



*Scientific Advice
Mechanism (SAM)*

Towards Sustainable Food Consumption

*Group of Chief Scientific Advisors
Scientific Opinion No.14, June 2023*

**Independent
Expert
Report**



Research and
Innovation

Towards Sustainable Food Consumption

Group of Chief Scientific Advisors

European Commission
Directorate-General for Research and Innovation
Unit 02 — Science Policy, Advice & Ethics

Email EC-SAM@ec.europa.eu
RTD-PUBLICATIONS@ec.europa.eu

European Commission
B-1049 Brussels

Manuscript completed in June 2023.

This document has been prepared for the European Commission, however it reflects the views only of the authors, and the European Commission shall not be liable for any consequence stemming from the reuse.

PDF	ISBN 978-92-68-01571-1	doi:10.2777/29369	KI-09-23-145-EN-N
-----	------------------------	-------------------	-------------------

Luxembourg: Publications Office of the European Union, 2023

© European Union, 2023



Reproduction is authorised provided the source is acknowledged.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightholders. The European Union does not own the copyright in relation to the following elements:

Image credits: Cover page: ©Ирина, #517384917, #340706963; 2023. Source: stock.adobe.com

EUROPEAN COMMISSION

Chief Scientific Advisors
INDEPENDENT SCIENTIFIC ADVICE FOR POLICY MAKING

Towards **Sustainable Food Consumption**

Promoting healthy, affordable and
sustainable food consumption choices





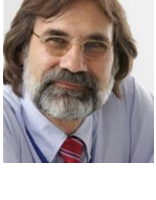
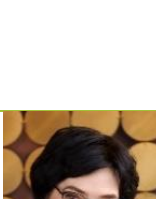
Group of Chief Scientific Advisors
Scientific Opinion No.14, June 2023
(Supported by SAPEA Evidence Review Report No. 12)

Brussels, 28 June 2023

TABLE OF CONTENTS

Acknowledgements	5
Executive summary.....	6
Introduction	14
Review of the current food policy system in the EU	19
Summary of the Evidence Review Report.....	21
Underpinning recent reports and Scientific Opinions	23
Recommendations	27
Annex 1 – Scoping paper	45
Annex 2 – Methodology	54
Annex 3 – List of consulted stakeholders and representatives.....	56
Annex 4 – Extensive review of the current food policy system in the EU	59
Annex 5 – References	74

GROUP OF CHIEF SCIENTIFIC ADVISORS

	<p>Nicole Grobert Chair Professor of Nanomaterials at the Department of Materials at the University of Oxford</p>
	<p>Maarja Kruusmaa Professor of Biorobotics and Vice-rector for Research at the University of Technology (TalTech) in Tallinn</p>
	<p>Eric F. Lambin Professor of Geography and Sustainability Science at the Catholic University of Louvain and Stanford University</p>
	<p>Alberto Melloni Professor of History of Christianity at the University of Modena/Reggio Emilia and Chair on Religious Pluralism and Peace at the University of Bologna</p>
	<p>Nebojša Nakićenović Deputy Chair Executive Director of The World in 2050 (TWI2050), former Deputy Director General of the International Institute for Applied Systems Analysis (IIASA) and former tenured Professor of Energy Economics at the Vienna University of Technology (TU Wien)</p>
	<p>Eva Zažímalová Professor of Experimental Plant Biology at the Charles University in Prague and President of the Czech Academy of Sciences</p>

ALUMNI

	<p>Janusz Bujnicki (until 15 November 2020) Professor, Head of the Laboratory of Bioinformatics and Protein Engineering, International Institute of Molecular and Cell Biology, Warsaw</p>
	<p>Carina Keskitalo (until 15 May 2021) Professor of Political Science, Department of Geography, Umeå University</p>
	<p>Éva Kondorosi (until 15 May 2023) Research Director Institute of Plant Biology, Hungarian Academy of Sciences Centre of Excellence, Szeged</p>

ACKNOWLEDGEMENTS

The Scientific Opinion 'Towards sustainable food consumption' was adopted by the Group of Chief Scientific Advisors in June 2023.

The Scientific Advisors in charge of developing this Opinion were Eric Lambin (lead), Nicole Grobert, Nebojša Nakićenović and Eva Zažímalová, as well as the former Advisors (acting as experts) Janusz Bujnicki and Carina Keskitalo.

The Scientific Advisors would like to thank the many contributors for their invaluable support and input in preparing this Scientific Opinion:

The Science Advice for Policy by European Academies (SAPEA) consortium (chaired by Antonio Loprieno), which provided an Evidence Review Report (ERR) under the leadership of the SAPEA Working Group Chair Erik Mathijs, aided by SAPEA staff Céline Tschirhart, Louise Edwards, Marie Franquin, Frederico Rocha, Alison Weightman, and other colleagues;

The project team in European Commission RTD.02 Unit (Science Policy, Advice and Ethics): Nicola Magnani, Leonard Engels, Lucia Selfa Aspiroz, Ingrid Zegers, Annabelle Ascher, Gilles Laroche (Head of Unit) and other Unit staff, with support from Marie Jo A. Cortijo;

All the scientific experts, policy officers and stakeholders listed in Annex 3 who were consulted or otherwise informed the Opinion;

The members of the SAM Inter-Service Group and other colleagues in the European Commission who gave their feedback to the scoping paper in Annex 1.

EXECUTIVE SUMMARY

There is a broad scientific consensus that our current food system is unsustainable and a major driver of climate change, biodiversity loss and environmental degradation (including in those environments on which food production is critically dependent). Radical system-wide changes are urgently needed to correct this. It is a daunting task, however, when one considers the complexity of food systems; the very large number of different actors (and their interrelations) that have a role in food production, distribution and consumption; the very short timeframe within which this transformation must take place; and the human tendency to stick with the status quo.

The Farm to Fork strategy, announced by the European Commission in 2020, is an important step towards a much-needed overarching framework for governing the EU's food systems in a holistic manner. Many of its policy goals are based on the premises that consumers choose food through rational and reflective processes and that the 'well-informed, sovereign consumer' can always choose what to buy and eat. In reality, however, scientific evidence shows that food-related behaviours are often dominated by habits, routines and emotional processes, and that the food environment strongly shapes consumer choices, concerns and priorities. Even motivated consumers have limited opportunities to choose sustainable products if retail outlets do not carry convenient alternatives. Finally, customers are unable to assess a product's actual impact on the environment, the climate and social issues unless trusted information is available to them.

A shift in consumer attitudes and behaviours could certainly contribute to make the whole food system more sustainable, but the above considerations suggest that policy interventions should address not only consumers but also food providers, producers, manufacturers, distributors and retailers.

This Scientific Opinion presents a set of recommendations for a mix of policy interventions to overcome the barriers that are preventing consumers from adopting more sustainable and healthier diets. The central contribution which informed the present Opinion is an Evidence Review Report produced by the SAPEA network of European Academies, which set up a working group of independent, international, and interdisciplinary experts who analysed and discussed the scientific evidence based on a systematic literature review on the topic of sustainable and healthy food consumption. The report identifies five areas where policy can intervene in this context: food prices, physical availability, composition, information and social environment.

The policy recommendations in this Opinion form a coherent whole and should be adopted together in order to promote changes in consumer behaviours and the food environment. All the measures should be implemented as soon as possible, but some will have short-term effects while others will only transform the food system over the long term. This mix of policies would complement the current initiatives under the Farm to Fork strategy, which were left outside the scope of the request for this Scientific Opinion.

RECOMMENDATION 0 – COORDINATE THE ADOPTION OF A COHERENT MIX OF COMPLEMENTARY POLICIES THAT INCLUDE INSTRUMENTS ADDRESSING INCENTIVES AND DISINCENTIVES, INFORMATION ON HEALTHY AND SUSTAINABLE FOOD, AND REGULATORY MEASURES.

The food system is complex, dynamic and subject to significant uncertainties. Moreover, its current governance means that it is not always possible to harness all the potential synergies between policy interventions. A coherent and transformational policy mix should couple direct measures on the food environment with softer measures aimed at influencing and reshaping social norms. The former could include taxes, bans and mandatory product reformulations, and in general do not require high agency at consumer level. The latter should include interventions on choice architecture and nutritional profiling, and should be aimed at improving consumers' knowledge, skills and awareness.

0.1 Develop a long-term vision on healthy and sustainable diets that is shared by all supply-chain actors who influence the food environment, and make these actors accountable.

Getting consumers to change their behaviour is a necessary step but not sufficient. All actors in and influencing the food environment must play a part in providing consumers with the motivation, capability and opportunity to change their behaviour and reclaim control over their food choices. At the same time, the assessment of existing policies and the design of new measures should be developed with all stakeholders as equal partners. This inclusive dialogue should be based on the common recognition that the adoption of healthy and sustainable diets needs to occur considerably faster.

0.2 Ensure coherence between different interventions that influence the food system and remove conflicting interventions.

All possible synergies between policy interventions should be explored, maximising opportunities and benefits while managing unavoidable trade-offs. Existing policies therefore need to be carefully evaluated in order to assess how

they serve and support (or contradict) the goal of a food system that provides sustainable and healthy products, and how these policies might interact with, complement or undermine new policy interventions.

0.3 Ensure high-level policy coordination by developing communication channels, sustained dialogues and a harmonised governance system.

EU food governance currently consists of a fragmented set of policies that, intentionally or unintentionally, affect the functioning of the EU food system. The planned legislative framework should not contain conflicting policies but should ensure a coherent and harmonised governance system. Policy could be coordinated either through an advisory body or through a systematic dialogue between all Commission entities that are regulating or enforcing laws related to any aspect of the food system.

0.4 Monitor responses to new policies by food processors and retailers in order to anticipate any unintended effects of policy interventions.

All policy measures should be monitored and periodically reviewed to see whether they are achieving their intended purpose and if they have any unintended consequences. Monitoring the food system will increase transparency and the awareness of consumers, who will gain a greater role in driving a transformation of the food system.

RECOMMENDATION 1 – MAKE HEALTHY AND SUSTAINABLE DIETS THE EASY AND AFFORDABLE CHOICE.

People primarily change their behaviour in response to incentives and information. It is therefore important to make it easy for consumers to choose sustainable and healthy food rather than the alternatives. Monetary and other incentives can significantly boost the adoption of healthier and more sustainable diets by consumers.

1.1 Identify the optimal fiscal mechanisms to progressively introduce taxes on products whose frequent consumption is unhealthy and unsustainable, with appropriate communication and evaluation measures.

Excessive consumption of unsustainable and/or unhealthy products can be effectively reduced with minimal cost to society if sufficiently high tax rates are applied to them. The revenues from this taxation should be used to reduce inequalities in food access by redistributing them to low-income households based on focused food subsidies.

Sufficiently high taxes on red and processed meat and on products high in unhealthy fats, salt and sugar should be introduced. A tax on meat production could also be linked to associated greenhouse-gas emissions, thus building on existing emission reduction schemes such as the Emission Trading System (ETS) and the Carbon Border Adjustment Mechanism (CBAM).

1.2 Make healthy and sustainable diets more affordable.

Food affordability, together with taste and habit, has a large influence on consumer decisions. Taxes on red and processed meat and on products high in unhealthy fat, salt and sugar therefore need (as suggested above) to be accompanied by measures to make healthier and more sustainable alternatives—especially alternative sources of proteins and micronutrients—more easily available and affordable through subsidies and/or reduced VAT.

1.3 Adjust subsidy schemes for production systems with low environmental performances, where needed.

Supply-side policy measures are needed in order to incentivise sustainable agricultural production systems to provide consumers with affordable, healthy and sustainable food products. Changing incentive structures also changes prices and thus consumer choices. Existing subsidy schemes should therefore be realigned if they are found to be working counter to sustainability goals or supporting the goal poorly. Farmers should be consulted as part of the governance of this transformation and support should be maintained for those production systems in which animal agriculture has particularly low or even positive environmental impacts (e.g., where grazers are important elements of an ecosystem).

1.4 Address the root causes of poor nutrition with social policies aimed at eradicating poverty and investing in better education for all.

Food policies need to be integrated into broader economic and social policies that address poverty and food literacy more generally. Increasing the amount of money that consumers can spend on food and creating economic opportunities are an essential component of addressing food insecurity and improving diets in the long term.

RECOMMENDATION 2 – SECURE THE PROVISION OF ADEQUATE AND TRUSTED INFORMATION ABOUT THE ENVIRONMENTAL AND HEALTH IMPACTS OF DIFFERENT FOODS IN ORDER TO ENCOURAGE HEALTHY AND SUSTAINABLE DECISION-MAKING BY ALL ACTORS IN THE FOOD SYSTEM.

Transparency is very important for achieving sustainability because it empowers consumers and may prompt food manufacturers and retailers to change their business practices. Consumers absolutely must have access to accurate, unbiased and understandable information about the food that is available to them and about sustainable and healthy diets.

2.1 Generalise the inclusion of sustainability criteria in national dietary guidelines.

National dietary guidelines already promote healthy diets, but most are not consistent with sustainability goals such as the Paris Climate Agreement. The explicit inclusion of sustainability criteria, in addition to a revision of the guidelines based on the latest knowledge about healthy diets, could influence consumer demand for (and the supply of) healthier and more sustainable products. An EU-wide framework for 'good practices' in updating national dietary guidelines to link health and sustainability could provide everyone with access to practical information to improve their diets.

2.2 Define and communicate EU-wide and national-scale time-bound goals for healthy and sustainable consumption.

The EU should define food-related sustainability goals similar to the UN Sustainable Development Goals (SDGs) on topics related to the adoption of healthy and sustainable diets. These goals should be defined by engaging all stakeholders through a participatory process. Member States would then define their own time-bound ambitions on commonly defined goals. The pursuit of these goals would thus be driven by the ambitions of individual countries in a bottom-up and inclusive approach.

2.3 Develop both information campaigns to raise consumer awareness about health and the sustainability impact of diets and education programmes to improve food literacy.

Public marketing campaigns, labels and scores on food packaging, advertisements and digital personalised feedback tools are important ways to inform people about healthy and sustainable food choices. Such initiatives should include communication campaigns and education programmes to prevent consumer food waste by reducing overconsumption and to improve practices for food preparation, storage, planning, shopping and reuse/recycling.

2.4 Encourage consumers to establish more direct connections with primary food producers in order to increase food literacy.

Short supply chains for food involve a very small number (or even the absence) of intermediaries and/or a short geographical distance between farmers and consumers. Local food production only covers a small share of total food consumption and may sometimes have a greater environmental impact than more distant alternatives, but it increases consumers' engagement in local food production methods and food quality and therefore has a high educational value. Access to 'diverse entitlements' beyond formal market structures leads to greater resilience, more direct contact with food and with farmers, and more sustainable and healthy diets.

2.5 Make better use of the potential of the digital food environment to inform consumers about healthy and sustainable diets and to reduce food waste.

Nowadays, all aspects of the food environment are undergoing digital transformation. This provides various opportunities to promote healthier and more sustainable food purchasing, storage and use. Digital media may be used to promote disinformation and misinformation, so they need to be regulated with similar rules to those that cover advertising.

2.6 Restrict advertising for food products and drinks whose frequent consumption is unhealthy and unsustainable.

The promotion of all unhealthy and unsustainable food and alcohol should be restricted because voluntary codes of conduct for responsible marketing are not sufficient. In particular, advertising unhealthy foods to children should be banned in all media. Promotion of unhealthy and unsustainable food through promotional pricing should also be restricted in order to prevent companies from bypassing advertising restrictions with increased price competition.

2.7 Engage with all food-system actors in a transparent manner and give an equal voice to all stakeholders in order to obtain healthy and sustainable diets and to overcome expected opposition from some food industry actors to some policy measures.

There is evidence that some meat-industry representative bodies have influenced public discourse in order to counter scientific evidence on the negative impact of meat consumption on health and the climate. This is reminiscent of how the tobacco and fossil fuel industries have long actively influenced public discourse about the negative impacts of their products on health (tobacco) and climate (fossil fuels). To overcome opposition, policymakers need to define (through a dialogue with all stakeholders) the appropriate speed and progressivity of policy reforms, but they also have to be

mindful of the urgent need to transform food systems. The industry can provide policymakers with valuable insights (for example into consumer behaviour and preferences) that deserve to be widely shared. Civil society also has a key role to play in shaping inclusive policies for the common good.

RECOMMENDATION 3 – MANDATE NEW INTERVENTIONS TO PROMOTE THE AVAILABILITY AND ACCESSIBILITY OF PRODUCTS FOR HEALTHY AND SUSTAINABLE DIETS.

To accelerate the adoption of healthy and sustainable diets, sustainable and healthy food and beverage products should be available, affordable and accessible to all. Strategies to improve these key factors should be pursued by engaging all governance levels in the food system, including national and subnational governments.

3.1 Encourage Member States to regulate the placement in retail outlets of products whose frequent consumption is unhealthy and unsustainable.

There is evidence that greater availability and more prominent placement of healthy food products in supermarkets and other retail outlets encourages healthier patterns of purchasing and diet. The same effect can be expected for sustainable products. Member States should therefore consider requiring large and medium-sized food retailers, schools and other facilities offering food to offer healthy and sustainable products and to place them in an attractive way. Member States should also consider prohibiting the placement of foods that are high in fat, salt and sugar, as well as alcohol in prominent locations in these stores.

3.2 Require food product reformulation in order to increase availability of healthy and sustainable food.

Reformulation policies (which aim to change the processing or composition of products) have been shown to be effective if they are mandatory and designed to cover a whole product category.

3.3 Restrict EU imports of food commodities from places where food production causes major environmental damage, either by border taxes or by bans.

It is necessary to assess the feasibility and the pros and cons of restricting EU imports of foods from biodiversity-rich and carbon-dense ecosystems, and water-demanding crops such as nuts and fruits and vegetables produced in water-scarce areas; foods produced with pesticides that are banned in the EU;

and fish and other seafood that is sourced from unsustainably managed stocks. Some of these restrictions are already covered by the new EU Deforestation Regulation (EUDR) on deforestation-free products, but its scope could be progressively extended.

INTRODUCTION

The food we eat has major impacts on our health, on local ecosystems and on our planet as a whole. Our food consumption habits are both contributing to worsening the climate and environmental crises¹ and fuelling a global public health crisis caused by malnutrition and obesity². This comes at a critical time as sustainable and healthy food consumption in Europe is threatened by recent price increases and strategic uncertainty at global level. This creates a risk of food insecurity, especially for the disenfranchised. It is therefore crucial to support, as much as possible, the adoption of healthier and more sustainable diets and food cultures, contributing to a long-term solution to these crises.

The United Nations defines sustainability as meeting 'the needs of the present without compromising the ability of future generations to meet their own needs.'³ Sustainability encompasses three dimensions, which can be defined as follows in the context of enabling 'sustainable' diets: i) environmental (e.g., climate change, land use changes, freshwater use and pollution, biodiversity), ii) social (e.g., public health, labour conditions, availability and accessibility of healthy food for populations at all income levels and in all neighbourhoods, animal welfare), and iii) economic (e.g., jobs, affordability of healthy food for all, competitiveness)⁴—see Box 1. The shift in dietary patterns that is essential to improve public health and stay within planetary boundaries requires consumers to change the composition (in quantity and frequency) of foods they are eating: more legumes, fruits and vegetables, nuts and seeds; less meat (mostly red and processed meat), foods rich in saturated fat, salt and sugar, snacks with poor nutritional qualities, some ultra-processed foods, sugary

¹ The environmental impact of food consumption in the EU by itself is already enough to surpass the planetary boundaries on climate change, particulate matters and freshwater several times [European Environment Agency 2022a]. The agricultural sector was responsible for around 11% of greenhouse gas emissions in the EU in 2021, and although overall emissions in the EU have fallen by about 9% since 2016, agricultural emissions declined by less than 2% [Eurostat 2023].

