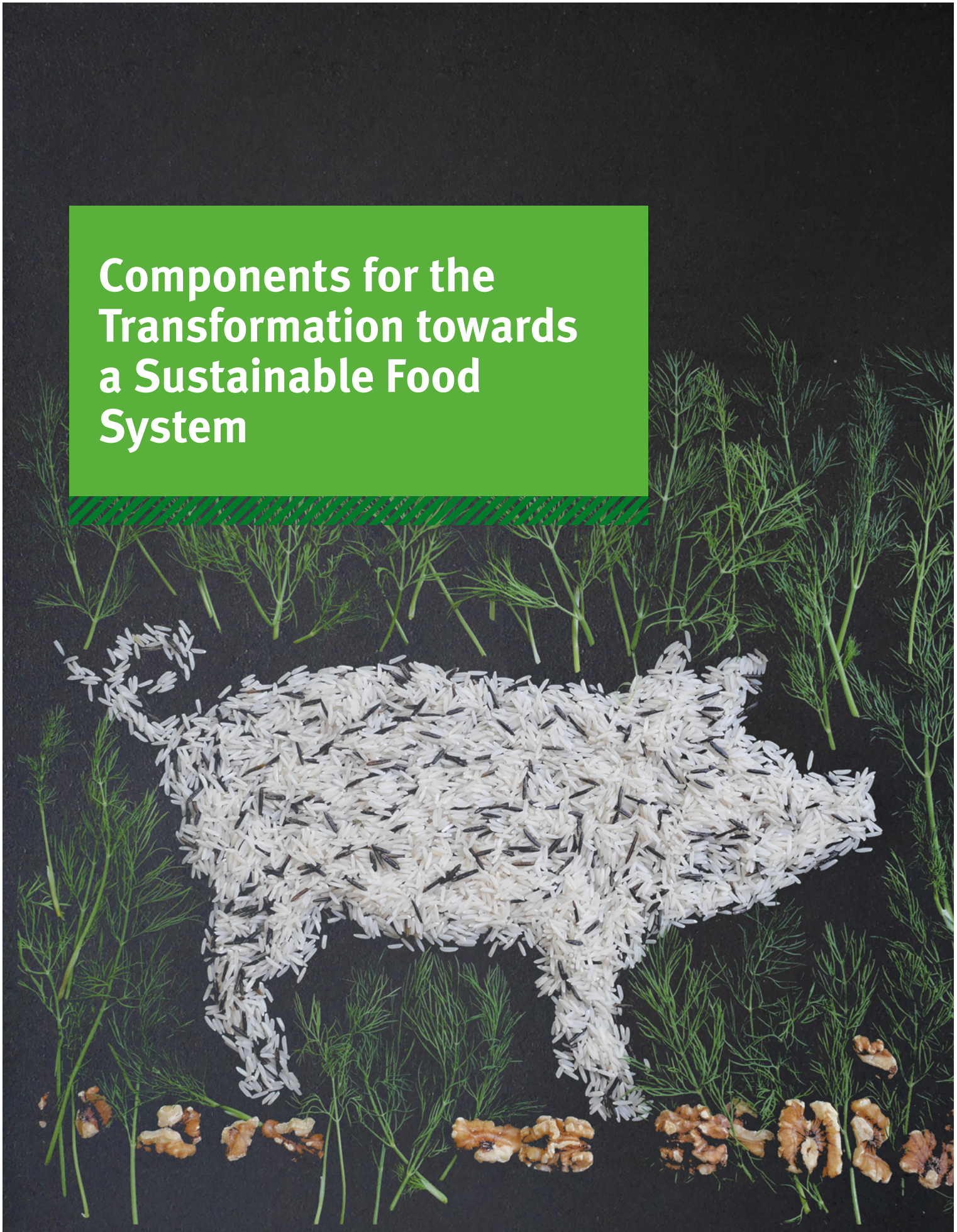
Components for the Transformation towards a Sustainable Food System



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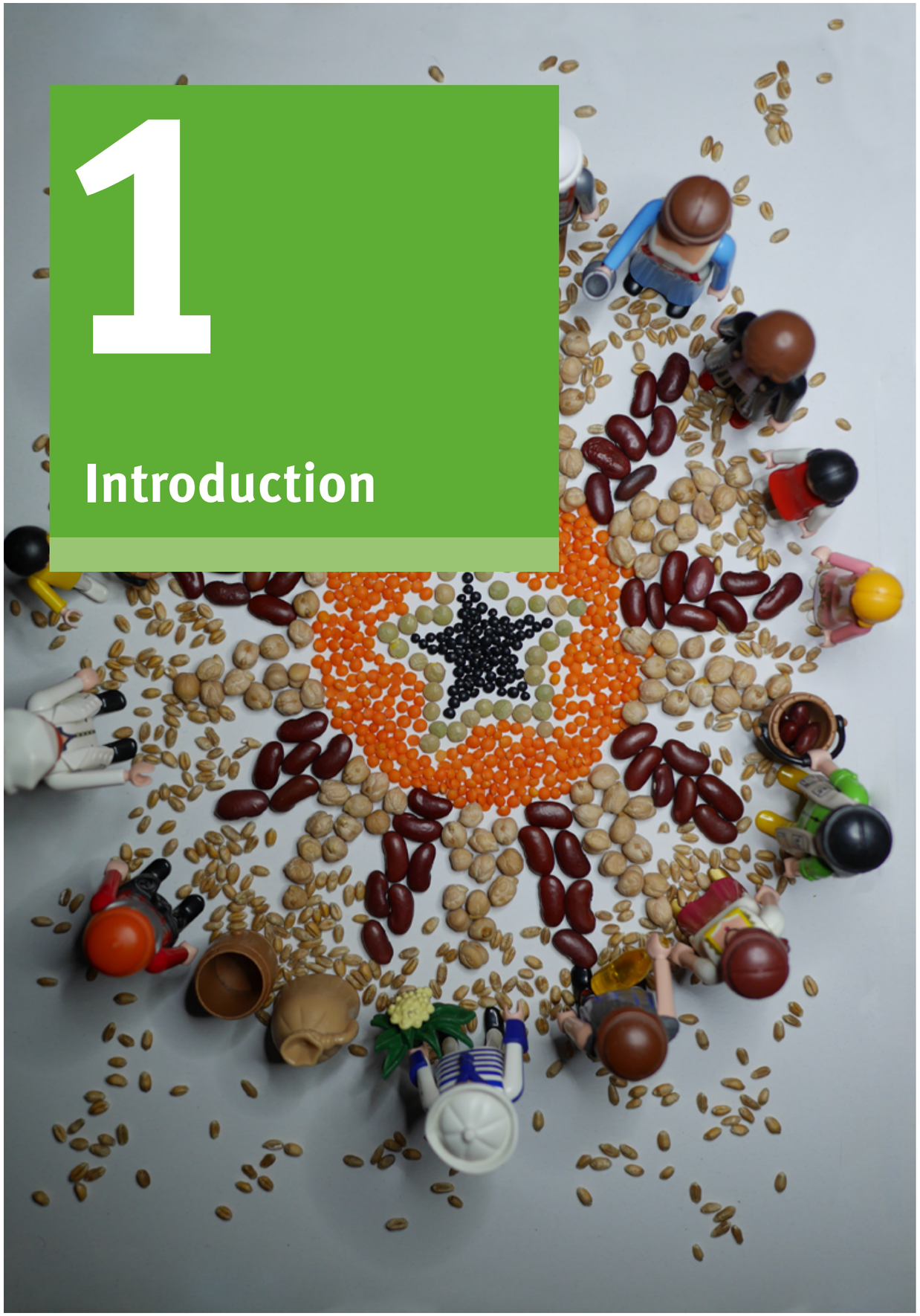


