the bioeconomy in everyone's life. They reach out to youth communities and support the ongoing youth and education related processes of the European Union.
 <p><b>Horizon 2020 Green Deal Call</b></p>	<p><a href="#">Green Deal Call</a> support office</p>	<p>The Horizon 2020-funded European Green Deal Call, which was launched in September 2020, has funded R&amp;I projects for a total of EUR 1 billion to spur Europe's recovery from the Coronavirus crisis by turning green challenges into innovation opportunities. These projects respond to the climate crisis and help protect Europe's unique ecosystems and biodiversity.</p>

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This report captures the main findings of the European Commission (EC) Conference entitled 'Food 2030: Green and resilient food systems', which was held in Brussels on 4-5 December 2023. The event, which represents an important milestone in the EC's Food 2030 process, served to showcase promising Research and Innovation (R&I) outcomes contributing to sustainable food systems transformation in Europe and beyond. Furthermore, the conference provided a space for multi-stakeholder reflection and dialogue towards envisioning future R&I needs.

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