² According to [Eurostat 2023], 'trends in the area of malnutrition remain unfavourable, with a clear increase in the share of obese people in the EU since 2014'. About a third of school-aged children and almost 60% of adults in Europe are overweight or obese, a condition that is a major determinant of death and disability [WHO 2022].

³ Report of the World Commission on Environment and Development: Our Common Future; available at: <http://www.un-documents.net/our-common-future.pdf>

⁴ Sustainability includes other factors as well, such as maintaining cultural heritage and rural communities, economic sustainability of food production, food security, and food safety. While the present Scientific Opinion focuses on the consumer perspective, the previous Scientific Opinion 'Towards a Sustainable Food System' [Group of Chief Scientific Advisors 2020] discusses other factors as well (see, in particular, Boxes 1 and 2).

drinks, and alcohol⁵. It also requires a shift, based on education and incentives, and in accordance with democratic values, towards food from more sustainable production systems. This includes shifts in food practices to reduce food waste⁶ at all levels of the supply chain, including at the household level. Finally, the transformation of the food system should promote the adoption of practices that conserve biodiversity and provide animal welfare benefits.

Although it is a daunting task, a shift in consumer attitudes and behaviours could make the whole food system more sustainable. A virtuous cycle where consumers increase their demand for sustainable food products, triggering a greater uptake of sustainable practices across the food system, could end up reaching a 'positive social tipping point'⁷ where responsible eating choices⁸ would become the new norm (Figure 1). European consumers ranked taste, safety and price as the main factors which influence their food choices⁹, but scientific evidence shows that other aspects play a key role, including availability, convenience, cultural and religious norms, and influences from marketing practices and strategies. Food operators in the middle of the supply chain — such as retailers and processors—tend to hold more power than other actors in the food system, and thus have a significant influence over consumers' food choices. For these reasons, initiatives aimed at directly influencing consumer behaviour based solely on information, education, and voluntary industry initiatives—as favoured by current policies—tend to have a low impact. Evidence shows that changing the broader food environment—i.e., anywhere where food is obtained, eaten, and discussed—that influence consumer choices has a much greater impact, even though it is a much more complex task.¹⁰

⁵ Based on the scientific targets for healthy diets and sustainable food production outlined in [EAT-LANCET 2019].

⁶ For more details, see also Box 3 in [Group of Chief Scientific Advisors 2020]

⁷ [Food and Land Use Coalition 2021].

⁸ In the sense of [SAPEA 2020]'s definition of responsible consumer choices: 'choices that are consistent with SDGs, but which may conflict with the consumer's short-term hedonic, convenience or economic goals and with established social and cultural norms for 'proper' eating'.

⁹ [European Union 2020].

¹⁰ The whole paragraph is based on the evidence reviewed in [SAPEA 2020].

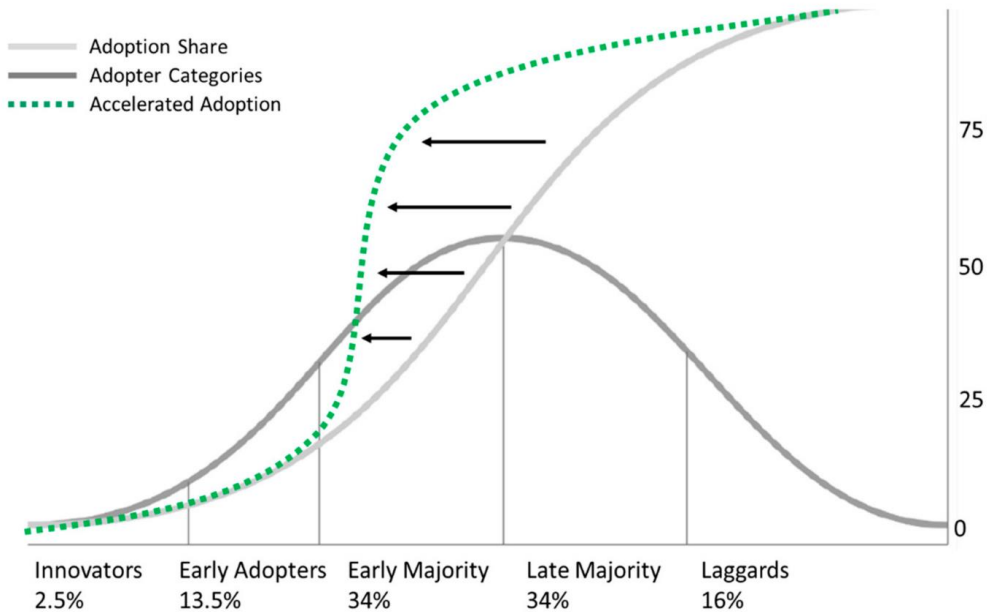


FIGURE 1. Typical adoption curves describing the diffusion of new norms, behaviours and technologies through society. Roughly around the point where 25% of people adopt a change, a critical mass is reached that can tip the majority in adopting the new norm [Food and Land Use Coalition 2021]. Interventions focused on the early and late majority categories can speed up the adoption rate. Adapted from [Gonera et al. 2021].

What follows from these considerations is that any policy intervention aiming to change consumer behaviour should focus on the whole food environment and not only on consumers.¹¹ Improving people’s diets requires actions that span the entire food system and that involve all actors in the supply chain. Such a transformation of the food system requires direct measures, focused incentives and effective educational tools that can disrupt the routines and semi-autonomous processes influencing people’s food choices. At the same time, the strong cultural dimensions of food systems and the diversity of cultural heritages associated with food are of utmost societal importance. The recommendations in this Scientific Opinion should in no way be interpreted as a rejection of established cultural customs, religious prescriptions, or ethnic habits, for example as related to ritual cooking or rules on food preparation. This report recognizes the great diversity in individual nutritional needs across the population and life stages and offers general recommendations that may need to be adapted to particular situations. Scientific knowledge on nutrition, as

¹¹ For an in-depth discussion, see also the previous Scientific Opinion [Group of Chief Scientific Advisors 2020] based on the evidence reviewed in [SAPEA 2020].

well as food production and consumption, is constantly being refined¹² and the recommendations in this report are based on the latest scientific evidence available to date¹³.

In summary, the EU's transition towards a sustainable food system must rely on the widespread adoption of healthy and sustainable consumption practices, as influenced by the food environment. This Scientific Opinion, together with the Evidence Review Report¹⁴ that informs it, aims to identify the levers and actions that can shape food consumption to promote both environmental sustainability and public health; reviews tools that can help overcome the barriers that hinder sustainable and healthy consumption; and suggests potential policies and policy mixes that can have a significant impact in this area. Specifically, the Group of Chief Scientific Advisors was asked to provide policy recommendations on the following question: *'What tools could be used at EU level, in addition to those mentioned in the 2020 Farm to Fork Strategy, to overcome the barriers preventing consumers to adopt sustainable and healthy diets, fostering the necessary change towards sustainability in the food environment?'*¹⁵

¹²[European Research Council Executive Agency 2023].

¹³ As reviewed in the Evidence Review Report [SAPEA 2023].

¹⁴ [SAPEA 2023].

¹⁵ The full scoping paper can be found in Annex 1. Since some important aspects of sustainable diets—such as food labelling and public procurement—are already covered by the Farm to Fork strategy (see Annex 4), they are not considered in detail here.

BOX 1

Sustainability and health concerns associated with food consumption largely overlap, but not fully. Food consumption habits with a high environmental impact include, on the one hand, wasteful behaviour¹⁶ (including overconsumption) and, on the other hand, dietary patterns that are high in animal products, fish and seafood sourced from unsustainably managed stocks, products from tropical areas (e.g., palm or coconut oil, coffee, tea, cocoa, meat imported from tropical forest countries), water demanding crops, and foods from monoculture cropping systems with high pesticide use.

For example, the current level of consumption of animal products, particularly in the wealthier regions of the world, is unsustainable because most production systems based on ruminants consume a lot of land and freshwater resources and are a major source of greenhouse gases. Moreover, the production of some imported animal feed contributes to tropical deforestation. Generally, animal-source products have substantially higher environmental impacts compared to plant-based foods, especially related to climate change¹⁷.

Healthy diets are those that include sufficient amounts of safe and nutritious food and protects against malnutrition and disease¹⁸. Two main concerns can be highlighted, namely food insecurity among the disadvantaged and overconsumption of, for example, foods that are high in fat, salt and sugar¹⁹. The latter contributes to an increase in non-communicable diseases; but some consumption of animal source foods is healthy and particularly encouraged in regions with food insecurity, where people do not have access to enough food to meet their caloric requirements through balanced diets²⁰. For example, although not necessary for a balanced diet, dairy products tend to provide the highest levels of absorbable calcium per serving²¹; cow milk is a good source of vitamins and calcium for babies and children that are not or no longer breast-fed. In general, it is important to recognise the specific nutrient needs of all life stages and the implications this might have for dietary guidelines.

¹⁶ On average, an EU household wastes 92 kg of food (both edible and inedible) per person per year [SAPEA 2023, Section 2.5].

¹⁷ [Hayek et al. 2021, Poore and Nemecek 2018]; see also [Pastorino et al. 2023]

¹⁸ [WHO 2021a]

¹⁹ [SAPEA 2023, Section 2.2]

²⁰ [FAO 2023]

²¹ [Shkembi and Huppertz 2022]

REVIEW OF THE CURRENT FOOD POLICY SYSTEM IN THE EU

The current policy landscape pertaining to sustainable and healthy food consumption is characterised by a significant degree of fragmentation. Since their inception, European institutions have considered ensuring food availability at fair prices one of their main goals. This objective is explicitly stated in the Treaty of Rome and is one of the primary goals of the Common Agricultural Policy (CAP) which was introduced in 1962. While the CAP has been reformed on multiple occasions, it is still the main EU policy that covers the food sector and, as such, it significantly impacts the sustainability of agricultural production. The policy is centred around the interests of farmers, with its main tool being direct payments that provide farmers with a relatively stable income in the face of fluctuating prices and demand. The CAP's focus on farmers has been criticized for preventing it from becoming an overarching framework for the entire food system in Europe²². During the early 2000s, the emphasis was placed on streamlining legislation and simplifying regulations, with a shift in focus towards emerging issues such as sustainable development. In recent years, the connection between food legislation and environmental issues has become increasingly explicit and frequent, culminating with the launch of the European Green Deal and the Farm to Fork (F2F) Strategy.

The most recent CAP reform, CAP 2023–27, addresses the pressing need for climate action and sustainable resource management in line with the European Green Deal (which aims to build a sustainable and climate-neutral growth model for the EU by 2050), the challenges of a sustainable food system as expressed in the F2F Strategy, and the need to improve the effectiveness of the policy. The key novelty is the introduction of CAP Strategic Plans, which give Member States the ability to develop unique policies addressing the social, economic, and environmental needs of their agricultural sector and rural areas based on ten important EU goals that span all facets of sustainability. This new structure preserves the common framework while allowing Member States to substantially improve their subsidiarity. The updated CAP has more ambitious environmental objectives: farmers' incomes continue to be supported but with more stringent requirements relating to Good Agricultural Environmental Conditions. The 'redistributive payment' is enhanced which has led to a large increase in the payments per hectare for small and medium-sized agricultural holdings. Concurrently, the budget dedicated to voluntary environmental and climate actions is increased, with one third of the funds going towards delivering benefits for climate, water, soil, air, biodiversity, and animal welfare. Practices that go beyond minimum requirements are also promoted.

²² [Galli et al. 2020]

At the core of this policy landscape is the F2F Strategy, which follows a comprehensive approach to food sustainability covering the entire supply chain from primary production to consumption, in order to ensure that the EU food system of the future operates within planetary boundaries. The F2F Strategy includes both regulatory and non-regulatory measures to promote a fair, healthy, and eco-friendly food system and is implemented in close coherence with the other elements of the European Green Deal such as the Biodiversity Strategy for 2030. The Commission is also expected to put forward its proposal for a legislative framework for sustainable food systems by the end of 2023.

A range of actions associated with the F2F Strategy have been announced. These include a revision of the Sustainable Use of Pesticides legislation, the establishment of nutrient profiles to restrict promotion of unhealthy food—i.e., food that is poor in nutrients or high in fat, salt and sugar²³—the introduction of EU-level targets for food waste reduction, a sustainable food labelling framework, a harmonised mandatory front-of-pack nutrition labelling initiative and a revision of the minimum mandatory criteria for sustainable food procurement. Because of the way the scoping question is phrased (Annex 1), I policy recommendations which are part of this Opinion are focused on policy initiatives in addition to those mentioned in the F2F Strategy.

Sustainable food consumption is influenced by and relevant to several other policy instruments legislation. These are reviewed in Annex 4, which provides a more comprehensive analysis of EU's policy landscape around sustainable food consumption. It should be noted that policies with direct influence on consumer behaviour are implemented at all levels of governance, which further increases the complexity of the food system landscape. For example, policies related to nutrition, public health, social welfare, and consumption taxes are generally competences of Member States, whereas policies on availability and placement of food items in non-public outlets (food stores, markets, etc.) are often regulated at the municipal level. Europe also imports a significant share of its food from non-EU countries.

²³ [SAPEA 2023]

SUMMARY OF THE EVIDENCE REVIEW REPORT

The central contribution which informed the present Opinion is the SAPEA Evidence Review Report (ERR) 'Towards sustainable food consumption'²⁴, which was produced by a working group of independent, international, and interdisciplinary experts who reviewed the scientific evidence on the topic of sustainable and healthy food consumption. This Section briefly summarizes its main findings.

Dietary patterns and food consumption vary across countries, but there is a consensus that the current food system's impact on public health, including obesity and noncommunicable diseases, can be addressed by transitioning to a more plant-based diet, sustainably sourced fish and seafood, and lower meat, processed meat, salt, added sugar, and high-fat animal product consumption. These recommendations also support environmental outcomes given the environmental impacts of the food system, especially in terms of biodiversity loss, eutrophication, water stress, land degradation and climate change. Reducing food waste—particularly through prevention rather than redistribution—is another effective strategy to mitigate environmental impacts.

Transitioning to sustainable and healthy food consumption patterns involves adopting new practices that balance sustainability and health, considering external factors such as the physical availability of food, its price, the infrastructure and information environment, and the social context, as well as individual factors such as affordability, accessibility, convenience, and desirability. Barriers to this transition exist at the individual level such as the lack of motivation and personal capabilities but also at the contextual level with a lack of physical, financial, and social opportunities to acquire healthier and more sustainable foods.

Creating a food environment that makes healthy and sustainable food the easiest and most convenient choice while considering potential unintended consequences is key. Existing public policy interventions primarily focus on motivation and personal capabilities, targeting cognitive processes. However, to effectively address food choice determinants, policy measures must also consider habits, routines, semi-autonomous processes, and affective processes, thus requiring interdisciplinary approaches. Disruptive measures such as taxes, bans, and mandatory reformulations can alter routines and automatic processes, especially when they impact the physical food environment. Regulations targeting the food environment alone may be less effective due to

²⁴ [SAPEA 2023].

industry reactions and manipulation of labelling, pricing, and ingredients. Softer measures can influence and reshape social norms.

The ERR identifies five areas where policy can intervene in this context:

- 1) Prices (e.g., introducing economic and fiscal measures to make unhealthy or unsustainable diets more expensive);
- 2) Physical availability (e.g., regulating the prominent placement of healthy options and removal of unhealthy options in retail and food service environments);
- 3) Food composition (e.g., mandating reformulation of food products to reduce fat, salt, or sugar content and introduce plant-based alternatives);
- 4) Information environment (e.g., decreasing public exposure to the marketing of targeted foods by regulating advertising, enhancing consumer awareness through warning labels and guiding healthier and sustainable choices through easily accessible and understandable information);
- 5) Social environment (e.g., exploiting peer influence and social environments, which can effectively shape consumption choices).

Acting on these areas in a coordinated manner to increase the efficiency and effectiveness of policy measures, learning from existing positive examples, and monitoring the effects of every intervention can lead to positive outcomes.

UNDERPINNING RECENT REPORTS AND SCIENTIFIC OPINIONS

Many previous reports by scientists and large international or European organisations, as well as some previous Scientific Opinions by the Group of Chief Scientific Advisors (GCSA), have summarized scientific evidence on sustainable and healthy food consumption, also making recommendations for improvements on all related aspects. They confirm that current food systems are unsustainable and major drivers of climate change, biodiversity loss and environmental degradation (including in those environments on which food production is critically dependent) and that radical system-wide changes are urgently needed²⁵. This has been known for years²⁶ but is now more urgent than ever. These reports' most relevant findings (in the context of the present recommendations) are summarized here.

On defining sustainable and healthy diets

Globally, there are large differences in how (un-)sustainable and (un-)healthy diets are, with the largest burden on the planet coming from food consumption in high-income countries, such as those in the EU²⁷. For example, the average meat consumption exceeds recommended amounts in all European countries recently compared by the FAO, in some of them by more than 100%²⁸.

Scientific studies and reports agree that more sustainable and healthier diets depend on higher consumption of plant-based food and, consequently, on a significant reduction in meat consumption, and particularly in processed meat²⁹. A global adoption of healthy, low-meat diets could dramatically reduce the environmental impact of the European food system and premature mortality³⁰.

²⁵ [SAPEA 2020, Group of Chief Scientific Advisors 2020, FAO and WHO 2019, EAT-Lancet 2019, Global Panel 2020, Brownlie et al. 2022, IPCC 6th assessment report 2023, European Environment Agency 2022b, European Environment Agency 2022c, European Environment Agency and Federal Office for the Environment 2020, Eurostat 2023].

²⁶ See for example [FAO 2006].

²⁷ [FAO and WHO 2019, Global Nutrition Report 2022, INRAE 2023, EAT-Lancet 2019, FAO 2023]; for a discussion on 'just' consumption, see also Gupta et al. 2023; for a comparison of animal-source food consumption in high- and middle-income countries and the EAT-Lancet diet, see [CIWF 2023]

²⁸ [FAO 2023].

²⁹ [FAO and WHO 2019, WHO 2021a, EAT-Lancet 2019, IPCC 2019, IPCC 2023, Bock, Bontoux, and Rudkin 2022, Brownlie et al. 2022, EKAH 2022, SAPEA 2020, Group of Chief Scientific Advisors 2020, Sala et al. 2019, European Environment Agency 2022d].

³⁰ [FAO and WHO 2019; EAT-Lancet 2019]

On policy coherence and directionality

The food environment is complex, with many different actors involved, making it difficult to predict and control the impact of policy interventions. Most reports agree that an 'integrated approach' to the assessment of existing policies, and the design of new measures and their evaluation should be based on a 'wide participation by the large variety of actors relevant to the food system'³¹ to strive for a shared vision respected by all³². Notably, attention should be paid to people depending on agropastoral livelihoods, particularly those already practicing sustainable farming, promoting biodiversity, and guarding rural heritage and cultural landscapes³³.