1 Introduction

Germany's current food system is not sustainable – it requires an extensive socio-ecological transformation. This finding is the premise for the research project "Sustainable Managment: Socio-Ecological Transformation of the Food System" (German: "Nachhaltiges Wirtschaften: **S**ozialökologische **T**ransformation des **Ern**ährungssystems", "STErn" for short). The project was commissioned by the German Environment Agency as well as the Federal Ministry for Environment, Nature Conservation, Nuclear Safety and Consumer Protection and was carried out by a consortium comprised of the Öko-Institut, Ecologic Institute, Bund Ökologische Lebensmittelwirtschaft and the e-fect Agency[1]. This paper presents the policy recommendations that were developed in this project in condensed form. Therefore, it functions as an addition to multiple detailed project reports[2].

The latest crises – The COVID-19 pandemic and the Ukraine War – show the vulnerability of the global value chains.

The intensity and extent of food consumption-related land use are accompanied by significant **ecological damage**. It degrades soil, pollutes waters and air, exacerbates climate change, and contributes chiefly to the loss of biodiversity; moreover, intensive livestock farming leads to considerable animal suffering in many places. At the same time, ecological deficits harbor **social inequalities**: The eating habits of those living in the northern hemisphere put a much greater strain on the planet than the eating habits of those in the global south. At the same time, people living in the northern hemisphere are impacted less by the ecologic consequences. But even in Germany, social inequalities are reflected by the food system: Precarious working conditions along the value chain are a dark side of cheap food, while a healthy diet is closely related to socio-economic status. If nothing else, the latest crises – the COVID-19 pandemic and the Ukraine War – showed that the network of global value chains is **economically vulnerable**.

Based on this, a **sustainable food system** needs to exhibit the following attributes: It must be environmentally friendly, health-promoting, ethically responsible, designed for everyday life, socially just, economically sustainable, and resilient. Sustainable food systems may differ regionally and must allow for a democratic participation in dietary-political questions by all actors[3].

1 The English title of the translated departmental research project is "Sustainable Management: Socio-Ecological Transformation of the Food System", has the project code number 3720 31 102 0, and was carried out from Oct 2020 – Jun 2023. For more details visit https://stern-projekt.org/en