Such a shared vision should lead to a mix of coherent policies in different areas that consistently support sustainable and healthy diets—including policies on consumer protection, agricultural subsidies, research and innovation, taxation, public health, education, and trade³⁴. However, large power imbalances currently exist between these different stakeholders and their influence on policies³⁵. The largest environmental impacts tend to be attributed to food producers and consumers — and these are most often targeted by policies — yet they often have limited ability to drastically change their behaviours³⁶. Large retailers, large food and drink manufacturers, and finance and international traders have a much larger influence on the food system than consumers and producers³⁷. To avoid placing excessive responsibility on consumers, sustainable and healthy choices should become the easiest option wherever consumers make choices about food³⁸.

This goal can be achieved through, for example, policies and regulations that cover advertising, labelling, taxation, and subsidies, which could all be leveraged to make sustainable and healthy foods cheaper and more attractive

³¹ [Group of Chief Scientific Advisors 2020]

³² [EAT-Lancet 2019, Group of Chief Scientific Advisors 2020, Group of Chief Scientific Advisors 2017, FAO and WHO 2019, Global Panel 2017, Global Panel 2020, INRAE 2023, European Environment Agency 2022d]

³³ [European Environment Agency 2022b; see also EAT-Lancet 2019]

³⁴ [Group of Chief Scientific Advisors 2020, SAPEA 2020, Bock, Bontoux, and Rudkin 2022, EKAH 2022, EAT Lancet 2019, IPCC 2019, FAO and WHO 2019, WHO 2021a, Global Panel 2020, Global Nutrition Report 2022, INRAE 2023, Global Panel 2017]

³⁵ [Group of Chief Scientific Advisors 2020, SAPEA 2020, Bock, Bontoux, and Rudkin 2022, IPES-Food 2023]

³⁶ [Group of Chief Scientific Advisors 2020, SAPEA 2020, Bock, Bontoux, and Rudkin 2022, European Environment Agency 2022a]

³⁷ [Bock, Bontoux, and Rudkin 2022]

³⁸ [Group of Chief Scientific Advisors 2020, Bock, Bontoux, and Rudkin 2022, EKAH 2022, FAO and WHO 2019, Global Panel 2017]

than their alternatives³⁹. Most importantly, it is suggested that this should be achieved by including externalities, such as environmental costs, into the price of food⁴⁰. Any resulting short-term trade-offs should not negatively affect the affordability, availability, accessibility, or safety of sustainable and healthy diets and should be managed to address current negative impacts⁴¹. It is essential that sustainable and healthy diets become affordable for all, including the most vulnerable⁴². The Global Panel Foresight Report⁴³ estimates that, if externalised costs to the environment are adequately reflected in actual food prices, improved diets will become 28% cheaper in high-income countries by 2050, mainly due to a reduction in the consumption of animal source food in favour of plant-based foods.

On specific policy measures and interventions

Such far-reaching measures need to be based on reliable evidence, clearly communicated to the public, and continually evaluated to avoid negative perceptions of, and reactions to these policy changes⁴⁴. Many reports agree that information and education campaigns for the general public are very important—about healthy and sustainable diets, and about specific policy measures—but that these alone will not be sufficient to bring about behaviour and cultural changes⁴⁵. People must have easy access to trustworthy and reliable information, especially when it is not aligned with messages from the private sector (e.g., from advertising)⁴⁶.

Mandatory food labelling plays an important role in this information dissemination, but it is not sufficient to bring about behavioural changes on its

³⁹ [Group of Chief Scientific Advisors 2020, SAPEA 2020, INRAE 2023, Global Panel 2020, EAT Lancet 2019]

⁴⁰ [SAPEA 2020, Brownlie et al. 2022, INRAE 2023, Global Panel 2020, Bock, Bontoux, and Rudkin 2022]

⁴¹ [Bock, Bontoux, and Rudkin 2022, FAO and WHO 2019, Global Panel 2023, Global Panel 2020]

⁴² [SAPEA 2020, Group of Chief Scientific Advisors 2020, Bock, Bontoux, and Rudkin 2022, FAO and WHO 2019, Global Panel 2023, Global Panel 2020, INRAE 2023, EAT Lancet 2019, WHO 2021a]

⁴³ [Global Panel Foresight Report 2020]

⁴⁴ [SAPEA 2020, Group of Chief Scientific Advisors 2020, WHO 2021a, Global Panel 2020]

⁴⁵ [FAO and WHO 2019, Global Panel 2017, Group of Chief Scientific Advisors 2020, Group of Chief Scientific Advisors 2017, SAPEA 2020, Bock, Bontoux, and Rudkin 2022, EAT-Lancet 2019, Global Panel 2023, EKAH 2022, WHO 2021a, European Environment Agency 2022a]

⁴⁶ [Group of Chief Scientific Advisors 2020, Global Panel 2020, Global Panel 2017; see also EAT-Lancet 2019]

own⁴⁷. The EU's F2F strategy already envisions an improvement of existing labelling policies.

Another crucial step towards more sustainability in food systems is the reduction of food waste at the production, processing, retail, and consumption stages⁴⁸. However, it is not a substitute for dietary shifts, which are far more effective for climate change mitigation⁴⁹.

All these steps for a transformation of the food system should be supported by voluntary measures by the private sector and by bottom-up initiatives by consumers but cannot depend on them⁵⁰. Ambitious and long-term regulatory goals provide the private sector with the required reliability and predictability to plan for a transition to a more sustainable food system⁵¹.

On the cultural and social significance of food

Immediate transformative actions are imperative and need to be guided by a thorough analysis of scientific evidence to identify the most impactful changes⁵². Yet, it is important to keep in mind that diets have meaning beyond the consumption of food; they are also an expression of culture, social, economic, and political contexts⁵³. SAPEA's Evidence Review Report on 'a sustainable food system for the European Union' already stressed that people 'engage with food in many more ways than just in their market role' as 'citizen-consumer'⁵⁴. Decisions about where, how, and what kind of food is purchased and consumed depend on many more factors than knowledge and personal will⁵⁵.

⁴⁷ [Group of Chief Scientific Advisors 2017 Group of Chief Scientific Advisors 2020, SAPEA 2020, Global Panel 2017, Global Panel 2023, Global Nutrition Report 2022, Bock, Bontoux, and Rudkin 2022, FAO and WHO 2019, INRAE 2023, Brownlie et al. 2022, WHO 2021b]

⁴⁸ [SAPEA 2020, EAT-Lancet 2019, UNEP Convention on Biological Diversity 2021, IPCC 2023, Brownlie et al. 2022]

⁴⁹ [EAT-Lancet 2019; see also SAPEA 2020]

⁵⁰ [Group of Chief Scientific Advisors 2020, SAPEA 2020, FAO and WHO 2019, Bock, Bontoux, and Rudkin 2022, Global Panel 2020]

⁵¹ [Bock, Bontoux, and Rudkin 2022]

⁵² [SAPEA 2020, Group of Chief Scientific Advisors 2020, FAO and WHO 2019, EAT-Lancet 2019, Global Panel 2020, Brownlie et al. 2022, IPCC 2023]

⁵³ [FAO and WHO 2019, Group of Chief Scientific Advisors 2020]

⁵⁴ [SAPEA 2020]

⁵⁵ [Group of Chief Scientific Advisors 2020, SAPEA 2020]

RECOMMENDATIONS

The following describes a set of recommendations for a mix of policy interventions to overcome the barriers that are preventing consumers from adopting more sustainable and healthier diets. These recommendations form a coherent whole and should be adopted together in order to promote changes in consumer behaviours and the food environment. All the measures should be implemented as soon as possible, but some will have short-term effects while others will only transform the food system over the long term. This mix of policies would complement all the current initiatives under the Farm to Fork strategy, which were left outside the scope of the request for this Scientific Opinion.

RECOMMENDATION 0 - COORDINATE THE ADOPTION OF A COHERENT MIX OF COMPLEMENTARY POLICIES THAT INCLUDE INSTRUMENTS ADDRESSING INCENTIVES AND DISINCENTIVES, INFORMATION ON HEALTHY AND SUSTAINABLE FOOD, AND REGULATORY MEASURES.

The current Farm to Fork strategy contains many policy goals based on the premise that consumers choose food through rational and reflective processes and that the 'well-informed, sovereign consumer' can always choose what to buy and eat. In reality, however, scientific evidence shows that food-related behaviours are often dominated by habits, routines and affective processes, and that the food environment strongly shapes consumer choices, concerns, and priorities. In addition, even motivated consumers have limited opportunities to choose sustainable products and are often unable to assess the actual impact on the environment, the climate, and social issues⁵⁶. This implies that policy interventions should address not only consumers but also food providers, producers, manufacturers, distributors, and retailers⁵⁷.

The food system is complex, dynamic, and subject to significant uncertainties. Scientific evidence clearly indicates that a coherent combination of complementary instruments is required to achieve the necessary substantial shift towards more sustainable and healthier diets, while ensuring that food is affordable, available, and accessible for everyone⁵⁸. On the one hand, no single intervention will be sufficient to transform the food system and consumer behaviour. On the other hand, the current food system governance and the

⁵⁶ [SAPEA 2023, Section 3.2]

⁵⁷ [Group of Chief Scientific Advisors 2020, European Environment Agency 2023]

⁵⁸ [Group of Chief Scientific Advisors 2020, SAPEA 2020, SAPEA 2023]

multiple policies shaping the food system do not always allow to harness all the potential synergies between interventions, which may even work against each other.

Addressing these issues requires a coherent and transformational policy mix, which should couple direct measures on the food environment with softer measures aimed at influencing and reshaping social norms. The former could include taxes, bans and mandatory product reformulations, and in general do not require high agency at consumer level. The latter should include interventions on choice architecture and nutritional profiling and should be aimed at improving consumers' knowledge, skills, and awareness⁵⁹

0.1 Develop a long-term vision on healthy and sustainable diets that is shared by all supply-chain actors who influence the food environment, and make these actors accountable.

Getting consumers to change their behaviour is a necessary step but not sufficient. Multiple complementary policy instruments that affect all actors in the food system are required to transform the food system towards enabling more sustainable and healthier diets and to minimise avoidance behaviour (e.g., leakage, displacement, greenwashing, product substitution or undesirable reformulation to evade new regulations). Consumer choices depend on a multitude of contextual factors, including, but not limited to, availability, accessibility, and affordability of food, as well as cultural factors that are beyond the full control of the individual consumer. For this reason, all actors in and influencing the food environment (including food producers, processors, and retailers) must play a part⁶⁰ in providing consumers with the 'motivation, capability and opportunity'⁶¹ to change their behaviour and reclaim control over their food choices⁶².

To inclusively develop policies that benefit the whole of a free and democratic society and thus create a common vision of a sustainable food system, all stakeholders should be invited and encouraged to engage constructively and in good faith with policymakers to share their views, concerns, and ideas. In particular, the assessment of existing policies, the design of new measures, and the evaluation of these should be developed with all stakeholders as equal partners, not least to ensure respect for and acceptability within cultural, social, political, and economic contexts for all actors in the system and to develop a

⁵⁹ [SAPEA 2023, Section 4.4 and 6.3]

⁶⁰ [SAPEA 2020]

⁶¹ [SAPEA 2023, Section 3.1]

⁶² [Group of Chief Scientific Advisors 2020, SAPEA 2020, SAPEA 2023]

shared vision for our food system⁶³. For example, policymakers should discuss with consumers, farmers, processors, and retailers about how policymakers can support change away from unsustainable food products and those whose frequent consumption is unhealthy and prevents significant negative consequences for any of the actors. This inclusive dialogue should be based on the common recognition, strongly supported by scientific evidence, that consumption of unsustainable foods and of those whose frequent consumption is unhealthy needs to be reduced considerably (see also recommendation 2.7).

0.2 Ensure coherence between different interventions that influence the food system and remove conflicting interventions.

A systems approach to the development of a policy mix should aim to exploit all possible synergies between interventions, maximising opportunities and benefits while managing unavoidable trade-offs⁶⁴. Existing policies therefore need to be carefully evaluated in order to assess how they serve and support (or contradict) the goal of a sustainable and healthy food system, and how they might interact with, complement, or undermine new policy interventions⁶⁵.

For example, the CAP subsidizes the production of some food items the consumption of which is highly discouraged by other EU policies given their detrimental environmental impact. The CAP should therefore be better aligned with the goal of producing sustainable and healthy food. In particular, '[w]hile most CAP support is not coupled to production, a considerable number of subsidies coupled to livestock production still exist'⁶⁶. Aligning CAP subsidies to dietary guidelines, climate change targets, the goals of the European Green Deal, and the UN Sustainable Development Goals, would remove these contradictions and antagonistic policies (see recommendation 1.3) and could be achieved through an EU food policy, rather than a policy focused only on agriculture⁶⁷.

⁶³ [EAT-Lancet 2019, Group of Chief Scientific Advisors 2020, Group of Chief Scientific Advisors 2018, FAO and WHO 2019, Global Panel 2017, Global Panel 2020, INRAE 2023, Beal et al. 2023, Bock, Bontoux, and Rudkin 2022]

⁶⁴ [SAPEA 2023, Section 6.1]

⁶⁵ [European Environment Agency 2023]

⁶⁶ [SAPEA 2023, Introduction, p. 15]

⁶⁷ [Bock, Bontoux, and Rudkin 2022; Fresco and Poppe 2016]

0.3 Ensure high-level policy coordination by developing communication channels, sustained dialogues and a harmonised governance system.

EU food governance currently consists of a fragmented set of policies that, intentionally or unintentionally, affect the functioning of the EU food system⁶⁸. Whereas a certain level of diversity in policy interventions may increase innovations and the adaptability of the system,⁶⁹ too much fragmentation of the policy landscape can result in low performance⁷⁰. Therefore, the planned legislative framework should not contain conflicting policies and aim at ensuring a coherent and harmonised governance system, allowing for the simultaneous implementation of the various interventions presented below. Policy could be coordinated either through an advisory body or through a systematic dialogue between all Commission entities that are regulating or enforcing laws related to any aspect of the food system. This governance system should be attentive to variations across food systems in Europe and address the power imbalances between different actors in the current food systems, for example the high concentration of power in the hands of retailers⁷¹ (see recommendation 2.7).

0.4 Monitor responses to new policies by food processors and retailers in order to anticipate any unintended effects of policy interventions.

All policy measures should be monitored and periodically reviewed to see whether they are achieving their intended purpose and if they have any unintended consequences, such as small farmers. Performant monitoring tools need to be developed for this⁷². Policy interventions may lead to unintended consequences because the food industry may adapt, for example, through a strategic use of alternative labelling options, opposing pricing strategies, and manipulation of ingredients/nutrients to enable front-of-package claims⁷³. Disincentives for specific products whose frequent consumption is unhealthy and unsustainable could also lead to a substitution with other unhealthy and/or unsustainable products if the availability and affordability of healthy alternatives is not increased simultaneously (see also recommendation 1.2). Monitoring of the food system will increase transparency and the awareness of consumers, who will gain a greater role in driving a transformation of the food system. Monitoring should be based on a comprehensive sustainability assessment framework⁷⁴ and a database that connects environmental, social, and nutritional

⁶⁸ [Galli et al. 2018, Moragues-Faus et al. 2017, Parsons & Hawkes 2018]

⁶⁹ [Gunningham et al. 1998]

⁷⁰ [European Environment Agency 2023]

⁷¹ [SAPEA 2020; IPES-Food 2023]

⁷² [SAPEA 2023, Sections 4.6]

⁷³ [SAPEA 2023, Section 4.6 and 6.3]

⁷⁴ [Bock, Bontoux, and Rudkin 2022]

metrics with actual foods, and that is curated by public, trustworthy organizations.

RECOMMENDATION 1 - MAKE HEALTHY AND SUSTAINABLE DIETS THE EASY AND AFFORDABLE CHOICE.

People primarily change their behaviour in response to incentives and information. It is therefore important to make it easy for consumers to choose sustainable and healthy food rather than the alternatives⁷⁵. The aim is to reduce the quantity and frequency of consumption of foods that are unsustainable and/or unhealthy if consumed frequently (i.e., those that are poor in nutrients or high in fat, salt and sugar). To achieve this goal, one needs to create incentives for the adoption of healthy and sustainable diets, and disincentives for the consumption of unhealthy and unsustainable products to reflect the true health and environmental costs of food. Monetary and other incentives can significantly boost the adoption of healthier and more sustainable diets by consumers⁷⁶.

In addition to current Commission initiatives included in the Farm to Fork Strategy—such as a VAT decrease on fruits and vegetables—new initiatives should include a progressive introduction of taxes on unhealthy and unsustainable products, measures to make their healthier and more sustainable counterparts more affordable, and a corresponding adjustment of current subsidy schemes.

1.1 Identify the optimal fiscal mechanisms to progressively introduce taxes on products whose frequent consumption is unhealthy and unsustainable, with appropriate communication and evaluation measures.

Excessive consumption of meat (in particular processed meat), sugar, trans-fatty acids, and sodium present major risks for health and well-being⁷⁷. There is also a large scientific consensus that current meat production globally, and consumption in high-income countries are substantial sources of greenhouse gas emissions, consume a lot of freshwater, transform land use, and contribute to tropical deforestation and therefore biodiversity loss. Drastic reductions in the consumption of animal source products in high-income countries is a crucial climate mitigation strategy and addresses further biodiversity losses. This includes first and foremost a decrease in the share of red meat production and

⁷⁵ [European Environment Agency 2023]

⁷⁶ [SAPEA 2023, Section 4.1]

⁷⁷ [SAPEA 2023, Section 2.2]

consumption that surpasses planetary boundaries⁷⁸. Diets low in meat were historically the norm in Europe until not long ago (before the industrial revolution and even about 50 years ago)⁷⁹. Monetary incentives have the greatest impact on behaviour change⁸⁰. Excessive consumption of unsustainable products can be effectively reduced with minimal cost to society if sufficiently high tax rates are applied to them⁸¹. The revenues from this taxation should be used to reduce inequalities in food access by redistributing them to low-income households based on focused food subsidies⁸².

One reason why unsustainable products are consumed excessively is that they are under-priced because their environmental and health costs are externalised⁸³. To account for their true environmental costs and for diet-related health impacts, red and processed meat in particular should be made more expensive⁸⁴. Increasing prices of red and processed meat is a 'key lever' for delivering on both healthy and sustainable diets⁸⁵. Thus, we recommend introducing sufficiently high taxes on red and processed meat and on products high in unhealthy fats, salt, and sugar. This should be done in a way that will be socially acceptable and effective, with compensation mechanisms that avoid adverse effects on food insecure populations. Preliminary evidence suggests that environmental taxes are supported more widely if combined with other beneficial policy measures, such as those improving animal welfare or reducing agricultural subsidies that have contrary effects⁸⁶ or if they are justified based on their positive effect on animal welfare instead of, or in addition to environmental reasons⁸⁷ (see also recommendation 1.3).

To make diets also healthier, taxing sugar-sweetened beverages and confectionery is a low-hanging fruit, as these products have little nutritional value and contribute to a range of health issues⁸⁸. As a welcome side-effect, sugar taxes may also lead to product reformulations that lead to more products with lower sugar content being offered⁸⁹ (see also Recommendation 3.2).