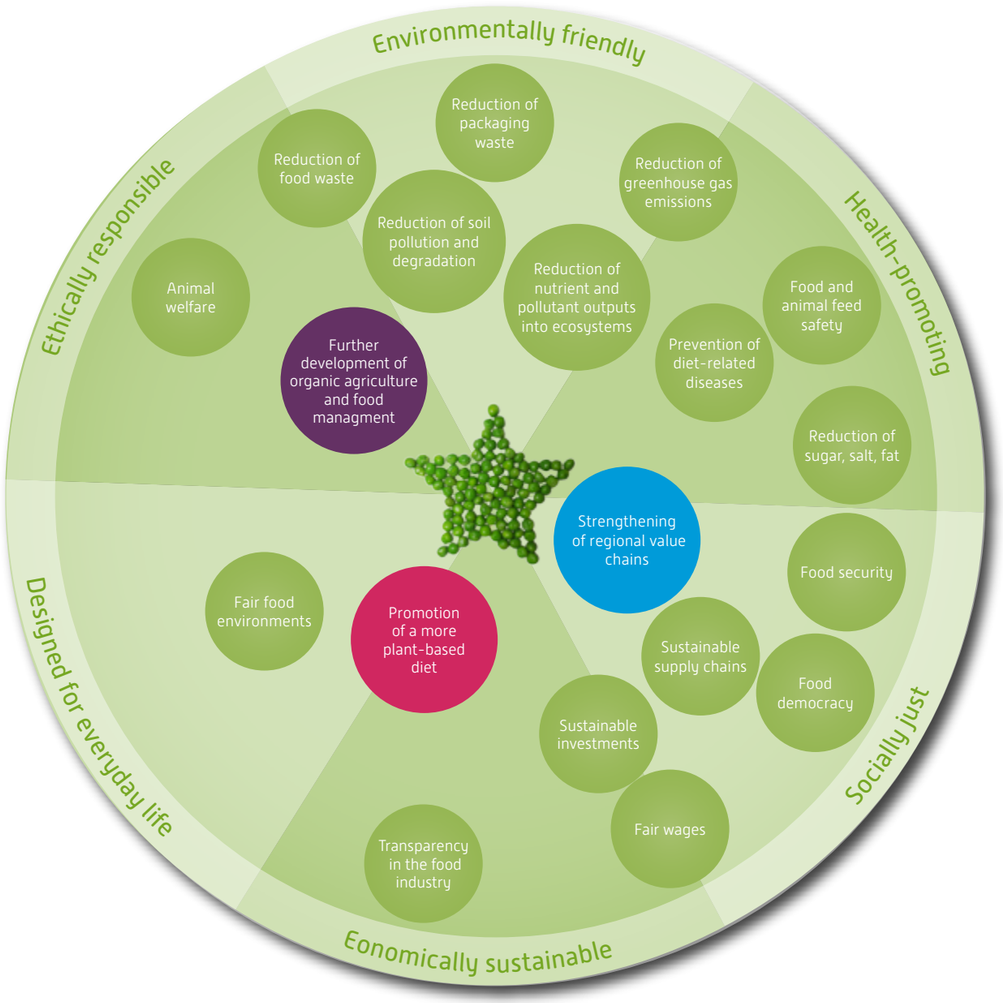
2 The foundations for the sketched out political action plans are the following project reports:
Hanke, G.; Mering, F. v.; Wunder, S. (2023): Regionalisierung von Ernährungssystemen: Einschätzung von Nachhaltigkeitspotenzialen und Darstellung politischer Handlungsansätze. Teilbericht (AP2) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)" ("Regionalization of Food Systems: Assessment of Sustainability Potentials and Presentation of Policy Action Plans". Partial report (AP2) of the project "Sustainable Management: Socio-Ecological Transformation of the Food System" (STErn)); Umweltbundesamt, Dessau.
Quack, D.; Wunder, S.; Jägle, J.; Meier, J. (2023): Entwicklung von politischen Handlungsansätzen für die Unterstützung stärker pflanzenbasierter Ernährungsweisen. Teilbericht (AP3) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)" ("Developing Policy Action Plans to Support More Plant-Based Diets". Partial report (AP3) of the project "Sustainable Management: Socio-Ecological Transformation of the Food System"); Umweltbundesamt, Dessau.
Jánszky, B.; Mering, F. v.; Renkamp, T.; Quack, D. (2023): Die Ökologische Land- und Lebensmittelwirtschaft als Hebel zur Transformation des Ernährungssystems. Teilbericht (AP4) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)"; ("Organic Farming and Food Industry as Tool for the Transformation of the Food System". Partial report (AP4) of the project "Sustainable Management: Socio-Ecological Transformation of the Food System" (STErn)); Umweltbundesamt, Dessau.
Brunn, C.; Scherf, C.-S., Pietschmann, M. (2023): Die Rolle des Finanzmarkts für die sozial-ökologische Transformation des Ernährungssystems ("The Role of the Financial Market for the socio-ecological transformation of the food system"); STErn-Arbeitspapier.

3 A detailed derivation and explanation of this understanding of sustainable food systems can be found in a STErn position paper: Wunder, S.; Jägle, J.; Meier, J. (2022): „Leitbild nachhaltige Ernährungssysteme und Screening der wichtigsten ernährungspolitischen Strategien, Ziele und Prozesse in Deutschland" ("Model for sustainable food systems and screening of the most important food policy strategies, goals and processes in Germany").

The question now is where to intervene to make food systems (more) sustainable. The STErn project has selected **three** points of interest from the **multiple fields of action of a social-ecological transformation of the food system** and developed these into strategies: a) **the promotion of a more plant-based diet**, b) the **further development of organic agriculture and ecological food management**, as well as c) **the strengthening of regional value chains**. Across the three strategies, the STErn project also dealt with the question of how cash flows can be made (more) sustainable, for example by obligating financial actors to consider sustainability aspects in risk assessment.

Figure 1

Dimensions of objectives and areas of activity for a socio-ecological transformation of the food system



Source: STErn-Projekt.

Other fields of action, which are highly relevant to the transformation of food systems, were not dealt with as part of this project or were only addressed briefly – for example a more ecological design of conventional agriculture, the topic of food security, or the prevention of food waste (cf. figure 1).

The STErn project aims to treat the topics mentioned above from a **systemic point of view**:
The developed strategies encompass the entire value chain – from pre-production, cultivation, processing and consumption to the recycling or disposal. Moreover, the strategies consider the interplay of markets, products, norms, daily routines, differing diets, as well as the political framework.

Many shifts have taken place recently, especially in the realm of politics: While the negative consequences of agriculture have been made the subject of discussion for decades, the **political discourse** has been increasingly expanded to include diet and has gained significant momentum. On the one hand, this development has been reinforced by various national and international climate and sustainability obligations, which generate pressure for action.[4] On the other hand, scientific and public attention has been drawn increasingly to the environmental aspects of diet and agriculture, which drives policies. It is essential to use this new dynamic. The STErn project is able to not only give the federal government impulses for the development of a food strategy but can also aid in developing other relevant strategies.

In the following (chapter 2), the three strategies with their specific goals and concrete measure proposals will be sketched out – in the sense of ”building blocks” for a transformation of the food system. Afterwards (chapter 3), the proposed measures will be elaborated by putting them in a detailed profile description. These measure profiles are grouped across strategies along three action approaches: a) policy development and integration, b) strengthening demand and value chains, as well as c) education, knowledge, innovation. Through this sorting of measure profiles, often overlooked topic-overarching connections become visible and are explicitly pointed out.

Over the course of ten workshops, representatives from science and practice, politics and civil society discussed the groundwork for the strategies and measures and – based on this discussion – developed the measures further in a project team. Some measure proposals are more concrete and comprehensive than others due to differing “maturity levels” of the associated scientific, political and/or societal debate. Background information and the derivation of the development of the measures can be found in the reports of the respective STErn work packages (see footnote 2).

A small digital reading aid:

Links to more detailed profiles of the measures that were briefly addressed in chapter 2 have been added (for example, try clicking on measure „M3” in the text). To return from the profiles to chapter 2 works the same way. The interactive diagram on p. 56/57 gives an overview over all measures. When hovering the cursor over the depicted measures in this diagram, the associated profiles will be displayed.