⁷⁸ [SAPEA 2023, Section 2.3; EAT-Lancet 2019, Beal et al. 2023, Hayek et al. 2021, Parlasca and Qaim 2022]; see also [Pastorino et al. 2023]

⁷⁹ [Parlasca and Qaim 2022, Smil 2022, Chiles and Fitzgerald 2018]

⁸⁰ [SAPEA 2023, Section 4.1 and Chapter 5]

⁸¹ [SAPEA 2023, Section 4.1]

⁸² [SAPEA 2023, Section 6.3]

⁸³ [SAPEA 2023, Sections 1.2 and 4.1]

⁸⁴ [SAPEA 2023, Section 4.1]

⁸⁵ [SAPEA 2023, Chapter 4]; see also [Pastorino et al. 2023]

⁸⁶ [SAPEA 2023, Section 5.2]

⁸⁷ [Perino and Schwickert 2023]

⁸⁸ [European Food Safety Authority 2022]

⁸⁹ [SAPEA 2023, Section 4.6]

Introducing such consumption taxes will require careful design and experimentation, as they will likely be resisted by the food industry and the public. New food taxes should also be accompanied by sustained communication campaigns before and during implementation to educate consumers about the rationale for such taxes and about alternative, healthier and more sustainable diets. There is a lack of real-world experience on such taxes⁹⁰, hence the need to accompany implementation with continuous evaluation to anticipate possible unintended consequences—e.g., on undesirable product substitution or reformulation, risks of nutritional deficiencies, risk of food insecurity, etc.

Contrary to a consumption tax, which is a Member State prerogative, carbon pricing is part of the competencies of the EU. A tax on meat production could thus possibly be linked to associated greenhouse-gas emissions, thus building on existing emission reduction schemes. For example, animal production systems could be included under the Emission Trading System (ETS) and the Carbon Border Adjustment Mechanism (CBAM)⁹¹.

Taxing greenhouse gas emissions and nitrogen pollution directly at the source has better environmental effects, but it might be more economically efficient for Member States to implement a tax on consumption⁹² as long as the tax meets its dual objectives of steering consumers towards healthier and more sustainable diets. In a recent study, a uniform tax (i.e., a fixed amount per weight of meat sold, independent from the meat's carbon footprint or production system) received about the same public support as a differentiated tax (i.e., proportional to the external damages caused by meat production)⁹³. Regulatory interventions need to monitor possible unintended consequences of fiscal interventions on unhealthy food products, for example to avoid a replacement of trans-fatty acids by saturated fatty acids, which would be associated with a limited improvement in dietary quality⁹⁴. Alternatively, a tax on saturated fats could be considered to avoid a shift to other foods with detrimental health effects when consumed frequently⁹⁵.

Each incentive-based measures needs to be evaluated for its feasibility and effectiveness. Meat and sugar taxes are effective and direct measures but cannot be imposed by the EU and would have different impacts in different regional contexts. VAT adjustments could be based on EU guidelines that

⁹⁰ but see [SAPEA 2023, Chapters 4 and 5]

⁹¹ [SAPEA 2023, Section 4.1 and 6.3]

⁹² [SAPEA 2023, Section 4.1]

⁹³ [Perino and Schwickert 2023]

⁹⁴ [SAPEA 2023, Section 4.6]

⁹⁵ see example of Danish tax on saturated fats in [SAPEA 2023, Section 4.1]

categorize (un)sustainable products but can only be implemented by Member States. Changes in agricultural subsidies (see Recommendation 1.3) could be decided under an EU policy (the CAP) but are likely to face strong opposition and may have complex implications on the food system which should be actively monitored and managed⁹⁶. More research is needed to identify the optimal taxation mechanism for specific products, given their recommended levels of consumption.

1.2 Make healthy and sustainable diets more affordable.

Food affordability, together with taste and habit, has a large influence on consumer decisions. Taxes on red and processed meat and on products high in unhealthy fat, salt, and sugar therefore need (as suggested above) to be accompanied by measures to make healthier and more sustainable alternatives—especially alternative sources of proteins and micronutrients—more easily available and affordable through subsidies and/or reduced VAT. Fiscal interventions, such as a universal subsidy on fruit and vegetables, can correct price distortions for healthy foods⁹⁷. However, healthier and more sustainable food (such as fresh fruit and vegetables) is generally more perishable, thus, initiatives to promote these foods need to be accompanied by campaigns to foster appropriate knowledge and skills to avoid an increase in food waste⁹⁸.

A concomitant measure consists in better support for R&D on alternative-to-meat proteins that are healthy and sustainable, their branding and commercialization, and their acceptance by consumers. These alternatives include pulses, plant-based 'meat', microbial-derived proteins (through precision fermentation), and insect- and algae-based proteins. Plant-based proteins generally have a much lower CO₂-equivalent greenhouse gas emissions than even the best-performing animal source proteins⁹⁹. Research on new alternative sources of proteins and on cultured meat should include an evaluation of their nutritional value, health effects and ecological footprint. Both natural alternatives and those enabled by new technologies should co-exist in a transformed food system.

⁹⁶ [SAPEA 2023, Section 4.1]

⁹⁷ [SAPEA 2023, Section 4.1]

⁹⁸ [SAPEA 2023, Section 2.5]

⁹⁹ [Poore and Nemecek,2018]; see also [Hayek et al. 2021]. Acidification and eutrophication impacts are also much higher for animal source products than plant products [Poore and Nemecek 2018].

1.3 Adjust subsidy schemes for production systems with low environmental performances, where needed.

Supply-side policy measures are needed in order to incentivise sustainable agricultural production systems to provide consumers with affordable, healthy and sustainable food products¹⁰⁰. While the CAP is now mainly based on uncoupled direct payments, any remaining financial support that tends to preserve the status quo should be re-examined. Changing incentive structures also changes prices and thus consumer choices¹⁰¹ (see also recommendation 1.1). One should analyse to what extent existing subsidies support or not the transformation to a sustainable food system. Rectifying actions should be taken in cases where subsidies are found to be working counter to sustainability goals or supporting the goal poorly (see recommendation 0.2). Farmers should be consulted as part of the governance of this transformation.

Currently, coupled subsidies to livestock production co-exist¹⁰² with schemes supporting farmers to transition to different value adding activities and with initiatives to make the European food system more sustainable. When revising such policies, support should be maintained for certain production systems: those in which animal agriculture has particularly low environmental impacts¹⁰³ and those where animals play a key role in biodiversity conservation of natural grasslands that have evolved in the presence of grazers¹⁰⁴. Additionally, dairy products and eggs are a convenient way to deliver a range of nutrients which can be important for the health of certain population groups and/or at certain stages in life¹⁰⁵. Their production systems should be incentivised to adopt practices that minimize environmental impacts and ensure animal welfare.

1.4 Address the root causes of poor nutrition with social policies aimed at eradicating poverty and investing in better education for all.

Food policies need to be integrated into broader economic and social policies that address poverty and food literacy more generally. Low-income households often cannot afford healthier and more diverse diets. Increasing the amount of

¹⁰⁰ [SAPEA 2023, Section 2.3]

¹⁰¹ [SAPEA 2023, Sections 1.3, 1.5 and 4.1]

¹⁰² [SAPEA 2023, Introduction]

¹⁰³ For example, CO₂-equivalent greenhouse gas emissions from beef production can vary by a factor of ten or more, depending on practices and type of production [Poore and Nemecek 2018]. Technologies and practices that lead to lower emissions and generally lower environmental impacts on all sustainability indicators should be strongly supported. A detailed discussion on how to improve food production systems lies outside the scope of this Scientific Opinion.

¹⁰⁴ [Parlasca and Qaim 2022, Beal et al. 2023, FAO 2023]

¹⁰⁵ [FAO 2023]

money that consumers are able to spend on food and creating economic opportunities are an essential component of addressing food insecurity and improving diets in the long term¹⁰⁶. Diets can also be improved through better education in general, which should include content that contributes to modifying social norms around diets and eating behaviours.

RECOMMENDATION 2 - SECURE THE PROVISION OF ADEQUATE AND TRUSTED INFORMATION ABOUT THE ENVIRONMENTAL AND HEALTH IMPACTS OF DIFFERENT FOODS IN ORDER TO ENCOURAGE HEALTHY AND SUSTAINABLE DECISION-MAKING BY ALL ACTORS IN THE FOOD SYSTEM.

Transparency is very important for achieving sustainability because it empowers consumers and may prompt food manufacturers and retailers to change their business practices. Consumers absolutely must have access to accurate, unbiased, and understandable information about the food that is available to them and about sustainable and healthy diets. This is the prerequisite for enabling consumers to make sustainable and healthy choices. However, while information provision has the advantage of being highly socially acceptable, it alone tends to have relatively small effects on dietary choices and is not sufficient to modify consumer behaviour¹⁰⁷. This is even more the case when information provision by food producers and retailers—whether in the form of nudging, product labelling or dietary recommendations—is voluntary rather than mandatory¹⁰⁸.

The Farm to Fork Strategy includes initiatives such as a harmonized sustainability labelling framework integrating multiple dimensions of sustainability and promotion of better understanding of 'best before' and 'use by' labels. Other Commission proposals concern, for example, the substantiation of green claims. In addition to these, new initiatives should cover the inclusion of sustainability criteria in national dietary guidelines, the introduction of EU-wide goals for healthy and sustainable consumption, the use of education and awareness campaigns, and digital tools. Short supply chains for food also have educational value.

¹⁰⁶ [SAPEA 2023, Section 4.1]

¹⁰⁷ [SAPEA 2023, Section 6.3]

¹⁰⁸ [SAPEA 2020]

2.1 Generalise the inclusion of sustainability criteria in national dietary guidelines.

National dietary guidelines already promote healthy diets, but most are not consistent with sustainability goals such as the Paris Climate Agreement¹⁰⁹. The explicit inclusion of sustainability criteria in addition to a revision of the guidelines based on the latest knowledge about healthy diets could influence consumer demand for (and the supply of) healthier and more sustainable products¹¹⁰. This should also include information for consumers about why sustainable choices are important, their link to planetary health, and how diets can become more sustainable, including quantified recommendations for action¹¹¹. An EU-wide framework for 'good practices' in updating national dietary guidelines to link health and sustainability could provide everyone with access to practical information to improve their diets. In the USA, for example, the 2005 revision of the US Dietary Guidelines, which called for at least half of a person's daily grain intake to come from whole grains, led to a significant expansion of the offer of whole-grain products¹¹².

2.2 Define and communicate EU-wide and national-scale time-bound goals for healthy and sustainable consumption.

The EU should define food-related sustainability goals similar to the UN Sustainable Development Goals (SDGs)¹¹³ on topics related to the adoption of healthy and sustainable diets. These goals should be defined by engaging all stakeholders through a participatory process. These goals could be relevant for issues that are particularly contentious among the Member States and where EU-wide legislation cannot be agreed on, where competences lie exclusively with the Member States, or where Member States could be encouraged to go beyond the EU-wide agreed policy measures. Similar to the UN SDGs, Member States would then define their own time-bound ambitions on commonly defined goals. Member States should involve civil society representatives to define these commitments. The pursuit of these goals would thus be driven by the ambitions of individual countries, in a bottom-up and inclusive approach. The goals should be implemented through indicators and benchmarks, and national performances should be compared at EU level at fixed time intervals.

¹⁰⁹ [SAPEA 2023, Section 2.4]

¹¹⁰ [SAPEA 2023, Section 4.6]

¹¹¹ [James-Martin et al. 2022]

¹¹² [SAPEA 2023, Section 4.6]

¹¹³ [Biermann et al 2017]

2.3 Develop both information campaigns to raise consumer awareness about health and the sustainability impact of diets and education programmes to improve food literacy.

Public marketing campaigns, labels and scores on food packaging, advertisements, and digital personalised feedback tools are important ways to inform people about healthy and sustainable food choices. The medical profession, being a trusted source of information for consumers, has great potential to disseminate messages about healthy diets in prevention campaigns. Sponsoring communication campaigns and education programmes (e.g., provided by nutritionists or dieticians and with a focus on schools, cooks, parents of young children) that explicitly link diets to the health and environmental impacts of food and alcohol consumption can build awareness on the connectedness of these societal concerns¹¹⁴. To achieve maximum impact, information should be presented in a way that is most relevant for the intended audience and linked to personal values (e.g., self-interested versus pro-societal motivations; health, animal welfare or environmental concerns). Note that the impact of these interventions may not be uniform, having stronger effects on consumers who are already motivated to make healthier and more sustainable food choices and those with higher education¹¹⁵. Information campaigns should help consumers navigate possible trade-offs between healthy and sustainable food—e.g., by linking nutritional and sustainability front-of-pack labelling of food products.

Such initiatives should include communication campaigns and education programmes to prevent consumer food waste by reducing overconsumption and to improve practices for food preparation, storage, planning, shopping, and reuse/recycling. These communication campaigns should also highlight the high cost for households and supply chain actors of wasting food. Studies of EU households with particularly low amounts of household food waste may offer insights into how food use could be optimised and unwasteful behaviour enabled¹¹⁶.

2.4 Encourage consumers to establish more direct connections with primary food producers in order to increase food literacy.

Short supply chains for food involve a very small number (or even the absence) of intermediaries and/or a short geographical distance between farmers and consumers. Social innovations related to the food system include direct sales at the farm, in farmers' shops or on farmers' markets, box schemes, online sales

¹¹⁴ [SAPEA 2023, Section 4.4]

¹¹⁵ [SAPEA 2023, Section 4.4]

¹¹⁶ [SAPEA 2023, Section 2.5]

by farmers, and informal (non-market) food provisioning. Local food production only covers a small share of total food consumption and may sometimes have a greater environmental impact than more distant alternatives, but it increases the consumers' engagement in local food production methods and food quality and therefore has a high educational value¹¹⁷. Additional examples include promoting the establishment and use of urban gardens and urban agriculture for their educational and community-building values¹¹⁸. This includes the protection of green spaces against development projects and the allocation of new areas for urban agriculture projects on suitable spaces in the built environment.

Access to 'diverse entitlements' beyond formal market structures (such as urban and community gardening, informal and alternative-to-market food systems, informal food production, gathering, sharing) leads also to greater resilience, more direct contact with food and with farmers, more sustainable and healthy diets (e.g., more fruit and vegetable consumption), as well as greater valuing of cooking and organic food¹¹⁹. In Eastern Europe, for example, engagement in food self-provisioning, i.e., non-market food provisioning (mostly of vegetables and fruit), is much higher than for the rest of Europe¹²⁰. Often, these practices lead to 'inadvertent environmentalism' or 'quiet sustainability', i.e., high sustainability without aiming for it. These diverse entitlements need to be acknowledged and supported.

2.5 Make better use of the potential of the digital food environment to inform consumers about healthy and sustainable diets and to reduce food waste.

Nowadays, all aspects of the food environment are undergoing digital transformation¹²¹. This provides various opportunities to promote healthier and more sustainable food purchasing, storage, and use¹²². Digital support includes: food apps that support healthy and sustainable food purchasing and consumption; ethical consumption apps; personalized advice or feedback tools addressed to consumers based on their online shopping baskets (dietary tracking); AI for better information about and for reconciling food availability with consumer demand; digital platforms run by non-profit organisations specialized in the non-monetised sharing of food; monitoring devices integrated in refrigerators and food shelves to alert on expiry dates; AI-catalysed food

¹¹⁷ [Aubry and Kebir 2013]

¹¹⁸ [SAPEA 2023, Section 1.2 and 4.2]

¹¹⁹ [SAPEA 2023, Sections 1.2, 4.2, and 6.4]

¹²⁰ [SAPEA 2023, Section 1.2]

¹²¹ [SAPEA 2023, Section 1.4]

¹²² [WHO 2021c]

storage and preparation to minimize energy use; waste reduction through peer-to-peer services and shared economy.

There is some evidence that buying from online grocery stores may lead to healthier food purchases, likely because products are presented less vividly, therefore making their purchase less gratifying and tempting¹²³. Applications supporting the purchase and consumption of healthier foods have also been found to be somewhat successful, but there is no evidence yet on whether this may extend to more environmentally sustainable choices¹²⁴. A caveat is that dietary tracking apps and social media may be associated with disordered eating, something to which close attention needs to be paid when promoting digital tools¹²⁵. Moreover, digital media may be used to promote disinformation and misinformation, so they need to be regulated with similar rules to those that cover advertising.

2.6 Restrict advertising for food products and drinks whose frequent consumption is unhealthy and unsustainable.

The promotion of all unhealthy and unsustainable food and alcohol should be restricted as voluntary codes of conduct for responsible marketing are not sufficient. This should concern all media, to avoid a displacement of advertising for unhealthy and unsustainable foods from one medium (e.g., TV, magazines, public space, public transport) to another (e.g., digital marketing, online content). In particular, advertising unhealthy diets and foods that are poor in nutrients or high in fat, salt and sugar to children should be banned in all media. Promotion of unhealthy and unsustainable food through promotional pricing should also be restricted in order to prevent companies from bypassing advertising restrictions with increased price competition¹²⁶. The UK's example of advertising restrictions in the Transport for London network shows reduced purchases of foods that are high in fats, salt, and sugar and a positive effect on health¹²⁷. Such advertising restrictions could contribute to shifting social norms associated with food consumption. Moreover, because digital media (see recommendation 2.5) may promote disinformation and misinformation, they need to be regulated based on similar rules as those that cover advertising.

2.7 Engage with all food-system actors in a transparent manner and give an equal voice to all stakeholders in order to obtain healthy and

¹²³ [SAPEA 2023, Section 4.2]

¹²⁴ [SAPEA 2023, Section 4.4]

¹²⁵ [SAPEA 2023, Section 4.4]

¹²⁶ [SAPEA 2023, Section 4.4]

¹²⁷ [SAPEA 2023, Section 4.4]

sustainable diets and to overcome expected opposition from some food industry actors to some policy measures.

Some representatives of the food industry, particularly for meat, sugar-sweetened beverages, snacks, and alcoholic beverages, have interests to counter some of the policies recommended here. There is evidence that some meat industry representative bodies have influenced public discourse in order to counter scientific evidence on the negative impacts of meat consumption on health and the climate. This is reminiscent of how the tobacco and fossil fuel industries have long actively influenced public discourse about the negative impacts of their products on health (tobacco) and climate (fossil fuels)¹²⁸.

Policymakers need to be mindful of tactics that are used to shape public debate. They need to clearly communicate the health and sustainability motivations that justify new food policies, to pre-emptively respond to expected messages from food industry organisations. Industry tactics include an emphasis on the free choice of the consumer, in particular with respect to their health. A reduction of meat consumption may also be framed as an 'elitist vegan agenda'¹²⁹. Furthermore, the meat industry may emphasize voluntary self-regulation, the possibilities for better practices within production processes, and excessively highlight the potential positive side effects on carbon sequestration and biodiversity preservation of some of the sector's activities. The scientific validity or the consensus on environmental impacts of meat and the negative health impact of excessive meat consumption may also be challenged at times¹³⁰.

The required radical transformation of our food system can only come about if all stakeholders are included and heard in these efforts, based on a transparent consultation process, with equal access to all stakeholders and fair rules (see recommendation 0.1). Valid concerns of food farmers regarding the impact of policy measures on their livelihoods must be heard and taken into account, already in impact assessments of legislative proposals. To overcome opposition, policymakers need to define, through a dialogue with all stakeholders, the appropriate speed and progressivity of policy reforms, but they also have to be mindful of the urgent need to transform food systems. The industry can provide policymakers with valuable insights (for example into consumer behaviour and preferences) that deserve to be widely shared. Civil society also has a key role to play in shaping inclusive policies for the common good¹³¹.

¹²⁸ [SAPEA 2023, Section 6.3; IPES-Food 2023]

¹²⁹ [SAPEA 2023], Section 5.2, p. 124.