4 Important international agreements in this context include the Sustainable Development Goals, the 1.5-degree target of the Paris Climate Agreement, the new Global Biodiversity Framework, and the European “Farm to Fork” Strategy. At the national level, various agricultural, dietary, sustainability, environmental, health, and social policies are worth noting. Detailed discussion of these policies and processes, as well as their links to STErn issues, can be found in ch. 4 in Wunder et al. (2022). See footnote 3.

2 Strategies

Three Strategies for the Attainment of a More Sustainable Food System

The STErn project focuses on three strategies that are central to the transformation of the food system:

1. **“Promotion of a more plant-based diet”:** This strategy is chiefly set out to reshape our food surroundings[5] in such a way that plant-heavy diets become more easily accessible. It is concerned with **what we eat**. This strategy has the biggest impact ecologically and health-wise and is therefore the most important strategy.

2. **“The advancement of organic agriculture and ecological food management”:** The aim of this strategy is to improve the ecological impact of organic agriculture and food management (qualitative improvement). At the same time, the amount of ecologically cultivated farmland as well as the amount of production and consumption of organic food must be increased (quantitative improvement). This strategy is concerned with **how our food is produced and supplied**. It has the potential for big ecological impact as well.

3. **“Strengthening of regional value chains”:** This strategy aims to advance the regional production, processing, and marketing of food items if this promotes ecological or social benefits. Here, the question of **where our food is being produced and within which structures it is being supplied** is being addressed. It is important to note: A regionalization of the chains of value creation does not necessarily have an ecologically advantageous impact, only under certain conditions. From an ecological point of view, the third strategy is therefore the most ambiguous of the three; it, however, holds social advantages and strengthens the resilience of the food system.

It becomes apparent that the joint, well-matched implementation of all three strategies yields many synergies and avoids conflicts of objectives.

The three strategies can impact each other in their execution. A discussion paper by the STErn project[6] lists possible **unwanted side effects** that might occur should the strategies be implemented in isolation and develops proposals on how to utilize **synergies** between the strategies. This paper showcases that the mutual, well-matched implementation of all three strategies offers many synergies and avoids a conflict of objectives. This will be pointed to at various points in chapter 3 since strategy-specific measure profiles show overlaps or, put differently, because a concerted implementation is recommended.

5 Food environments are the spaces and situations in which people make decisions surrounding food: What kind of food they buy and where, how they prepare it, what and how much they eat, when they eat, where they eat and in whose company they eat. Consciously creating food environments is a far more effective approach than just providing information (e.g., labels, educational materials, etc.).

6 See Quack, D.; Hanke, G.; von Mering, F.; Jánszky, B.; Jägle, J. (2022):): Ansätze zur Verzahnung der Strategien ökologisch, regional und pflanzlich in der Transformation des Ernährungssystems. Politische Handlungsempfehlungen zur Förderung bio-regionaler Wertschöpfungsketten für Obst, Gemüse und Hülsenfrüchte. (“Approaches to Dovetailing Organic, Regional and Plant-based Strategies in Food System Transformation. Policy Recommendations for Promoting Bio-regional Value Chains for Fruits, Vegetables and Legumes”).

The recommended strategies each include objectives and measures or measure clusters. The **objectives** generally relate to a **temporal horizon** until the year 2030 - in the case of some strategy objectives until 2050. They have been marked by **indicators** to allow monitoring.

In addition to the proposed measures, there are a few necessary **political parameters** necessary that function as basis for the effective implementation of the strategies. These have been discussed from a political and economic point of view for a while and will only be referred to briefly. They include among others:

- The successive **increase of social-ecologic and animal welfare standards** for the whole (i.e., not only the ecologic) agriculture and food production.

- A **land use and soil policy** that (alongside plant-heavy agriculture and diet policies) lowers area competition, for example through the operationalization of the European Net-Zero Area saving goal. At the same time, soils must be protected – both ecologically and regarding its misuse (Keyword: 'farmland speculation').

- A consistent **ecological tax and financial reform** aimed at reducing or reconstructing environmentally harmful subsidies to be used for services of general interest, while simultaneously making energy and resource consumption as well as harmful emissions more expensive. In order for the prices of utilities, agricultural products and food to reflect the ecological "truth" (internalization of external environmental costs), ecologically harmful inputs such as synthetic chemical fertilizers and pesticides must be made more expensive. The development of comprehensive True Cost Accounting should also be explored. In the context of the Common Agricultural Policy (CAP) of the EU, flat-rate area payments, which do not provide an incentive for sustainable land management, should be replaced by targeted rewards for social achievements made in agriculture. To balance out the more expensive environmental consumption, companies and households should be relieved in other areas (e.g., employee on-costs).

Strategy "Promotion of a More Plant-Based Diet"

2.1

The strategy "promotion of a more plant-based diet" is the most effective in making food systems and diets more sustainable. In their key issues paper on the Federal Food Strategy, the German Federal Ministry of Food and Agriculture emphasizes that transforming the entire food system towards a plant-based diet is the most important tool for achieving our national and international goals in climate, biodiversity, and sustainability.[7] Furthermore, this strategy is also a necessary pre-condition for a more ecological and regional food system – put differently, it is a key strategy. Increasing the proportion of plant-based products in our diet and reducing the proportion of animal products is beneficial in many ways: For one, such a diet helps to reduce livestock numbers and thus protects the climate, nature, and the environment. For another, it helps to secure food for a growing world population and promotes good health.[8] The Planetary Health Diet (PHD)[9] is considered an international reference framework for science-based dietary recommendations for more plant-based diets that takes into account environmental and health effects. The PHD contains considerably higher percentage of fruit, vegetables, legumes, and nuts than current diets in Germany.

The Planetary Health Diet contains a considerably higher percentage of fruits, vegetables, legumes, and nuts than current diets in Germany.

For Germany, the German Nutrition Society ("Deutsche Gesellschaft für Ernährung", DGE for short) has developed food-related nutritional recommendations and so-called "DGE quality standards" for communal catering facilities. These are already widely established, but not implemented everywhere. However, the DGE diet recommendations and the DGE quality standards are not yet fully compatible with the Planetary Health Diet. For example, the DGE recommendations for dairy products are significantly higher than those of the PHD. The DGE nutrition recommendations are currently being revised and will also take ecological aspects into account in the future. Since the revised version is not yet available, the term "DGE 2.0" will be used in this paper. It is assumed here that with the version "DGE 2.0", planetary boundaries can be observed. Therefore, in the following, reference is made to DGE 2.0 nutrition recommendations and DGE 2.0 quality standards.

7 BMEL (2022): Eckpunktepapier: Weg zur Ernährungsstrategie der Bundesregierung. ("Key Issues Paper: Towards a Dietary Strategy for the German Government"); Berlin & Bonn.
8 See among others: Buckwell, A. und Nadeu, E. (2018): What is the Safe Operating Space for EU Livestock? RISE Foundation, Brüssel; WBAE (2020): Politik für eine nachhaltigere Ernährung: Eine integrierte Ernährungspolitik entwickeln und faire Ernährungsumgebungen gestalten ("Policies for a Sustainable Diet: Developing an Integrated Food Policy and Designing Fair Dietary Environments"). WWF Deutschland (2019): Vielfalt auf den Acker! Ansätze für eine nachhaltigere Landwirtschaft in Deutschland ("Diversity on Farmland! Approaches for a More Sustainable Agriculture in Germany").
9 Willett, W. et al. (2019): Food in the Anthropocene: The EAT–Lancet Commission on Healthy Diets from Sustainable Food Systems. The Lancet 393 (10170): 447–92.

The strategy's objectives include:

Table 2.1

Strategy objectives "promotion of a more plant-based diet"

	Strategy objectives	Indicator
O1	Increase plant content in average dietary patterns while reducing animal content (oriented on PHD/DGE 2.0, base year 2020): ▸ 25 % PHD/DGE 2.0 by 2027 ▸ 50 % PHD/DGE 2.0 by 2035 ▸ 75 % PHD/DGE 2.0 by 2043 ▸ 100 % PHD/DGE 2.0 by 2050	A suitable indicator that shows the extent to which a more plant-based diet has been achieved in Germany at a given point in time has yet to be developed (cf. M8)
O2	Increase the number of attractive plant-based foods* in food retail: ▸ Ratio of supply and sales approaches PHD/DGE 2.0 targets (in line with O1 targets and target years)	Percentage of food in the product range and percentage of food sold, in relation to the food groups in the PHD/DGE 2.0 (to be developed cf. M8)
O3	Increase of the share of attractive plant-based dishes* in communal catering (CC): ▸ By 2027: All canteens in the federal government's business area are DGE 2.0 quality standard certified ▸ By 2030: All schools and daycare canteens are certified according to the DGE 2.0 quality standard; the amount of other CC facilities certified according to the DGE 2.0 quality standard (clinics, retirement homes, businesses) increases significantly (50 % of facilities are certified)	Percentage of CC facilities certified according to DGE 2.0 quality standards

* This refers to plant-based foods but also dishes with a reduced percentage of animal products due to reformulation of the recipes.

Source : STern-Projekt

The promotion of more plant-based diets is still a fairly new area of food policy. Consequently, there is a lack of concrete political goals and corresponding time horizons for implementation. Setting strategic goals, as proposed under objectives Z1, Z2, and Z3, is therefore central. In order to be able to readjust and to adapt measures (subsequently abbreviated as M plus measure number), the degree to which these strategy goals have been achieved should be systemically recorded in a **national nutrition monitoring**. This should happen on a regular basis, if possible, yearly10[10]. For the objectives Z1 and Z2, no indicators are available that could already be collected on a regular basis. These indicators would therefore first have to be developed **(⚓M8)**.

To establish a long-term agenda for the goal of a more plant-based diet in Germany and to increase the political relevance and attention for it, it is necessary to create **organizational structures and new institutions**. With the establishment of a non-profit organization **(⚓M5)**, the establishment of a flexible, dynamic, and progressive organizational and funding structure can be realized, which can work independently and impartially for the goal of a more plant-based diet.

10 As part of the development of the federal nutritional strategy, the workshop "Forschung stärken und Datenlage verbessern" (English: "Strengthening Research and Improving Data") was held on 7.2.2023, in which it was mentioned that the Max Rubner Institute (MRI) should conduct annual nutrition monitoring in the future.

A federal program **(⚓M4)** could provide funding for consultation, practice research and implementation of more plant-based food environments where "the sustainable choice is the easy choice". The promotion of **food environments** that are more supportive of plant-based diets should also be considered more strongly as a municipal policy task in the future **(⚓M7)**. A corresponding starting point would be urban development concepts that support a local supply with health-promoting plant-based food, and facilitate domestic production in the municipalities (e.g., "Edible Cities"). Another starting point could be the restriction of advertising for animal-based food, which local authorities could influence by granting special rights of use in public places[11].

A central role in the transformation of the food system is played by **communal catering (CC)** with its estimated 16 million customers per day in Germany. Here, too, the design of the food environment can influence eating behavior and eating habits. Additionally, reliable sales in the catering sector can support the establishment of plant-based BIO-regional value chains. Against this background, it is proposed to establish a nationwide "Canteen Future" as a central competence center for communal catering **(⚓M19)**. Another contribution can be made by a funding program for the implementation of the DGE 2.0 quality standards in CC facilities **(⚓M16)**.

To increase the range of plant-based foods and meals, it is important that the people who are responsible for their supply have the necessary **skills**. They should also be able to communicate the guiding principle of a sustainable, plant-based diet to contribute to a change in values. A professional training and further education can make a significant contribution, if the formal requirements (training regulations and training frameworks) are designed accordingly **(⚓M26)**, practice-oriented training offers are developed **(⚓M24, ⚓M29)** and the participation in educational programs is supported **(⚓M28)**.

A detailed description of these and some other measures can be found in chapter 3. Background information and derivations of most of the measures mentioned here can also be found in the final report to the respective STErn work package[12].