¹³⁰ for a discussion of the evidence relevant to the whole paragraph, see [SAPEA 2023, Section 5.2]

¹³¹ [Bock, Bontoux, and Rudkin 2022]

RECOMMENDATION 3 - MANDATE NEW INTERVENTIONS TO PROMOTE THE AVAILABILITY AND ACCESSIBILITY OF PRODUCTS FOR HEALTHY AND SUSTAINABLE DIETS.

To accelerate the adoption of healthy and sustainable diets, sustainable and healthy food and beverage products should be available, affordable, and accessible to all. Strategies to improve these key factors should be pursued by engaging all governance levels in the food system, including national and subnational governments. The negative environmental and health externalities associated with a slower adoption of healthier practices justify such interventions¹³².

Complementary to current Commission initiatives included in the Farm to Fork Strategy, such as a regulation on food packaging to increase recycling, legally binding targets to reduce food waste, and a mandate to offer plant-based dishes in publicly-funded collective canteens (i.e., public procurement of sustainable food), new initiatives should include regulation on product placement and advertising, mandatory reformulation schemes, and restrictions on food imports from places where food production causes major environmental damage.

3.1 Encourage Member States to regulate the placement in retail outlets of products whose frequent consumption is unhealthy and unsustainable.

There is evidence that greater availability and more prominent placement of healthy food products in supermarkets and other retail outlets, along with the removal of products whose frequent consumption is unhealthy from prominent locations, encourages healthier patterns of purchasing and diet. The same effect can be expected for sustainable products (compared to less sustainable alternatives), although this has not yet been sufficiently studied¹³³. Member States should therefore consider requiring large and medium-sized food retailers, schools and other facilities offering food to offer healthy and sustainable products and to place them in an attractive way. Member States should also consider prohibiting the placement of foods that are high in fat, salt, and sugar, as well as alcohol in prominent locations in these stores.

The presence of stores offering healthy food in all neighbourhoods should also be promoted to avoid 'food deserts', in particular in low-income areas¹³⁴. This could be achieved through a support by municipalities for alternative models of

¹³² [SAPEA 2023, Section 6.1]

¹³³ [SAPEA 2023, Section 4.2]

¹³⁴ [SAPEA 2023, Section 1.3]

retail, such as direct sales at the farm in rural areas, and urban agriculture projects and home deliveries in urban areas (see recommendation 2.4.)

3.2 Require food product reformulation in order to increase availability of healthy and sustainable food.

An effective way to decrease the adverse health effects of products whose frequent consumption is unhealthy is to mandate their reformulation, i.e., to change the processing or composition of products. Reformulations should strive to decrease the products' content in unhealthy fat, salt, sugar, and processed meat¹³⁵ and to minimize the use of those ultra-processed products that reduce dietary quality. This should concern in particular soft drinks, processed food, pre-prepared dishes, and products based on animal ingredients for which plant-based alternatives do exist—provided that the latter have a high nutritional value. Reformulation policies have been shown to be effective if they are mandatory and designed to cover a whole product category¹³⁶. In that case, reformulated products become the standard option rather than being partly offset by new product launches and undesirable consumer substitution. Labelling and taxation policies may also lead to food reformulation, whether it is intended or not¹³⁷.

3.3 Restrict EU imports of food commodities from places where food production causes major environmental damage, either by border taxes or by bans.

It is necessary to assess the feasibility and the pros and cons (including possible effects on the functioning of the internal market) of restricting EU imports of foods from biodiversity-rich and carbon-dense ecosystems, and water-demanding crops such as nuts and fruits and vegetables produced in water-scarce areas; foods produced with pesticides that are banned in the EU; and fish and other seafood that is sourced from unsustainably managed stocks¹³⁸. Some of these restrictions are already covered by the new EU Deforestation Regulation (EUDR)¹³⁹ on deforestation-free products¹⁴⁰. The scope of this regulation could be progressively extended. At the minimum, the categories of imported food products with high environmental impacts should be excluded from public procurement. A corollary of this overall

¹³⁵ [Clark et al. 2022]

¹³⁶ [SAPEA 2023, Section 4.3]

¹³⁷ [SAPEA 2023, Sections 4.4 and 4.6]

¹³⁸ [SAPEA 2023, Section 2.3] and [European Commission 2022a]

¹³⁹ Regulation (EU) 2023/1115 of the European Parliament and of the Council. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R1115>

¹⁴⁰ Proposal 2021/706 of the European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0706>

recommendation is that EU exports of food products with high environmental (and/or health) impacts should similarly be avoided to ensure a decrease in their production and availability for all consumers.

ANNEX 1 – SCOPING PAPER

**Scientific Advice Mechanism
European Commission's Group of
Chief Scientific Advisors**

**Scoping paper:
Towards sustainable food consumption**

13 July 2022

1. ISSUE AT STAKE

Making food systems sustainable is one of the main priority areas of action for both the European Union (EU) and many countries worldwide, and a key action to achieve the United Nations (UN) 2030 Agenda on Sustainable Development Goals (SDGs), as mentioned by the UN Secretary General at the UN Food Systems Summit (September 2021)¹⁴¹. The food system as a whole, including food consumption patterns, is currently not sustainable with respect to environmental, social and economic elements. Food systems are also under pressure from both climate change and non-climate stressors (e.g., population growth and shifts in income, diets largely based on animal-sourced products, geopolitical instabilities, and war)¹⁴². Regarding food consumption patterns, in the EU the average intakes of energy, red meat, sugars, salt and fats continue to exceed recommendations, while consumption of whole-grain cereals, fruit, vegetables, legumes and nuts is insufficient¹⁴³. Imbalances in dietary patterns, compounded by income inequality, results in various forms of malnutrition, with nearly 462 million adults worldwide being underweight, while 1.9 billion suffered overweight or obesity in 2014¹⁴⁴. It is estimated that in the EU in 2017 over 950,000 deaths (one out of five) and over 16 million years of healthy life lost were attributable to unhealthy diets, mainly cardiovascular diseases and cancers^{145,146}.

The adverse impact of food systems on public health and environment could be mitigated by transitioning to a sustainable food system; one that delivers food security, food safety and nutrition for all in a way that it does not compromise the availability, affordability and accessibility of food for future generations,

¹⁴¹ <https://www.un.org/en/food-systems-summit/news/making-food-systems-work-people-planet-and-prosperity>

¹⁴² IPCC (2019). *IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse gas fluxes in Terrestrial Ecosystems*. Retrieved from: [Special Report on Climate Change and Land – IPCC site](#)

¹⁴³ Willett W. et al (2019), 'Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems', in *Lancet*, Vol. 393, pp. 447–92.
[https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

¹⁴⁴ WHO Fact Sheet on Malnutrition : <https://www.who.int/news-room/fact-sheets/detail/malnutrition>

¹⁴⁵ The data '16 billion of years of healthy life lost' refers to the measurement of disability adjusted life years (DALYs), which is a metric used to measure the health of a population, not just one person. It is estimated from the sum of years lost to due to premature mortality (YLLs) and the years lived with a disability (YLDs), and are expressed per 100.000 population.

¹⁴⁶ EU Science Hub : <https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway/eu-burden-non-communicable-diseases-key-risk-factors>

while ensuring a fair living to everyone who contributes to it^{147,148}. However, the complexity of the food system and of the mutual relationships between its numerous actors means that the challenges associated with this transition cannot be viewed in isolation; a systemic, multi-level approach which considers economic, social, environmental, cultural and, in particular, behavioural aspects is necessary.

The behaviour and choices of consumers play an important role in determining how to bring about a shift towards healthier, less resource intensive and more plant-based diets. According to the Scientific Opinion *Towards a Sustainable Food System*¹⁴⁹, which was published by the Group of Chief Scientific Advisors (GCSA) in 2020, consumer behaviour 'is constrained and formed by many actors and aspects which are together referred to as food environment'. Policies and actions are required to stimulate dietary changes by creating a more favourable food environment, in which the healthy and sustainable choice is the easy one. Furthermore, consumption reduction, reuse and recycling should also be encouraged to minimize food loss and waste. Consumer demand for sustainably farmed or fished products can stimulate a greater uptake of sustainable practices throughout the food supply chain. All in all, consumer behaviour has the potential to make the food system more sustainable, contributing to mitigate the effects of climate and biodiversity changes and, at the same time, improving public health.

Currently European citizens are living in an environment that does not encourage healthy diets in line with European dietary recommendations. To the contrary, socio-economic trends are leading to unhealthy and unsustainable food consumption with calorie-dense, nutrient-poor and ultra-processed food, sweetened beverages and increased global demand for fish, meat and other livestock products, contributing to overconsumption, obesity and other health determinants closely related to an increased risk of non-communicable diseases¹⁵⁰. Livestock production is associated with greenhouse gas emissions, animal welfare issues, impact on land use, air and water pollution, as well as

¹⁴⁷ FAO (2018) *Sustainable Food Systems – Concept and Framework*. Retrieved from: <https://www.fao.org/policy-support/tools-and-publications/resources-details/fr/c/1160811/>

¹⁴⁸ SAPEA (2020) *A sustainable food system for the European Union*. Retrieved from: <https://sapea.info/topic/food/>

¹⁴⁹ European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors (2020). *Towards a sustainable food system: moving from food as a commodity to food as more of a common good*. Independent expert report. <https://data.europa.eu/doi/10.2777/37244>

¹⁵⁰ Laestadius and Wolfson (2019), *Chapter 5 – Unsustainable demands on the food system, from Connecting Health and Nutrition with Environmentally Sustainable Diets, Environmental Nutrition*, pp 75-100. <https://doi.org/10.1016/B978-0-12-811660-9.00005-9>

development and spread of zoonoses and multi-resistant bacteria¹⁵¹. EUROSTAT data indicate that a third of the EU population does not eat any fruits and vegetables daily.¹⁵² Overall, if European diets were in line with dietary recommendations (for example by reducing meat consumption and adjusting the food portion size), the environmental footprint of food systems would be significantly reduced, even if national dietary recommendations do not necessarily take sustainability into account.^{153,154}

While many citizens may be willing to change the way they eat, and switch to healthy and more sustainable options¹⁵⁵, their behaviour as consumers is formed and determined by multiple actors and aspects. As an example, the 2020 Eurobarometer showed that taste (45%), food safety (42%) and cost (40%)¹⁵⁶ are the main factors perceived to be influencing Europeans' food purchases¹⁵⁷. Determinants of food choices are context-specific, and include aspects such as affordability, availability, cultural acceptability, convenience, preference, habit, social norms, culture, religion, specific health concerns, retail product display, consumer awareness and influences from marketing practices and strategies.

Although actions and policies to improve the availability and affordability of sustainable and healthy products can be put in place, they cannot be successful if consumers do not choose to buy these products. In order to design effective evidence-based policies and actions, it is necessary to better understand the barriers and effective enablers of change in consumers' uptake of healthy and sustainable diets.

¹⁵¹ European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors (2020). *Towards a sustainable food system: moving from food as a commodity to food as more of a common good*. Independent expert report. <https://data.europa.eu/doi/10.2777/37244>

¹⁵² EUROSTAT (2019). *Daily consumption of fruit and vegetables in the EU*. Retrieved from: <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/ddn-20220104-1>

¹⁵³ Bechthold et al. (2018) Perspective: Food-Based Dietary Guidelines in Europe – Scientific Concepts, Current Status and Perspectives. <https://doi.org/10.1093/advances/nmy033>

¹⁵⁴ Willett W. et al (2019), 'Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems', in *Lancet*, Vol. 393, pp. 447–92. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

¹⁵⁵ The European Consumer Organization – BEUC (2020). *One bite at a time: consumers and the transition to sustainable food*. <https://www.beuc.eu/publications/one-bite-time-consumers-and-transition-sustainable-food>

¹⁵⁶ The total add up of percentages presented exceeds 100% because the Eurobarometer question had multiple-choice answers.

¹⁵⁷ European Commission Eurobarometer (2020). *Making our food fit for the future – new trends and challenges*. Retrieved from: <https://europa.eu/eurobarometer/surveys/detail/2241>

2. EU POLICY BACKGROUND

The various elements of the food systems (e.g., components, actors and activities) fall under a wide range of EU policy areas and instruments. These include the Common Agricultural Policy (CAP) and Common Fisheries Policy, but also other policies related to environment, health, food safety and security, research and innovation, education, single market and competition, trade and development¹⁵⁸.

Following calls for a more integrated and holistic EU food policy landscape and a better coordination of existing policies, the European Commission's reflection paper *Towards a Sustainable Europe by 2030*¹⁵⁹ calls for 'a comprehensive approach entailing a genuine change in the way we produce, transform, consume and distribute food by accelerating the transition to a sustainable food system based on circular economy principles and making innovative, healthy, environment and animal welfare-friendly, safe and nutritious food production one of our key European trademarks'.

The Farm to Fork Strategy¹⁶⁰ launched in 2020 aims to enable the transition towards a sustainable EU food system that safeguards food security and ensures access to healthy diets sourced from a healthy planet. It aims to make our society more resilient to threats such as food insecurity, while reducing the environmental and climate footprint of the EU food system, protecting citizens' health and ensuring the livelihoods of economic operators. The importance of global food security in particular has again come to the forefront as a consequence of Russia's unprovoked and unjustified aggression against Ukraine. Consequently, the Commission has issued the Communication *Safeguarding food security and reinforcing the resilience of food systems*.¹⁶¹ In

¹⁵⁸ Other relevant EU Policies and strategies include: EU General Food Law and related risk-based food safety regulatory frameworks, EU Green Deal, Farm to Fork strategy, Biodiversity strategy, Strategy for sustainable Chemicals, EU consumer policy, EU environment policy, EU global food security, Energy Performance Buildings Directive (EPBD), EC Chemicals Sustainability Strategy (CSS), European Exposure Strategy 2030, Food 2030, EU School scheme.

¹⁵⁹ European Commission, Reflection Paper (2019) *Towards a Sustainable Europe by 2030*. Retrieved from: https://ec.europa.eu/info/publications/reflection-paper-towards-sustainable-europe-2030_en

¹⁶⁰ European Commission (2020) *A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system*. https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en

¹⁶¹ European Commission (2022). *Safeguarding food security and reinforcing the resilience of food systems*. <https://ec.europa.eu/info/sites/default/files/food-farming->

addition, the European Food Security Crisis preparedness and response Mechanism (EFSCM) has started its work to analyse and map the risks and vulnerabilities of the EU food supply chain.¹⁶²

The Farm to Fork Strategy proposes ambitious measures to ensure that the healthy option is the easy and affordable one for EU citizens, including improved labelling of food products to better meet consumers' information needs on healthy, sustainable foods, and supporting public procurement to encourage the acquisition of healthy and sustainable food products. Furthermore, its Action Plan envisages a legislative framework to provide the basis of a food system policy targeting sustainability. The European Commission's Joint Research Centre carried out a participatory process with an inclusive and broad international group of experts to explore and reflect on possible 'building blocks' of such a legislative framework¹⁶³. This process supported the work on the Inception Impact Assessment for this legislative framework.

The Farm to Fork Strategy builds on the achievements of Food 2030, which is the EU R&I policy framework to transform food systems. The EU R&I funding programmes (Horizon 2020 and Horizon Europe) support several projects contributing in general to the priorities of the strategy, but also in particular, to achieve a shift towards healthy and sustainable dietary behaviour^{164,165}.

As a core part of the European Green Deal, the Farm to Fork strategy is also underpinned by EU's commitments towards the UN SDGs. In September 2021, the UN Food Systems Summit deliberated on the actions needed to transform the global food system to achieve the SDGs by 2030. In the preparation of this Summit, the creation of 'Healthy Food Environments' was identified as a key 'game changing solution'¹⁶⁶. As a follow-up to the Summit, a Coalition for Action on 'Healthy Diets from Sustainable Food Systems for Children and All' has been

[fisheries/key_policies/documents/safeguarding-food-security-reinforcing-resilience-food-systems.pdf](#)

¹⁶² European Commission (2021). *Contingency plan for ensuring food supply and food security in times of crisis*. [EUR-Lex - 52021DC0689 - EN - EUR-Lex \(europa.eu\)](#)

¹⁶³ European Commission, Joint Research Centre, Bock, A., Bontoux, L., Rudkin, J., Concepts for a sustainable EU food system : reflections from a participatory process, 2022, <https://data.europa.eu/doi/10.2760/381319>

¹⁶⁴ European Commission, Directorate-General for Research and Innovation, Research & innovation key driver of the farm to fork strategy, Publications Office, 2020, <https://data.europa.eu/doi/10.2777/345237>

¹⁶⁵ [Horizon Europe Framework Programme Funding Call: Transition to healthy and sustainable dietary behaviour](#)

¹⁶⁶ <https://foodsystems.community/game-changing-propositions-solution-clusters/healthy-food-environment/>

launched on 13 May 2022, with the vision to 'a world where all people eat healthy diets from sustainable food systems'¹⁶⁷. Its work plan comprises a special project on Food-Based Dietary Guidelines (FBDGs), with the objective to 'ensure integrating a food systems approach and sustainability considerations' in the guidelines^{168,169}. Furthermore, in an effort to advise on options for strengthening the international science-policy interfaces, the Commission established a High-Level Expert Group in February 2021. Their mid-term report¹⁷⁰ concludes that the current landscape needs to be improved, suggesting the adaption and enhancement of existing initiatives related to food systems, and explores the potential of novel initiatives, mechanisms or platforms to enhance networking, data access and multi-sectorial discussion. Their final recommendations to inform the sustainable food systems transformation will be delivered in June 2022.

On 3rd February 2021, the Commission adopted the Europe's Beating Cancer Plan¹⁷¹, with the objective to support and complement Member States' efforts to address the entire disease pathway including prevention, treatment and post-treatment. These covers improving health promotion through access to healthy diets (with more fruit and vegetables and less red and processed meat) and reducing harmful alcohol consumption, in line with the UN SDGs.

3. REQUEST TO THE GROUP OF CHIEF SCIENTIFIC ADVISORS

Given the complexity of the food environment, information provision, fact-based education, and awareness campaigns are necessary, but on their own insufficient to achieve the required shift towards healthy and sustainable consumer choices. Additionally, information from public and educational sources competes, and often conflicts with, messages from advertisement and other marketing strategies that are supported by large budgets¹⁷². SAPEA's Evidence

¹⁶⁷ [Launch event of the Coalition of Action on Healthy Diets from Sustainable Food Systems for Children and All - UN Nutrition](#)

¹⁶⁸ Coalition for Action on Healthy Diets from Sustainable Food Systems for Children and All – Work Plan: [HDSFS Workplan - May 2022 - clean.docx \(unnutrition.org\)](#)

¹⁶⁹ Leite et al. (2021) *Healthy low nitrogen footprint diets*. Global Food Security. doi: [10.1016/j.gfs.2019.100342](#)

¹⁷⁰ European Commission, Directorate-General for Research and Innovation, Everyone at the table : co-creating knowledge for food systems transformation, Webb, P.(editor), Sonnino, R.(editor), Publications Office, 2021, <https://data.europa.eu/doi/10.2760/21968>

¹⁷¹ European Commission (2021). Europe's Beating Cancer Plan. https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/european-health-union/cancer-plan-europe_en#documents

¹⁷² European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors (2020). *Towards a sustainable food system: moving from food as a*

Review Report¹⁷³ offers further explanations for the limited impact of information-based campaigns, remarking that ‘most everyday behaviours (including food-related choices and behaviour) involve little conscious reasoning, but are carried out by impulse or in a semi-automatic way. Cognitive psychology explains this with reference to our limited cognitive capacity for deliberate decision-making, which is generally reserved for important and difficult decisions. In other cases, we just repeat what we usually do (through habit) or act on cues, feelings or impulses’. However, the report also states that ‘most nudging interventions are quite subtle, so it is unsurprising that they do not always work as intended’.