11 Ideally, diet is generally seen as a more important municipal policy task (cf. M39), which – supplemented accordingly – also contributes to the further development of the OFI and the strengthening of regional value chains.

12 Quack, D.; Wunder, S.; Jägle, J.; Meier, J. (2023): Entwicklung von politischen Handlungsansätzen für die Unterstützung stärker pflanzenbasierter Ernährungsweisen. Teilbericht (AP3) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)" ("Developing Policy Action Plans to Support More Plant-Based Diets". Partial report (AP3) of the project "Sustainable Management: Socio-Ecological Transformation of the Food System"); Umweltbundesamt, Dessau.

2.2

Strategy “Further Development of Organic Agriculture and Ecological Food Management”

Organic agriculture shows clear environmental benefits, especially in terms of water and soil conservation, soil fertility, biodiversity, and climate adaption, as well as resource efficiency in terms of nitrogen and energy.

Expanding organic food production is another important approach to transforming the food system. Organic agriculture shows clear environmental benefits, especially in terms of water and soil conservation, soil fertility, biodiversity, and climate adaption, as well as resource efficiency in terms of nitrogen and energy. Organic food also has lower levels of pollutants. One advantage of “organic” (German: “BIO”) over other forms of environmentally friendly food production is the regulatory framework for the organic farming and food industry (OFI) through the legal standards under the EU Organic Regulation and the private standards of the organic associations that go beyond this. A state-monitored control system ensures compliance with these standards. Organic food is also well established among consumers, who are familiar with the organic seal (German: “BIO-Siegel”).

It is indisputable that the future expansion of the OFI is also associated with challenges. The strategy for the further expansion of the organic food and farming industry therefore focuses on approaches and measures that address qualitative and quantitative development concerns of the OFI. In addition to maintaining and utilizing the strength of OFI, the focus is on further improving environmental performance. Starting points for this can be higher land productivity, innovative approaches such as agroforestry or bio-vegan systems, the expansion of ecologically farmed areas and ecologically managed farms, and the strengthening of sales of organically produced food. In addition to new approaches, it is also possible to build on already established political instruments for the promotion of organic agriculture, which have been implemented or further developed with the “Future Strategy of Organic Farming” (FSOF) (German: “Zukunftsstrategie ökologischer Landbau (ZöL)), among other. The current version of ZöL also offers starting points for synergies with this project.

Important goals of the strategy “Further development of organic agriculture and ecological food management” include:

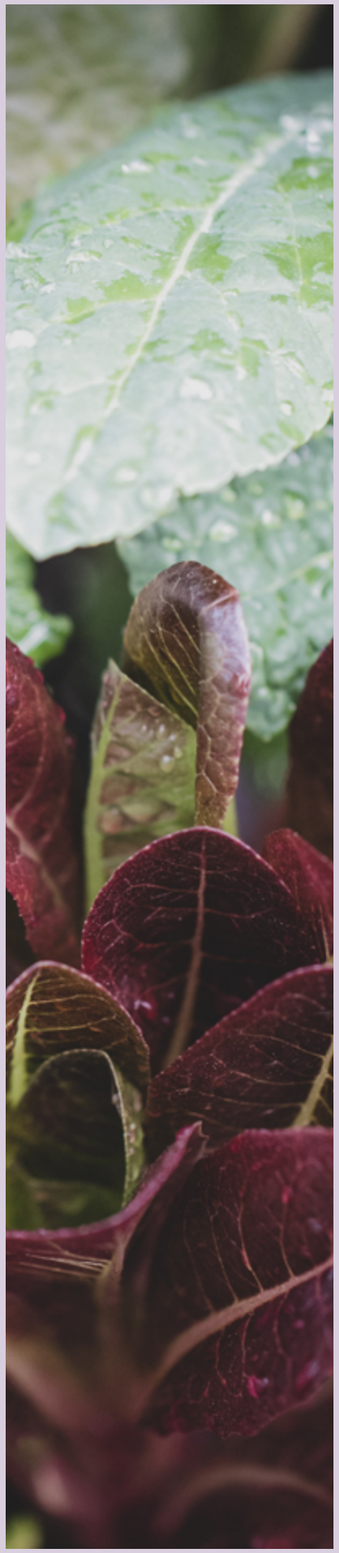
Table 2.2

Strategy objectives “Further Development of Organic Agriculture and Ecological Food Management”

	Strategy Objectives	Indicator
O4	Increase in land productivity on ecologically managed farmland (higher yields per hectare) successively until 2050	Yields per crop per hectare and year
O5	Further reduction of environmental impacts of organic agriculture and ecological food management (closing nutrient cycles, improving soil fertility and soil life, increasing biodiversity) successively by 2050	N-, NH_3 und CO_2 emissions; number of soil organisms per ccm of soil or per ha of cultivated land and peripheral regions
O6	Diverse socio-ecologically resilient value chains that ensure the (regional) expansion of the supply of organically produced food by 2050	Number and regional distribution or coverage of processing plants per crop/product, weight of food waste due to non-accepted products
O7	Increase ecologically farmed agricultural land: ▸ By 2030: >/= 30 % ▸ By 2050: >/= 50 %	Share of ecologically farmed area in agricultural farmland
O8	Increase the share of organic produce and products in out-of-home-catering (OOHC): ▸ By 2030: 50 % share of organic food in public MC ▸ By2050: 100 % share of organic food in public MC	Share of organic ingredients/products in public OOHC, measured by value of goods

Source : STern-Projekt

Possible measures to achieve these goals are based, on one hand, on existing political instruments of the federal government for the promotion of the OFI and also include new instruments. Across the board, of central importance (in addition to the political framework conditions mentioned at the beginning of this chapter) are measures for the **coherent integration of organic or “BIO” objectives into federal policy framework strategies and funding programs (⚓M2)**. Such a politically consistent anchoring of the federal (and European) goals for BIO is the basis for many further proposed measures. These include – in addition to the further development of the EU Organic Regulation **(⚓M33)** – in particular activities to expand existing knowledge on the OFI by **intensifying research** activities to improve the environmental performance of organic farming, to improve soil and plant health as well as animal welfare, and to use existing innovation potential through integration of new cultivation and production methods **(⚓M31, ⚓M32, ⚓M33)**. Incorporating practical knowledge into research projects and further developing and qualitatively improving (transdisciplinary) research methods is central to this **(⚓M31)**.



It is also important to improve the transfer of eco-specific (new and already existing) **expert knowledge to junior staff (⚓M27)** and **practitioners (⚓M34)** .

Further development of the OFI and the achievement of strategy goals also depends - to a large extent - on strengthening cooperation and networking among actors, especially for the **expansion of ecological value chains**. For that, instruments for the promotion of value chains must be expanded and supplemented, for example within the framework of the joint tasks “Improvement of the Agricultural Structure and Coastal Protection” (GAK) and “Improvement of the Regional Economic Structure (GRW) **(⚓M10)**. To boost sales of organic foods, it is proposed to be ambitiously increase **the share of organic foods in communal catering** and to create correspondingly favorable funding conditions – by means of a suitable legal decree, subsidies, and advisory measures **(⚓M17)**.

Since knowledge is the key to overcoming many-layered challenges, **communication measures** on the concerns, special features, potentials, and challenges of the OFI play a crucial role for all stakeholders (politics, business, civil society, and consumers) **(⚓M15)**. In comparison to the other two strategies, organic agriculture and food management has been the subject of political discussion, legislation, and funding for much longer. Accordingly, the measures proposed here are more numerous and often more elaborate and detailed than those of the other strategies. In chapter 3, a large number of individual measures are combined into entire bundles of measures. A detailed derivation and presentation of all measures for the further development of the OFI can also be found in Jánszky et al. 2023[13].

13 Jánszky, B.; Mering, F. v.; Renkamp, T.; Quack, D. (2023): Die Ökologische Land- und Lebensmittelwirtschaft als Hebel zur Transformation des Ernährungssystems. Teilbericht (AP4) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)“ (“Organic Farming and Food Industry as Tool for the Transformation of the Food System”. Partial report (AP4) of the project “Sustainable Management: Socio-Ecological Transformation of the Food System” (STErn)); Umweltbundesamt, Dessau.

Strategy “Strengthening Regional Value Chains”

2.3

Strengthening regional value chains should enable the production, marketing, and consumption of food in relatively short value chains. This is associated with benefits for people in those regions (value creation and local employment, appreciation for farmers and their projects) and for the resilience of the entire food system. Positive effects can also be expected from an ecological perspective (among other things, the externalization of ecological costs would probably be made more difficult and greater diversity in the (agricultural) landscape would be made possible), but these are not guaranteed under all circumstances and are sometimes rather indirect effects that are difficult to prove empirically.

Political support for regional value chains should not be provided across the board. Rather, it should be linked to additional conditions that guarantee ecological or social added value – such as prioritizing plant-based or organic products, linking regionality and seasonality, or the targeted preservation of cultural landscapes or old varieties and breeds.

Political support for regional value chains should not be provided across the board. Rather, it should be linked to additional conditions that guarantee ecological or social added value – such as prioritizing plant-based or organic products, linking regionality and seasonality, or the targeted preservation of cultural landscapes or old varieties and breeds.

The shortening of value chains is primarily meant spatially (short distances). Regional value chains also often have fewer links in the chain, for example because intermediary trade and processing are eliminated. They are also associated with greater social proximity due to the possibility of personal encounters or mediated relationships between producer and consumer. The goal of a regionalization process is therefore relative: It is about shortening chains of value creation where it is possible and (ecologically) sensible[14], or put differently, about increasing the market share of products that have been produced in value chains that are as local as possible. The aim is not regional self-sufficiency or the “exit” from global value chains and products.

In addition to the many advantages of regional products and value chains, regionalization can also have negative effects. Particularly small-scale cultivation and, above all, small-scale decentralized processing can lead to efficiency losses. Therefore, political support for regional value chains should not be provided across the board. Rather, it should be linked to additional conditions that guarantee ecological or social added value – such as prioritizing plant-based or organic products, linking regionality and seasonality, or the targeted preservation of cultural landscapes or old varieties and breeds. As a transformation strategy, regionalization also plays a special role in that the more direct relationships between producers and consumers can undermine the power structures of the established food system – especially in global and national trade.

14 How regionally a specific product can be sensibly produced depends on the product as well as on local (especially natural environmental) conditions and can therefore hardly be generalized. A subsidiarity principle is advised: Only if non-regional production has striking advantages - e.g., cultivation on favorable sites with significantly higher productivity and lower ecologically negative effects, clear efficiency advantages in production and marketing – is regional self-sufficiency with the corresponding products to be considered disadvantageous.

The objectives of the strategy include:

Table 2.3

Strategy Objectives "Strengthening Regional Value Chains"

	Strategy objectives	Indicators
O10	Expansion of the support structure for the development of regional value chains (VC): ▸ continuous increase until 2050, then area-wide structure.	Number and spatial distribution of VC development modeled on the organic model/eco model regions, number of food councils and "Organic Cities" or similar initiatives
O11	Preservation and development of regional processing structures (e.g., mills, bakeries, dairies, butcheries, pre-processing of vegetables suitable for large-scale kitchens): ▸ By 2030: Trend reversal (stop current decline in number of processing plants and increase again)	Number of processing plants
O12	Regional dietary strategies are established: ▸ By 2030: 30 % ▸ By 2040: 50 % ▸ By 2050: 100 %	Number of local authorities that have a food strategy in comparison to the total number of local authorities
O13	Increase the share of regional products with ecological/social benefits in out-of-home catering (OOHC): ▸ By 2040: 30 % share in CC of public authorities ▸ By 2050: 30 % share in OOHC in general	Proportion of regional ingredients in OOHC, measured by the value of goods
O14	Strengthening a close relationship between production and consumption (quantifiable targets and an indicator are to be identified during implementation; if necessary, via regular representative surveys)	