For this reason, it is important to ensure a combination of ‘regulatory, financial, behavioural, information, communication, and education measures’¹⁷⁴ to reshape the food environment. In this context, ‘information-based initiatives should be a part of the policy mix despite the fact that on their own they would be insufficient to change behaviour. The same conclusion applies to education and communication initiatives (e.g., awareness campaigns) [...]. Behavioural tools are indeed shown by evidence to influence healthier choices. These include ‘nudging’ consumers towards sustainable choices through a ‘choice architecture’ – e.g., by making a sustainable product the easiest default option. [...] Ultimately, well-designed instrument mixes may be the most effective, but the evidence is unclear about the precise balance and the interactions between instruments.’

In summary, while consumer behaviour was discussed in the 2020 Scientific Opinion, ways to create a food environment that would foster safe, secure, healthy and sustainable consumption habits need further research and analysis. In particular, achieving the goals of the Farm to Fork Strategy requires clear advice on how to bring about a shift towards healthy and sustainable consumers’ dietary choices taking into account the competences of EU Institutions and Member States.

Consequently, the request to the Group of Chief Scientific Advisors is:

commodity to food as more of a common good. Independent expert report.

<https://data.europa.eu/doi/10.2777/37244>

¹⁷³ SAPEA (2020) *A sustainable food system for the European Union*. Retrieved from:

<https://sapea.info/topic/food/>

¹⁷⁴ European Commission, Directorate-General for Research and Innovation, Group of Chief Scientific Advisors (2020). *Towards a sustainable food system: moving from food as a commodity to food as more of a common good*. Independent expert report.

<https://data.europa.eu/doi/10.2777/37244>

What tools could be used at EU level, in addition to those mentioned in the 2020 Farm to Fork Strategy, to overcome the barriers preventing consumers to adopt sustainable and healthy diets, fostering the necessary change towards sustainability in the food environment? The Group's advice should be based on an analysis that identifies the elements refraining consumers from making healthy and sustainable choices.

This scoping question should be analysed by reviewing scientific evidence, including from social sciences, and taking a systemic approach which considers the complex architecture of the food environment.

The scientific advice requested here should be delivered by Q2 2023. It will contribute to the implementation and inform the future review of the Farm to Fork Strategy, and support Europe's Beating Cancer Plan.

ANNEX 2 – METHODOLOGY

The Group of Chief Scientific Advisors (GCSA) was asked to provide a Scientific Opinion on sustainable food consumption. The background to the request and the specific question to be answered are laid down in the 'Scoping Paper' (Annex 1). The report builds on earlier work of the GCSA, specifically on Food from the Oceans¹⁷⁵, Authorisation of Plant Protection Products¹⁷⁶, and Towards a Sustainable Food System¹⁷⁷. The recommendations presented here by the GCSA build upon the Evidence Review Report (ERR, SAPEA 2023) developed by SAPEA, additional literature, and expert and stakeholder consultations (see Annex 3).

The topic of sustainable food consumption was originally suggested by DG SANTE in December 2021. A draft scoping paper was produced by SAM in close consultation with DG SANTE and with the Cabinet of the Commissioner for Health and Food Safety, considering feedback received from other interested policy DGs of the Commission. The final version was transmitted by the Commissioner for Research and Innovation to the Group of Chief Scientific Advisors on 13 July 2022, and immediately adopted by the Group. On behalf of the GCSA, the work on the Scientific Opinion was led by Eric Lambin; Nicole Grobert, Nebojša Nakićenović, Eva Zažímalová, Carina Keskitalo (from the GCSA alumni), and Janusz Bujnicki (from the GCSA alumni) contributed to its development. All advisors read, discussed, and approved the final document.

The SAPEA ERR was developed by an expert working group lead by Prof. Erik Mathijs (KU Leuven). SAPEA organised an expert workshop with independent scientific experts who discussed the first draft of the ERR. The ERR was later peer-reviewed by three independent experts. SAPEA also produced a supporting systematic review of the relevant European policy ecosystem.

Relevant evidence from the SAPEA ERR and further academic and 'grey' literature was supplemented with expert elicitation, covering academic experts, policy experts and expert practitioners (see Annex 3). In this, the GCSA was supported by the staff of the SAM Secretariat in the European Commission, who performed supplementary analyses and synthesis of scientific and 'grey' literature, attended relevant conferences and meetings, and organised the expert elicitation meetings. In particular, the SAM Secretariat organised a 'sounding board meeting' on the draft Scientific Opinion, a discussion with policy experts of the European Commission on the scientific evidence and policy

¹⁷⁵ [Group of Chief Scientific Advisors 2017]

¹⁷⁶ [Group of Chief Scientific Advisors 2018]

¹⁷⁷ [Group of Chief Scientific Advisors 2020]

relevance, and a 'stakeholder meeting' that gathered comments from industry and NGO representatives.

This Scientific Opinion was thus informed by various sources of evidence, notably:

Scoping Paper 'Towards sustainable food consumption' (SAM 2023/Annex 1);

Review of the scientific literature by SAPEA on the following topics: the Farm-to-Fork strategy; the role of the food environment for sustainable food choices; drivers and interventions on household and consumer food waste; labelling and consumer behaviour; field experiments in supermarkets and canteens/restaurants regarding interventions to foster sustainable food choices; political dimensions of meat consumption reduction; organic food procurement.

SAPEA Expert workshop – February 2023;

Sounding Board Meeting – April 2023;

Stakeholder Meeting – June 2023.

Meeting reports or summarising notes are published online.

ANNEX 3 – LIST OF CONSULTED EXPERTS AND STAKEHOLDERS

Surname	First name	Association / Organisation	
Abbadessa	Valerio	European Commission – DG AGRI	
Anton	Alexander	European Dairy Association (EDA)	*
Antonelli	Flavio	EIT Food	*
Asquith	Mike	European Environmental Agency	
Barbosa	Steven	The International Platform of Insects for Food and Feed (IPIFF)	*
Bedert	Els	EuroCommerce	*
Bisonni	Michela	European Plant-Based Foods Association	*
Björkbom	Camilla	Eurogroup for Animals	*
Bontoux	Laurent	European Commission - JRC	
Chang	Betty	European Food Information Council	*
Colliot	Anne-Gaëlle	EuropaBio - the European Association for Bioindustries	*
Colonna	Clara	EU Special Food Ingredients	*
Di Rubbo	Pasquale	European Commission – DG AGRI	
Dohmen	Bo	Food Drink Europe	*
Fabbri	Fabrizio	Euro Coop	*
Fabbri	Karen	European Commission – DG RTD	
Fears	Robin	EASAC	*
Feller	Roxane	Animal Health Europe	*
Frizon Somogyi	Orsolya	European Commission – DG AGRI	
Funcken	Eva	European Commission - DG ENV	
Gallani	Barbara	European Food Safety Authority	

Gil	Alba	European Public Health Alliance	*
Granados Chapatte	Ana	Farm Animal Breeding & Reproduction Technology Platform (FABRE TP)	*
Hagyo	Andrea	European Environment Agency	*
Hortelano	Lucia	ProVeg	*
Islas Ramos	Ana	Food and Agriculture Organization of the United Nations (FAO)	*
Kikou	Olga	Compassion in World Farming Brussels (CIWF EU)	*
Lattanzio	Veronica	National Research Council of Italy	*
Lopez Blanco	Ana Patricia	European Commission – DG AGRI	
Mihalfy	Szilvia	Federation of European Aquaculture Producers	*
Nathanson	Joanna	Freshfel Europe	*
Nicklaus	Sophie	National Research Institute for Agriculture, Food and the Environment (INRAE), France	
O'Donovan	Alice	European Dairy Trade Association (Eucolait)	*
O'Sullivan	Aifric	University College Dublin, Ireland	
Paliotta	Isabel	European Environmental Bureau	*
Pappers	Lara	Jeremy Coller Foundation	*
Patruno	Paolo	Centre for the Meat Processing Industry in the European Union (CLITRAVI)	*
Perrin	Camille	BEUC	*
Pignacca	Alice	European Commission – DG SANTE	
Pinto	Rafael	European Vegetarian Union	*
Pottie	Siska	European Alliance for plant-based foods (EAPF)	*
Reisch	Lucia	University of Cambridge, UK	

Riedo	Giulia	World Wildlife Fund (WWF)	*
Rogge	Alexander	European Commission – DG SANTE	
Sali	Eva	Comité des organisations professionnelles agricoles-Comité général de la coopération agricole de l'Union européenne (COPA-COGECA)	*
Schneider	Miriam	German Food Retail Association (BVLH)	*
Simonin-Rosenheimer	Hélène	Union Européenne du Commerce du Bétail et des Métiers de la Viande (UECBV)	*
Springmann	Marco	London School of Hygiene and Tropical Medicine, UK	
Steenberg	Birthe	Avec Poultry - The voice of Europe's poultry meat sector	*
Tuijtelaars	Alexandra	European Commission – DG SANTE	
van den Brink	Anton	Fédération Européenne des Fabricants d'Aliments Composés (FEFAC)	*
Van Laer	Jeroen	European Commission – DG JUST	
Van Ormelingen	Benedicte	European Commission – DG JUST	

** only involved in the Stakeholder Meeting*

ANNEX 4 – EXTENSIVE REVIEW OF THE CURRENT FOOD POLICY SYSTEM IN THE EU

The current policy landscape pertaining to sustainable and healthy food consumption is characterised by a significant degree of fragmentation. During the early 2000s, the emphasis was placed on streamlining legislation and simplifying regulations, with a shift in focus towards emerging issues such as sustainable development. In recent years, the connection between food legislation and environmental issues has become increasingly explicit and frequent. To promote synergies and address climate concerns, the European Commission introduced the European Green Deal in December 2019. At the core of this policy landscape is the Farm to Fork (F2F) Strategy, accompanied by a range of associated actions.

This section provides an overview of the current EU areas of action with a bearing on sustainable, safe, and healthy food consumption. It begins by examining policies that govern the availability of sustainable foods and highlights some of the challenges associated with the F2F Strategy implementation. It then addresses the implications on sustainability of importing food from outside EU borders. Next, food safety policies are reviewed. While a prerequisite for the adoption of sustainable and healthy diets is the availability of food that meets these requirements, consumers also need to buy these products and consume them in a sustainable and healthy manner. Thus, we then review the policies that encourage the consumption of sustainable foods as well as the sustainable consumption of foods – which covers the issues of food losses and waste – and policies that promote the consumption of healthy foods as well as the healthy consumption of foods.

From the CAP to the F2F Strategy and beyond: ensuring the availability of sustainable foods

The **Common Agricultural Policy (CAP)** first introduced in 1962 with the objective of securing food supplies is the main EU policy that targets the food sector and significantly impacts the sustainability of agricultural production. Since their inception, European institutions have considered ensuring food availability at reasonable prices one of their main goals. This objective is explicitly stated in the Treaty of Rome and is one of the primary goals of the CAP which was introduced in 1962. The policy is centred around the interests of farmers, with its main tool being direct payments that provide them with a relatively stable income in the face of fluctuating prices and demand. However, pressure from external stakeholders to meet sustainability requirements has resulted in policy changes that now require compliance with specific environmental measures in order to qualify for direct farm income support payments. Sustainability in the domain of the CAP is largely defined from an

environmental perspective, with limited attention paid to public health considerations¹⁷⁸.

Although most of the CAP's support is not tied to production anymore, there still exists a significant amount of **Voluntary Coupled Support** to support the production of ruminants. The recent reform has introduced eco-schemes as a new tool: they include income support conditional on meeting food safety, environmental, and animal welfare standards in the first pillar of the CAP, and rural development measures in the second pillar that address nature, environmental, and climate change issues. The **Fruit and Vegetables Aid Scheme** which provides funding to producers to encourage collaboration, increase competitiveness and improve the quality and quantity of produce grown is also worth mentioning.

The CAP has been instrumental in promoting the development of **organic farming** which, by preserving soil, water, and air, reducing agricultural impact on climate change, and enhancing biodiversity, contributes to long-term environmental sustainability. Since the 1990s, nearly all EU countries have provided support for the maintenance and conversion to organic farming. Organic farming is a fast-growing area in EU agriculture, which is a direct result of increased consumer interest in organic products. This rapid expansion has also presented challenges for which the EU has updated the legislation with new regulations that came into effect in January 2022. These provide a clear structure for organic production across the entire EU, ensuring that trustworthy organic products meet consumer demand, while also providing a fair marketplace for producers, distributors, and marketers.

While the CAP has been reformed on multiple occasions, changes have been mainly incremental and, according to some, slowly paced. Its focus on farmers has been criticized for preventing it from being an overarching framework for the entire food system in Europe. The most recent CAP reform, **CAP 2023–27**, addresses the pressing need for climate action and sustainable resource management in line with the Green Deal, the challenges of a sustainable food system as expressed in the F2F Strategy, and the need to improve the delivery of the policy. The key novelty is the introduction of CAP Strategic Plans, which give Member States the ability to develop unique policies addressing the social, economic, and environmental needs of their agricultural sector and rural areas on the basis of 10 important EU goals that span all facets of sustainability. This new structure preserves the common framework while allowing Member States to substantially improve their subsidiarity. The updated CAP has more ambitious environmental objectives: farmers' incomes continue to be supported but with

¹⁷⁸ [SAPEA 2023]

more stringent requirements relating to Good Agricultural Environmental Conditions. The 'redistributive payment' is enhanced which has led to a large increase in the rates per hectare paid for small and medium-sized agricultural holdings. Concurrently, the budget dedicated to voluntary environmental and climate actions is increased with one third of the funds going towards delivering benefits for climate, water, soil, air, biodiversity, and animal welfare. Practices that go beyond minimum requirements are also promoted.

The **2019 European Green Deal** is an integral part of the Commission's strategy to implement the United Nation's 2030 Agenda and the Sustainable Development Goals (SDGs). It sets out a comprehensive strategy to transform the EU into a fair and prosperous society, with a climate-neutral, resource-efficient, clean, and circular economy in which economic growth is decoupled from resource use and where negative impacts on natural capital and biodiversity are reduced. This, however, requires a profound and rapid shift in people's habits and behaviour.

The **2020 Farm to Fork (F2F) Strategy** is at the heart of the European Green Deal. For the first time in the EU food law, a comprehensive approach to food sustainability is taken, covering the entire supply chain from primary production to consumption. The plan includes both regulatory and non-regulatory measures to promote a fair, healthy, and eco-friendly food system. A legal framework is also proposed in its action plan as the basis for a sustainable food system strategy. One key goal is to reduce food loss and waste – in line with the SDG Target 12.3 to reduce food losses along the food production and supply chains – while ensuring an adequate and affordable food supply, fair prices for farmers, and maintaining the EU's competitiveness in global markets. In this respect, the Platform on Food Losses and Food Waste (FLW) established in 2016 following the publication of its **Communication on the Circular Economy** which brings together stakeholders of the food system will also continue to exchange best practices, identify barriers and opportunities, and develop and promote solutions to food loss and waste across the food supply chain.

The F2F Strategy is closely linked to the **Biodiversity Strategy for 2030** which was launched on the same day and sets out an ambitious and far-reaching programme of measures to halt and reverse biodiversity loss in the EU and across the globe. Biodiversity is crucial for safeguarding food and nutrition security. It underpins healthy and nutritious diets and is key for rural livelihoods and agricultural productivity. Some the initiatives under this strategy are directly linked to food such as bringing nature back to agricultural land, restoring soil ecosystems, and increasing the quantity of forests and improving their health and resilience. In 2022, the EU agreed on a **Regulation on deforestation-free value chains** which is to ensure that the EU market no longer contributes to deforestation and forest degradation in the EU and

elsewhere in the world. Under the new regulations, all relevant companies will be required to conduct rigorous due diligence if they trade in, or export from the EU, certain commodities and their derived products such as palm oil, cattle, soy, coffee, cocoa, timber, and rubber, including beef, furniture, and chocolate.

The F2F Strategy builds on other important policy instruments such as the **Common Fisheries Policy** which was first introduced in the 1970s and updated in February 2023 through the **Fisheries Policy Package**¹⁷⁹ which aims to develop the industry while at the same time conserving fish resources and aligning to the wider resilience and sustainability environmental objectives championed by the European Green Deal. Sustainably harvested and managed fish are a rich source of high-quality, affordable protein that leaves a small carbon footprint. They play a crucial role in ensuring food security for numerous communities and economically sustaining fishing societies. Safeguarding sustainable fishing practices and managing fish stocks in a sustainable manner are vital in protecting ocean biodiversity and combating climate change. This is essential as average apparent fish consumption per capita in the EU is the second highest in the world and some individual EU Member States have among the highest rates in the world, with many Europeans favouring wild fish¹⁸⁰. The 2021 **Communication on a new approach for a sustainable blue economy in the EU - Transforming the EU's Blue Economy for a Sustainable Future** acknowledges the growing consumer demand for low environmental footprint and short supply chains and reiterates the need to develop a legislative framework that includes fisheries and aquaculture products, to accelerate and facilitate the transition towards a sustainable food system. Importantly, it mentions the need to reward the fishers and fish farmers efforts. The focus on algae as a food to be developed should also be noted. The 2021 Communication on **Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030** pushes for further improving the environmental performance of the aquaculture sector of the EU in spite of already being subjected to some of the strictest regulatory requirements for quality, health and the environment.

Business policies can also foster sustainable and responsible corporate behaviour and anchor human rights and environmental considerations in companies' operations and corporate governance. The 2019 **Directive on unfair trading practices in business-to-business relationships in the**

¹⁷⁹ The Package includes a **Communication on the Energy Transition of the EU Fisheries and Aquaculture sector; an Action Plan to protect and restore marine ecosystems for sustainable and resilient fisheries**; a **Communication on the common fisheries policy today and tomorrow** and a **Report on the Common Market Organisation for fishery and aquaculture products**.

¹⁸⁰ [European Environment Agency 2016]

agricultural and food supply chain was introduced to prohibit a list of unfair trading practices (UTPs) – mostly linked to significant imbalances in bargaining power between suppliers and buyers. This aims to improve the position of both farmers and small and medium sized businesses in the food supply chain by banning 16 unfair trading practices, distinguishing between 'black' practices which are banned and 'grey' practices which are allowed if the supplier and the buyer agree on them beforehand in a clear and unambiguous manner. In 2020, the Commission adopted a proposal for a **Directive on corporate sustainability due diligence**. These new rules will ensure that businesses address the negative consequences of their actions, including those in their value chains both within and outside of Europe. One of the first deliverables of the F2F Strategy was the 2021 **Code of Conduct on Responsible Food Business and Marketing Practices** which sets out the actions that the actors 'between the farm and the fork' – including as food processors, food service operators and retailers – can voluntarily commit to undertake to tangibly improve and communicate their sustainability performance. This Code of Conduct is a 'common aspirational path towards sustainable food systems but the Commission is set to consider legislative measures if progress is insufficient.

Challenges to the 2F2 Strategy implementation

The implementation of the **F2F Strategy** does not come without challenges, notably because of the enduring ambiguity surrounding the definition of 'food sustainability' or a 'sustainable food system'. Such imprecisions can lead to incoherent and conflicting strategies¹⁸¹. The obvious example is the promotion of grass-based ruminant systems for sustainable land management, which can be in conflict with the goals of reducing greenhouse gas emissions and improving biodiversity. Secondly, while the ambiguity surrounding the concept of food sustainability may help the Commission garner support from diverse stakeholder groups, ignoring the specific needs of the different food system actors may ultimately undermine the legitimacy of the strategy¹⁸². Another critique of the F2F Strategy is the fact that its ambitious policy objectives are not fully reflected in the 27 specific legal actions proposed. While some targets, such as reducing pesticide and fertilizer use and sales of antimicrobials, are specific, others are abstract or missing, such as biotechnology¹⁸³. In addition to policy challenges, the success of the F2F Strategy could also be hindered by institutional challenges such as the competition between different directorates within the Commission, which can impede the implementation process. Institutional tensions also exist between different European Parliament

¹⁸¹ [Monarrez Lachhein 2022]

¹⁸² [Schebesta and Candel 2020]

¹⁸³ [Schebesta and Candel 2020]

committees, creating further challenges. These conflicts risk preventing the development of a coherent and effective policy mix and would need to be addressed in the sustainable food system legislative proposal through inter- and intra-institutional cooperation¹⁸⁴.

More recently, in light of the war in Ukraine, the F2F Strategy has been confronted with a new challenge, politics¹⁸⁵, and brought the issue of food security back into the arena of public debate¹⁸⁶. In response to these international events and their effects on agricultural markets and food availability, in 2022, the European Parliament adopted a **Resolution on the 'need for an urgent EU action plan to ensure food security inside and outside the EU'**, stressing the need to reduce dependency on other countries. This crisis and others such as the COVID 19 pandemic have raised the question of whether actions to tackle food emergencies should be prioritised over actions to tackle climate emergencies¹⁸⁷. Before that, at the end of 2021, the Commission had published a **Communication to develop a contingency plan to ensure food supply and food security in times of crisis** which aims to ensure a sufficient and varied supply of safe, nutritious, affordable, and sustainable food to citizens at all times. It also presented the creation of **European Food Security Crisis preparedness and response Mechanism (EFSCM)** which began its work in March 2022. The **2022 Communication on safeguarding food security and reinforcing the resilience of food systems** set out the Commission's response to address rising food prices and the issue of global food security deriving from the invasion of Ukraine. It lays out short term measures to support food security and agriculture in Ukraine, global food security, as well as producers and consumers in the EU. However, it also stresses the importance of refocusing the food sector in the long run towards sustainability and resilience, in line with the European Green Deal, the F2F Strategy and the Biodiversity Strategy.

Beyond EU borders

The food system relies heavily on global markets and international trade and are therefore subject to rules set by international trade organisations, such as the **World Trade Organization (WTO)** and the **General Agreement on Tariffs and Trade**. The WTO Agreement on Agriculture and the **Agreement on the Application of Sanitary and Phytosanitary Measures**, both established in 1995, are of particular relevance. The former regulates agricultural trade by setting rules on domestic support, market access, and

¹⁸⁴ [Schebesta and Candel 2020]

¹⁸⁵ [Farm Europe 2022]

¹⁸⁶ [van Zeven et al. 2022]

¹⁸⁷ [European Parliamentary Research Service 2022]

export subsidies. The latter aims to safeguard human, animal, and plant health by requiring governments to align their sanitary and phytosanitary frameworks with standards established by organizations like the Codex Alimentarius Commission, World Organisation for Animal Health, and the Secretariat of the International Plant Protection Convention. Although they do include clear rules on governing well-known risks, their ability to incorporate emerging, more proactive forms of legislation that target public health or climate action such as the EU Ecolabelling program or bans on importing unsustainable products is questionable¹⁸⁸.

Seafood markets offer a particular challenge with regards to governance and policy since they are highly dependent on seafood sources from beyond their own domestic waters: in 2013, the EU imported 55% of its seafood from all over the world¹⁸⁹. Consumers can choose from various fish stocks, species, and ecosystems to meet their preferences, often without considering local environmental or social constraints. These dynamics of global trade can be harmful to fisheries, which rely on the natural capacity of fish stocks to replenish themselves and the ecosystem's ability to withstand human pressures and remain healthy. There are also implications with regards to food safety as traceability becomes difficult within global supply chain. This can have negative implications for ethical and sustainable production¹⁹⁰. While the management and utilisation of living marine resources are regulated under the **1982 UN Convention on the Law of the Sea** as well as a number of other global and regional agreements, such considerations need to be borne in mind for all types of foods as they have important implications for sustainability beyond the borders of the Union as it falls outside the remit of EU laws and regulations. The **F2F Strategy** acknowledges that and calls for policies that help raise standards globally, in order to avoid the externalisation and export of unsustainable practices. Indeed, some are warning of the potential unintentional negative impact of the F2F implementation on food systems outside Europe including greater food insecurity, higher greenhouse gas emissions and increased biodiversity loss.

A wide range of other norms and guidelines have an impact on the governance of the food system in the EU in addition to the SDGs, namely those produced by the Food and Agriculture Organization (FAO), the World Health Organization (WHO), the Committee on World Food Security, and the World Bank. They play crucial roles in disseminating policy ideas and allocating resources to crisis management and development initiatives. For instance, the UN Decade of

¹⁸⁸ [SAPEA 2020]

¹⁸⁹ [European Environment Agency 2016]

¹⁹⁰ [European Environment Agency 2016]

Action on Nutrition (2016–2025) aims to promote the sustained and coherent implementation of policies and investments to eradicate malnutrition in all its forms. However, the existence of all these mechanisms also leads to gaps, overlaps, inconsistencies, and conflicts in addressing food security. In parallel, initiatives that aim to enhance the transparency of value chains and steer them towards desired outcomes such as sustainability, food safety, quality have emerged sometimes in collaboration with governments such as Fair trade, Global GAP, the Marine Stewardship Council, REDD+, and the Roundtable on Sustainable Palm Oil although their legitimacy and effectiveness is subject to debate¹⁹¹.

Ensuring food safety

Healthy foods also imply foods that are safe to consume. The **2002 General Food Law** sets out an overarching framework for the development of food and feed legislation both at Union and national levels to ensure food safety and protection of human life. It is based on the EU's food safety policy, which falls under the articles on public health (art. 168) and consumer protection (art. 169) in the EU Treaty. It addresses various issues, such as the regulation of food additives (including vitamins, minerals, and food supplements), health and nutrition claims on foods, food intended for infants, young children, and special medical purposes, and the impact of foods on food allergies. While this law aimed to protect consumers from health hazards and fraud, food scandals continue to exist because of the existence of loopholes and inadequate provisions¹⁹². The expert group established in 2014 to monitor the application of the General Food Law was revamped in 2021 in order to include expertise in in health/nutrition, environment/climate, and agriculture/fisheries-related area which was deemed necessary to be able to handle issues relating to the implementation of the F2F Strategy. It also protects consumers interests by, for instance, establishing the rights of consumers to receive accurate and honest information in relation to food.

The **F2F Strategy** continues to promote food safety by tackling issues relating to the use of chemical pesticides and nutrient pollution in agriculture, but also the ever-increasing threat that antimicrobial resistance (AMR) linked to the excessive and inappropriate use of antimicrobials is to food security and food safety. One of its objectives is the reduction by 50% of the overall EU sales of antimicrobials for farmed animals and in aquaculture by 2030. The initial response to this threat was outlined in the **2017 AMR Action Plan**, which was followed by other significant initiatives, including the **2018 Strategic**

¹⁹¹ [SAPEA 2020]

¹⁹² [foodwatch international 2018]

Approach to Pharmaceuticals in the Environment and the 2021 Zero Pollution Action Plan. In 2023, a **Proposal for a Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach** was tabled. It finds that while much progress has been achieved in the veterinary sector, human health needs to be further addressed.

Promoting the consumption of sustainable foods and the sustainable consumption of food

While there is a growing consumer interest in the sustainability of food products, no single EU legislation has yet been developed to standardize sustainability claims. The various aspects of sustainability within the food system are governed by multiple pieces of legislation as the food system has significant implications for several environmental concerns, such as maintaining clean air, regulating chemicals, managing industrial emissions, waste and recycling, preserving water, soil and land, and protecting nature and biodiversity¹⁹³. The EU has established legal definitions and a pre-market authorization system for claims related to nutrition and health, but no harmonized definition of environmental or green claims exists in EU law. It is expected that, as part of the **F2F Strategy**, efforts will be made to address this situation with the harmonisation of voluntary green claims and the creation of a sustainable labelling framework that covers, in synergy with other relevant initiatives, the nutritional, climate, environmental and social aspects of food products¹⁹⁴.

The **Green Deal** endeavours to tackle false environmental claims by ensuring that the information communicated to consumers is reliable and verifiable so that consumers can make more sustainable decisions. The need to address 'green washing' for example is set as a priority both under **the 2020 New Circular Economy Action Plan** and **2020 the New Consumer Agenda**. Efforts are being made to establish sustainable products as the standard in the EU and to verify 'Green Claims' on products. These initiatives aim to supersede the current **Regulation (EC) on the EU Ecolabel**. The New Consumer Agenda strives to protect consumers and empower them to play an active role in the green and digital transition, with specific actions such as developing a strategic approach to improving consumer awareness and education, addressing also the needs of different groups such as low income consumers, older people, people with disabilities, children and minors, as well as presenting a legislative proposal to empower consumers with better information on products' sustainability and better protection against 'greenwashing'. The 2021

¹⁹³ [SAPEA 2023]

¹⁹⁴ [Arayess and De Boer 2022]

Communication on a competition policy fit for new challenges intends, among other things, to contribute to the implementation of the European Green Deal by enabling companies to cooperate in order to pursue genuine green initiatives jointly, while preventing 'greenwashing' that would harm consumers. Consumer preferences for sustainable products, services and technologies should be considered in the competition assessment, whenever appropriate.

More recently, the 2023 **Green Claims Directive** proposes specific rules on how traders marketing products to EU consumers need to substantiate, communicate, and verify voluntary environmental claims and labels. The 2023 **Corporate Sustainability Reporting Directive** (CSRD) requires large companies and all companies listed on regulated markets to disclose information about the risks and opportunities associated with social and environmental issues, as well as the impact of their activities on people and the environment. It also endeavours to make the information more accessible. This is to enable different stakeholders including consumers to evaluate a company's sustainability performance. It is important that the highest sustainability standards are applied to products produced outside the EU and particularly in developing countries where fewer checks are likely to take place on workers' rights, land rights and ecosystem degradation. This is particularly true for products derived from ocean exploitation¹⁹⁵.

The 2021 **Communication on strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030** focuses on the need to communicate the benefits of this particular sector – by creating jobs in remote areas, as a low-carbon source of food, or by offering ecosystem services – in order to expand it. Negative perceptions by stakeholders of aquaculture activities, notably their impact on the environment and other economic activities, are often an obstacle to the establishment of new aquaculture facilities. This suggests that sustainability concerns have become crucial for consumers. A mix of tools is suggested to inform the public, including labelling, and information and education campaigns on farming conditions.

With regards to the sustainability of publicly procured foods such as in schools, hospitals, care homes, armed forces, prisons, or governmental buildings, the 2014 **Directive on public procurement** encourages public entities to favour the most economically advantageous tender (MEAT) also accounting for environmental and social considerations. The 2017 **Communication on making public procurement work in and for Europe** stresses however that price has remained the main consideration although all impacts and

¹⁹⁵ [CFFA 2021]

externalities of food production and supply need to be taken into account¹⁹⁶. Currently, the Europe-wide Joint Action BestReMap¹⁹⁷ and Joint Research Centre are analysing existing EU and national legislation related to public procurements of foods in order to improve the quality of menus in public institutions. This is based on the premise that in public institutions, the biggest obstacle to having a healthy diet is the absence of high-quality food.

Livestock farming plays a major role in climate change, biodiversity loss, tropical deforestation, and nitrogen pollution¹⁹⁸. Any discussion on sustainable consumption must therefore include measures to steer consumers towards more plant-based diets. It is in this context that the proposal of taxing meat has gained political attention as exemplified by the German government's proposal of an 'animal welfare levy' and the F2F Strategy's outline of a vision of an EU tax system that reflects the environmental costs of food products¹⁹⁹. Other tools such as Green Public Procurement (GPP), where public authorities, by virtue of their purchasing power, can influence consumption trends in favour of 'greener' commodities, have been successfully used in a number of countries. For instance, since the early 2000s, the city of Copenhagen has committed to buying 100% organic food for its public institutions. In France, since 2008 a GPP programme sets out criteria for the sustainable procurement of goods and services, including regarding energy efficiency, low carbon emissions, and reduced waste and pollution. This programme covers food among several other sectors.

While policies can nudge the public towards the consumption of foods that are produced in a sustainable way, they also need to ensure that food is consumed in a sustainable way. The demand for sustainable products is undeniably on the rise but the issue of sustainable consumption also needs to be tackled, notably by trying to minimize food waste. In the EU, households generate more than half of the total food waste. In addition to being an ethical and economic concern, wasting food also has negative impacts on the environment by depleting limited natural resources. The **2021 Revision of the 2011 Regulation on Food Information to Consumers**, an initiative of the F2F Strategy aims to improve labelling information to help consumers make healthier and more sustainable food choices but also tackle food waste. In addition to harmonised mandatory front-of-pack nutrition labelling and nutrient profiling criteria to restrict claims made on foods, and to extend mandatory origin or provenance information for certain products, it proposes to revise the

¹⁹⁶ [EAPF 2021]

¹⁹⁷ <https://bestremap.eu/procurement/>

¹⁹⁸ [Godfray et al. 2018]

¹⁹⁹ [Klenert et al. 2022]

rules on 'use by' and 'best before' dates marking. Up to 10% of food waste generated annually in the EU have been attributed to these dates²⁰⁰. As part of the **Circular Economy Action Plan**, in 2017 the Commission adopted **EU food donation guidelines** to facilitate the recovery and redistribution of safe, edible food to those in need. This not only supports the fight against food poverty but also can be an effective lever in reducing the amount of surplus food put to industrial use and sent for waste treatment and ultimately to landfill. Looking ahead, the **F2F Strategy** is to propose legally binding targets to reduce food waste across the EU by the end of 2023, and the revision of the **2011 Waste Framework Directive** to include measures to reduce waste generation and increase preparation for re-use or recycling of waste.

Promoting the consumption of safe and healthy foods as well as the healthy consumption of foods

In order to influence food consumption behaviour, existing public policy interventions mostly focus on enhancing motivation and personal capabilities by providing education and information. However, habits, routines, and emotional processes have also been shown to have a significant impact on food choices²⁰¹. In its 2007 **White Paper on A Strategy for Europe on Nutrition, Overweight and Obesity-related health issues**, the Commission emphasises the importance of three factors in any public action in this field. Firstly, individuals are ultimately responsible for their lifestyle and that of their children, although the influence of the environment on behaviour must be recognised. Secondly, only well-informed consumers can make rational decisions. Finally, promoting the complementarity and integration of different policy areas (horizontal approach) and levels of action (vertical approach) is required for an optimal response. As a result, legislation tends to focus on food labelling based on the premise that well-informed consumers are capable of making rational decisions. The White Paper also recommends supporting healthy choices such as promotion of fruits and vegetables in schools and sustainable urban transport projects which would facilitate walking and cycling. Food labelling is regulated under the 2011 **Regulation on the provision of food information to consumers**, which consolidates earlier regulations on food labelling and nutritional labelling. This regulation specifies the mandatory information that must be communicated to consumers, including the country of origin or place of provenance for certain products. The aim is to empower consumers with information and promote healthier food choices, particularly among priority groups and settings, such as children from financially vulnerable backgrounds. However, labelling food for health impacts has shown to have

²⁰⁰ [European Commission 2018]

²⁰¹ [SAPEA 2023]

only a low to moderate impact, as it requires consumers to be interested and motivated to use them. Moreover, front-of-pack labelling remains voluntary in the European context, limiting its reach. Nonetheless, such labelling has been shown to have an indirect impact on diets and health by encouraging food reformulation. Warning labels, as adopted in Chile, have been comparatively more effective²⁰².

The **F2F Strategy** also includes plans to make it easier for consumers to choose sustainable diets that promote their health and well-being while also reducing healthcare costs. It will propose mandatory front-of-pack nutrition labelling, which will be standardized across the EU. It will also propose a revision of the **EU school fruit, vegetables and milk scheme** in 2023 to improve children's access to healthy products and increase their understanding of the benefits of healthy food, supported by the 'EU Mobile App for Cancer Prevention'.

In addition to the **F2F Strategy**, the current European policy framework offers numerous avenues for addressing childhood obesity, including the **2021 European Child Guarantee** which aims to prevent and combat social exclusion by, among other things, mitigating social inequities related to accessing healthy food option through meal provision at school. However, the most significant opportunity for action is presented by the **2021 Europe's Beating Cancer Plan**, which includes a commitment to evaluate the **EU Action Plan on Childhood Obesity (2014-2020)** and introduces follow-up actions. Indeed, the EU now considers obesity to be a chronic relapsing disease which acts as a gateway to a range of other non-communicable diseases, such as diabetes, cardiovascular diseases, and cancer. To complement these actions, the **2018 Revision of the Audiovisual Media Services Directive (AVMSD)** addresses broadcast advertising to children and calls Member States to 'encourage media service providers to develop codes of conduct regarding inappropriate audio-visual commercial communications, accompanying or included in children's programmes, of foods and beverages containing nutrients and substances with a nutritional or physiological effect, in particular those such as fat, trans-fatty acids, salt/sodium and sugars, excessive intakes of which in the overall diet are not recommended'. However, there has been widespread criticism of this revision for not being tough enough and relying on self-regulation²⁰³ and while the AVMSD bans the targeting of children, much advertisement remains appealing to children²⁰⁴.

The advent of digitalisation presents significant challenges with regards to the consumption of healthy foods and the healthy consumption of foods. With the proliferation of online platforms, marketing of food and drink products has

²⁰² [SAPEA 2023]

²⁰³ [Burrows 2017]

²⁰⁴ [SAFE 2021]

taken on new forms in the digital space. Regulating the marketing of products whose frequent consumption is unhealthy has become increasingly difficult due to the targeted and personal nature of digital advertising. One troubling trend that has emerged is the rise of influencers on digital platforms, who can use their large followings to promote unhealthy snacks and other products. Social media also enables the promotion of diet trends and the delivery of conflicting messages from self-proclaimed nutrition and exercise experts. While there is limited policy and legislation on this, there are signs of progress: the 2021 **Resolution on a farm to fork strategy for a fair, healthy and environmentally friendly food system** calls for an effective and EU-wide regulatory approach to tackle the exposure of children and adolescents to advertising and marketing of processed foods that are high in fat, sugar, and salt on broadcast and digital media.

Positive price incentives for foods considered healthy- fruits and vegetables for example, is an essential component of an effective policy approach towards establishing sustainable and healthy food environments. A new **VAT rates Directive** was formally adopted in 2022 to modernize 30-year-old rules and bring them in line with common EU priorities, including addressing climate change and protecting public health. It allows member states to use a reduced VAT rate below 5% and even 0% for the first time on certain goods and services that address basic needs, notably food.

Fiscal policies can be used to encourage consumption of healthier foods but also to deter consumption of unhealthy diets. For example, taxation of sugar-sweetened beverages (SSBs) is viewed as a win-win policy by the World Health Organization. It can help to curb the rising trends in obesity and diabetes by reducing SSB consumption and also generates tax revenues. This approach is gaining interest in some Member States. Currently these taxes are not harmonised and only 12 EU Member States and the Spanish region of Catalonia tax SSBs²⁰⁵ with very encouraging results: an estimated reduction in SSB purchases by 7.7%²⁰⁶. In 2011, Hungary introduced the public health product tax (PHPT) on food products containing ingredients such as salt and sugar over a certain threshold which within the following year made 40% of food manufacturers reformulate their products. WHO found the impact of this fiscal measure to be long term with up to almost three quarters of consumers having reduced their consumption of the taxed products²⁰⁷.

Strategically placing food options in the food environment (such as retail and foodservice settings, including schools and canteens) can also prompt consumers to choose healthy and sustainable foods²⁰⁸. However, there no EU-

²⁰⁵ [European Commission 2022b]

²⁰⁶ [Vall Castelló & Lopez Casasnovas 2020]

²⁰⁷ [WHO 2015]

²⁰⁸ [SAPEA 2023]

wide regulation specifically targeting the promotion of healthier food choices in supermarkets yet. Instead, individual EU Member States have introduced measures to this effect such as Belgium who in 2019 introduced a law that requires food retailers to dedicate a minimum of 30% of shelf space to healthy and sustainable products, such as fruits, vegetables, and organic products.

ANNEX 5 – REFERENCES

Arayess, S., & De Boer, A. (2022). How to Navigate the Tricky Landscape of Sustainability Claims in the Food Sector. *European Journal of Risk Regulation*, 13(4), 643-664. doi:10.1017/err.2022.6

Aubry, C., & L. Kebir. (2013). Shortening food supply chains: A means for maintaining agriculture close to urban areas? The case of the French metropolitan area of Paris, *Food Policy*. <https://doi.org/10.1016/j.foodpol.2013.04.006>

Beal, T., Christopher D. Gardner, Mario Herrero, Lora L. Iannotti, Lutz Merbold, Stella Nordhagen, Anne Mottet. (2023). Friend or Foe? The Role of Animal-Source Foods in Healthy and Environmentally Sustainable Diets, *The Journal of Nutrition*, Volume 153, Issue 2, Pages 409-425, <https://doi.org/10.1016/j.tjnut.2022.10.016>

Biermann, F., N. Kanie, R. E. Kim. (2017). Global governance by goal-setting: the novel approach of the UN Sustainable Development Goals, *Current Opinion in Environmental Sustainability*, <https://doi.org/10.1016/j.cosust.2017.01.010>

Bock, A.-K., Bontoux, L., & Rudkin, J. (2022). Concepts for a sustainable EU food system. <https://doi.org/10.2760/381319>

Brownlie, W. J., Sutton, M. A., Heal, K. V., Reay, D. S., & Spears, B. M. (Eds.). (2022). *Our Phosphorus Future*. Edinburgh: UK Centre for Ecology & Hydrology. <https://doi.org/10.13140/RG.2.2.17834.08645>

Burrows, D. (2017). EU health ministers criticise efforts to tackle obesity and call for more regulation. *Food Navigator- Europe*. <https://www.foodnavigator.com/Article/2017/06/16/EU-health-ministers-criticise-efforts-to-tackle-obesity-and-call-for-more-regulation>

Chiles, R. M., & Fitzgerald, A. J. (2018). Why is meat so important in Western history and culture? A genealogical critique of biophysical and political-economic explanations. *Agriculture and Human Values*, 35(1), 1–17. <https://doi.org/10.1007/s10460-017-9787-7>

CFFA Coalition for Fair Fisheries Arrangements. (2021) Food promotion policy –the EU should encourage quality over quantity seafood consumption. <https://www.cffacape.org/publications-blog/food-promotion-policy-the-eu-should-encourage-quality-over-quantity-seafood-consumption>

CIWF. (2023). More money more meat. <https://www.ciwfdocs.org/docs/~D187968>
Clark, M., M. Springmann, M. Rayner and R. A. Harrington. (2022). Estimating the environmental impacts of 57,000 food products, <https://doi.org/10.1073/pnas.2120584119>

EAPF European Alliance for Plant-Based Foods. (2021). EAPF's Position on Minimum Criteria for Sustainable Public Procurement. <https://plantbasedfoodalliance.eu/wp-content/uploads/2022/01/EAPF-Position-Paper-Public-Procurement.pdf>

EAT-Lancet Commission Summary Report. (2019). https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf

EKAH (Federal Ethics Committee on Non-Human Biotechnology). (2022). Climate change, agriculture and the role of biotechnology. https://www.ekah.admin.ch/inhalte/dateien/EKAH-Bericht_Klimawandel_Landwirtschaft_Biotechnologie_2022_EN.pdf

European Commission. (2018). Market study on date marking and other information provided on food labels and food waste prevention. <https://op.europa.eu/en/publication-detail/-/publication/e7be006f-0d55-11e8-966a-01aa75ed71a1/language-en>

European Commission. (2022a). Annual Report on Taxation 2022 Review of taxation policies in EU Member States. Commission Staff Working Document. [https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_eur_openne/swd/2022/0226/COM_SWD\(2022\)0226_EN.pdf](https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_eur_openne/swd/2022/0226/COM_SWD(2022)0226_EN.pdf)

European Commission. (2022b). Monitoring EU agri-food trade. European Commission, DG Agriculture and Rural Development, Brussels. https://agriculture.ec.europa.eu/system/files/2023-04/monitoring-agri-food-trade_dec2022_en.pdf

European Environment Agency. (2016). Seafood in Europe - A food system approach for sustainability. EEA Report No 25/2016. <https://www.eea.europa.eu/publications/seafood-in-europe-a-food/file>

European Environment Agency. (2022a). Comparison of 16 climate and environmental impacts of EU consumption with the Earth's carrying capacity. <https://www.eea.europa.eu/data-and-maps/figures/comparison-of-16-climate-and>

European Environment Agency. (2022b). Rethinking agriculture. <https://www.eea.europa.eu/publications/rethinking-agriculture>

European Environment Agency. (2022c). Reimagining the food system through social innovations. <https://www.eea.europa.eu/publications/reimagining-the-food-system-the>

European Environment Agency. (2022d). Progress and prospects for decarbonisation in the agriculture sector and beyond. <https://www.eea.europa.eu/publications/Progress-and-prospects-for-decarbonisation>

European Environment Agency, Asquith, M., Dumitru, A., Larsen, H. (2023). Transforming Europe's food system – Assessing the EU policy mix, Publications Office of the European Union. <https://data.europa.eu/doi/10.2800/295264>

European Environment Agency, Federal Office for the Environment. (2020). Is Europe living within the limits of our planet? An assessment of Europe's environmental footprints in relation to planetary boundaries. EEA Report. <https://doi.org/10.2800/890673>

European Food Safety Authority. (2022). Scientific advice related to nutrient profiling for the development of harmonised mandatory front-of-pack nutrition labelling and the setting of nutrient profiles for restricting nutrition and health claims on foods. <https://doi.org/10.2903/j.efsa.2022.7259>

European Parliamentary Research Service. (2022). Taking the EU's 'farm to fork' strategy forward. <https://epthinktank.eu/2022/10/27/taking-the-eus-farm-to-fork-strategy-forward/>

European Research Council Executive Agency. (2023). Mapping ERC Frontier Research: Sustainable food production and consumption. <https://erc.europa.eu/projects-statistics/frontier-research-food-2030>

European Union. (2020). Making our food fit for the future – new trends and challenges - Eurobarometer survey. <https://europa.eu/eurobarometer/surveys/detail/2241>

Eurostat. (2023). Sustainable development in the European Union – Monitoring report on progress towards the SDGs in an EU context – 2023 edition. <https://doi.org/10.2785/403194>

FAO. (2006). Livestock's long shadow. Rome. <https://www.fao.org/3/a0701e/a0701e.pdf>

FAO. (2023). Contribution of terrestrial animal source food to healthy diets for improved nutrition and health outcomes – An evidence and policy overview on the state of knowledge and gaps. Rome. <https://doi.org/10.4060/cc3912en>

FAO and WHO. (2019). Sustainable healthy diets - Guiding principles. Rome. <https://doi.org/10.4060/ca6640en>

Farm Europe. (2022). The farm to fork: in need of a new political consensus. <https://www.farm-europe.eu/news/the-farm-to-fork-in-need-of-a-new-political-consensus/>

Food and Land Use Coalition. (2021). Accelerating the 10 Critical Transitions: Positive Tipping Points for Food and Land Use Systems Transformation.

<https://www.foodandlandusecoalition.org/wp-content/uploads/2021/07/Positive-Tipping-Points-for-Food-and-Land-Use-Systems-Transformation.pdf>

foodwatch international. (2018). European General Food Law: How EU Law fails to protect consumers from food scandals.

https://www.foodwatch.org/fileadmin/Themen/Lebensmittelpolitik/Dateien/Position_Paper_GFL_July_2018_English_2.pdf

Fresco, L.O., K.J. Poppe. (2016). Towards a common agricultural and food policy.

<https://doi.org/10.18174/390280>

Galli, F., A. Hebinck, B. Carroll. (2018). Addressing food poverty in systems: governance of food assistance in three European countries, *Food Security*, 10(6), 1353-1370, <https://doi.org/10.1007/s12571-018-0850-z>

Galli, F., Prosperi, P., Favilli, E., D'Amico, S., Bartolini, F., & Brunori, G. (2020). How can policy processes remove barriers to sustainable food systems in Europe? Contributing to a policy framework for agri-food transitions. *Food policy*, 96, 101871. <https://doi.org/10.1016/j.foodpol.2020.101871>

Global Nutrition Report. (2022). Global Nutrition Report: The state of global nutrition. <https://globalnutritionreport.org/707b8e>

Global Panel. (2017). Policy actions to support enhanced consumer behaviour for high-quality diets. Policy Brief No. 8. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

Global Panel. (2020). Future Food Systems: For people, our planet, and prosperity. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

Global Panel. (2021). Repurposing agriculture support to improve nutrition, health, and the environment. https://www.glopan.org/resources-documents/repurposing_agricultural_support/

Global Panel. (2023). Food Systems and Diets: A Handbook of Essential Policies. London, UK. https://www.glopan.org/wp-content/uploads/2019/12/GlobalPanel_Handbook.pdf

Godfray, H.C.J., Aveyard, P., Garnett, T., Hall, J.W., Key, T.J., Lorimer, J., Pierrehumbert, R.T., Scarborough, P., Springmann, M. & Jebb, S.A. (2018). Meat consumption, health, and the Environment. *Science*, 361(6399). <https://doi.org/10.1126/science.aam5324>

Gonera, A., Svanes, E., Bugge, A. B., Hatlebakk, M. M., Prexl, K.-M., Ueland, Ø. (2021). Moving consumers along the innovation adoption curve: A new approach to accelerate the shift toward a more sustainable diet, *Sustainability* 13, 4477, <https://doi.org/10.3390/su13084477>

Group of Chief Scientific Advisors. (2017). Food from the Oceans - How can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits? <https://doi.org/10.2777/66235>

Group of Chief Scientific Advisors. (2018). EU authorisation processes of plant protection products from a scientific point of view. <https://doi.org/10.2777/238919>

Group of Chief Scientific Advisors. (2020). Towards a sustainable food system. <https://doi.org/978-92-76-16418-0>

Gunningham, N., P. N. Grabosky and D. Sinclair. (1998). Smart Regulation: Designing Environmental Policy, Clarendon Press

Gupta, J., Liverman, D., Prodani, K., Aldunce, P., Bai, X., Broadgate, W., Ciobanu, D., Gifford, L., Gordon, C., Hurlbert, M., Inoue, C. Y. A., Jacobson, L., Kanie, N., Lade, S. J., Lenton, T. M., Obura, D., Okereke, C., Otto, I. M., Pereira, L., ... Verburg, P. H. (2023). Earth system justice needed to identify and live within Earth system boundaries. Nature Sustainability. <https://doi.org/10.1038/s41893-023-01064-1>

Hayek, M. N., Harwatt, H., Ripple, W. J., & Mueller, N. D. (2021). The carbon opportunity cost of animal-sourced food production on land. Nature Sustainability, 4(1), 21–24. <https://doi.org/10.1038/s41893-020-00603-4>

INRAE. (2023). Towards Healthy and Sustainable Food Systems. <https://www.inrae.fr/en/reports/towards-healthy-and-sustainable-food>

IPCC. (2019). Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. <https://www.ipcc.ch/srccl/>

IPCC. (2023). Synthesis Report of the IPCC Sixth Assessment Report. https://report.ipcc.ch/ar6syр/pdf/IPCC_AR6_SYR_LongerReport.pdf

IPES-Food. (2023). Who’s Tipping the Scales? The growing influence of corporations on the governance of food systems, and how to counter it. https://www.ipes-food.org/_img/upload/files/tippingthescales.pdf

James-Martin et al. (2022). Environmental sustainability in national food-based dietary guidelines: a global review, Lancet Planet Health. [https://doi.org/10.1016/S2542-5196\(22\)00246-7](https://doi.org/10.1016/S2542-5196(22)00246-7)

Klenert, D., F. Funke and M. Cai. (2022). Would a Meat Tax in Europe Inevitably Burden the Poor? https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4298405

Monarrez Lachhein, T.R. (2022). Sustainability without Defining Sustainability: The Great Gap of the Farm-To-Fork Strategy. Wageningen Law Series 2022/04. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4118776

Moragues-Faus, A., R. Sonnino, T. Marsden. (2017). Exploring European food system vulnerabilities: Towards integrated food security governance, Environmental Science & Policy, 75, 184-215, <https://doi.org/10.1016/j.envsci.2017.05.015>

Parlasca, M. C., & Qaim, M. (2022). Meat Consumption and Sustainability. Annual Review of Resource Economics, 14. <https://doi.org/10.1146/annurev-resource-111820-032340>

Parsons, K., C. Hawkes. (2018). Connecting food systems for co-benefits: How can food systems combine diet-related health with environmental and economic policy goals? https://www.city.ac.uk/_data/assets/pdf_file/0008/446930/Connecting-food-systems-for-co-benefits-Hawkes-and-Parsons-Nov-2018.pdf

Pastorino, S., Cornelsen, L., Cuevas Garcia-Dorado, S., Dangour, A. D., Milner, J., Milojevic, A., Scheelbeek, P., Wilkinson, P., & Green, R. (2023). The future of meat and dairy consumption in the UK: Exploring different policy scenarios to meet net zero targets and improve population health. Global Sustainability. <https://doi.org/10.1017/sus.2023.9>

Perino, G., H. Schwickert. (2023). Animal welfare is a stronger determinant of public support for meat taxation than climate change mitigation in Germany, Nat. Food. <https://doi.org/10.1038/s43016-023-00696-y>

Poore, J., T. Nemecek. (2018) Reducing food's environmental impacts through producers and consumers. Science. <https://doi.org/10.1126/science.aag0216>

SAFE Safe Food Advocacy Europe. (2021). European Commission releases study on children exposure to marketing of high in fat, salt or sugar (HFSS) foods. <https://www.safefoodadvocacy.eu/european-commission-releases-study-on-children-exposure-to-marketing-of-high-in-fat-salt-or-sugar-hfss-foods/>

Sala, S., Benini, L., Beylot, A., Castellani, V., Cerutti, A., Corrado, S., ... Pant, R. (2019). Consumption and Consumer Footprint: methodology and results. Indicators and Assessment of the environmental impact of EU consumption. JRC 113607. <https://doi.org/10.2760/98570>

SAPEA Science Advice for Policy by European Academies. (2020). A Sustainable Food System for the European Union: A systematic review of the European policy ecosystem. Berlin, DE: SAPEA. <https://doi.org/10.26356/sustainablefoodreview>

SAPEA Science Advice for Policy by European Academies. (2023). [Towards Sustainable Food Consumption](#). Berlin, DE: SAPEA.

Schebesta, H., Candel, J.J.L. (2020). Game-changing potential of the EU's Farm to Fork Strategy. *Nat Food* 1, 586–588. <https://doi.org/10.1038/s43016-020-00166-9>

Shkempi, B., & Huppertz, T. (2022). Calcium absorption from food products: Food matrix effects. *Nutrients*, 14(1), 180. <https://doi.org/10.3390/NU14010180/>

Smil, V. (2002). Eating Meat: Evolution, Patterns, and Consequences. *Population and Development Review*, 28(4), 599–639. <https://doi.org/10.1111/j.1728-4457.2002.00599.x>

UNEP Convention on Biological Diversity. (2021). First Draft of the Post-2020 Global Biodiversity Framework. <https://www.unep.org/resources/publication/1st-draft-post-2020-global-biodiversity-framework>

Vall Castelló, J., & Lopez Casanovas, G. (2020). Impact of SSB taxes on sales. *Economics and human biology*, 36, 100821. <https://doi.org/10.1016/j.ehb.2019.100821>

van Zeben, J., L. de Almeida & M.A. Alessandrini. (2022). Stress testing the European Green Deal: the 'securitisation' of energy, food and climate. *EU Law Live Weekend Edition*, 2-14

WHO. (2015). Assessment of the impact of a public health product tax. http://www.euro.who.int/_data/assets/pdf_file/0008/332882/assessment-impact-PH-tax-report.pdf

WHO. (2021a). Safe and healthy food. In *Compendium of WHO and other UN guidance on health and environment* (Vol. 2021, pp. 0–11). Geneva: World Health Organization. <https://www.who.int/tools/compendium-on-health-and-environment>

WHO. (2021b). Action framework for developing and implementing Public Food Procurement and service policies for a healthy diet. Geneva: World Health Organization. <https://www.who.int/publications/i/item/9789240018341>

WHO. (2021c). Digital food environments: factsheet. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/342072>

WHO. (2022). Obesity in the WHO European region. WHO European Office for the Prevention and Control of Noncommunicable Diseases. [https://cdn.who.int/media/docs/librariesprovider2/euro-health-topics/food-safety/europeanobesityreport-2022-fs-\(1\).pdf](https://cdn.who.int/media/docs/librariesprovider2/euro-health-topics/food-safety/europeanobesityreport-2022-fs-(1).pdf)

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct centres. You can find the address of the centre nearest you online (european-union.europa.eu/contact-eu/meet-us_en).

On the phone or in writing

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: **00 800 6 7 8 9 10 11** (certain operators may charge for these calls),
- at the following standard number: **+32 22999696**,
- via the following form: european-union.europa.eu/contact-eu/write-us_en.

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website (european-union.europa.eu).

EU Publications

You can view or order EU publications at op.europa.eu/en/publications. Multiple copies of free publications can be obtained by contacting Europe Direct or your local documentation centre (european-union.europa.eu/contact-eu/meet-us_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (eur-lex.europa.eu).

EU open data

The portal data.europa.eu provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.

The food we eat has major impacts on our health, on local ecosystems and on our planet as a whole. Our current food consumption habits are both contributing to worsening the climate and environmental crises and fueling a global public health crisis caused by malnutrition and obesity. Radical system-wide changes are urgently needed to correct this. It is crucial to support, as much as possible, the adoption of healthier and more sustainable diets and food cultures, contributing to a long-term solution to these crises. This Scientific Opinion presents a set of recommendations for a mix of policy interventions to overcome the barriers that are preventing consumers from eating in a healthier and more sustainable way, which would complement the current initiatives under the Farm to Fork strategy.

Studies and reports