Source: STErn-Projekt

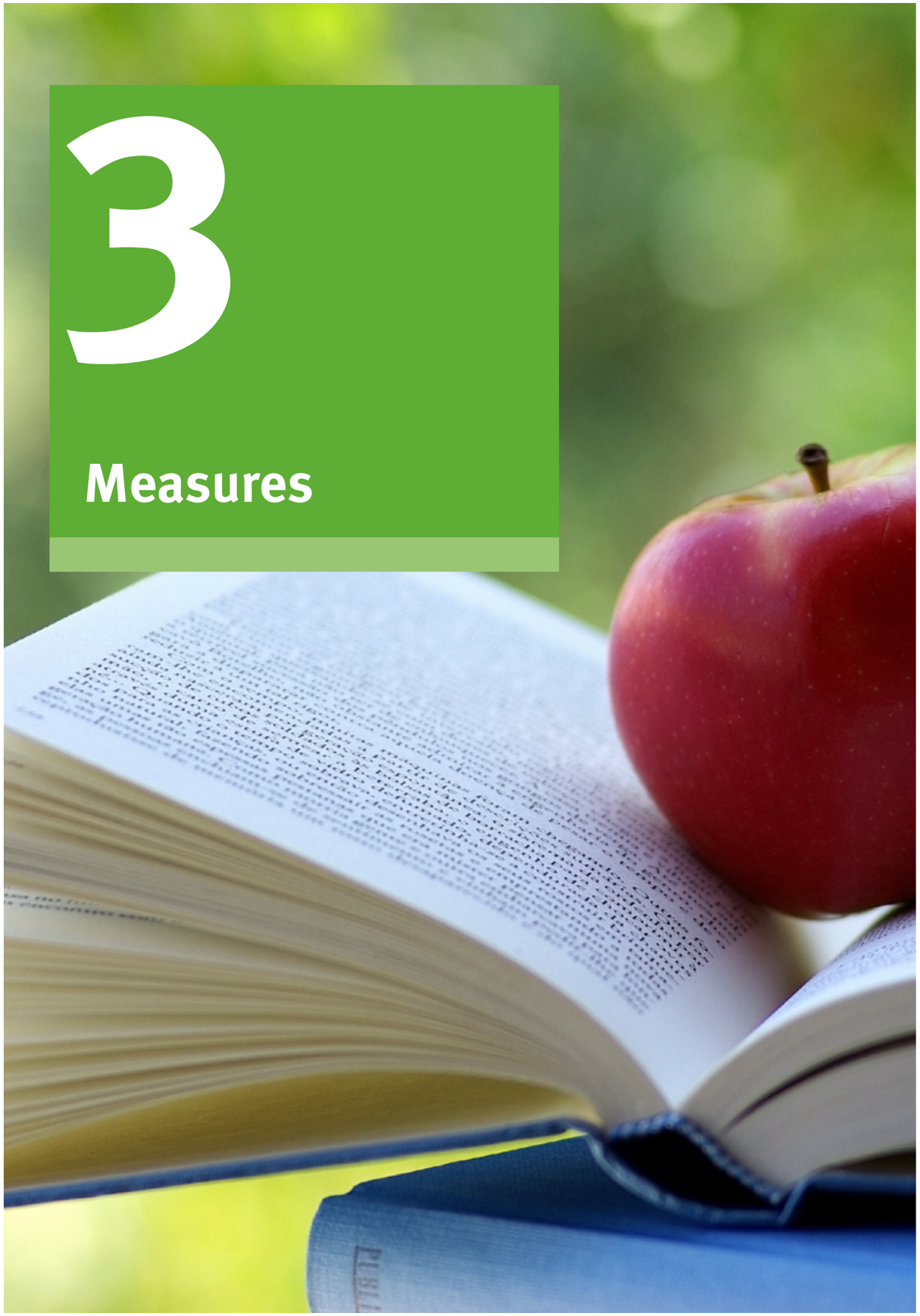
The strategic field of strengthening regional value chains has hardly been focused on in the food policy of recent decades. Therefore, the **proposals for measures** presented here are less detailed and less numerous than, for instance, the proposals for the further developments of organic food and farming. Accordingly, the establishment of **support structures for the development of regional value chains** is of central importance for the implementation of this strategy. Such structures can be created through the establishment of regional networking offices and the promotion of value chain developer personnel **(⚓M11)**, but also through a federal coordination office for regional structures and food strategies **(⚓M12)**.

In addition to support structures, there is also a need for an acute rescue operation for the rapidly dwindling **regional food processing companies** (bakeries, dairies, pre-processing of vegetables suitable for larger kitchens, etc.) – they form the backbone of regional value chains. The funds of the European agricultural policy (GAP) can be used for targeted support via "joint tasks" (German: "Gemeinschaftsaufgaben", GAK and GRW). For this, it is necessary to explicitly include the goal of strengthening regional food value chains in the GAK and GRW framework plans, which are currently being revised (⚓**M3**).To ensure that the targeted processing businesses actually benefit from funding programs, it makes sense to train and fund "funding guides" (ibid.). Moreover, small business must be relieved as much as possible of bureaucratic regulations and reporting requirements without reducing material standards in the process **(⚓M37)**. Training in the food trade must be made more attractive and more in line with the value chains **(⚓M25)**.

Strengthening regional value chains depends largely on **increasing demand for regional products**. In this context, state-led public catering is an important sales motor and door opener for establishing regional structures **(⚓M18, ⚓M19)**. However, the targeted procurement of regional food requires an adjustment of the EU competition or procurement law **(⚓M35)**.

A detailed description of these and some other measures can be found in chapter 3. Detailed descriptions and derivations of most of the measures mentioned here can also be found in Hanke et al. 2023[15].

15 Hanke, G.; Mering, F. v.; Wunder, S. et al. (2023): Regionalisierung von Ernährungssystemen: Einschätzung von Nachhaltigkeitspotenzialen und Darstellung politischer Handlungsansätze. Teilbericht (AP2) des Projekts „Nachhaltiges Wirtschaften: Sozialökologische Transformation des Ernährungssystems (STErn)" ("Regionalization of Food Systems: Assessment of Sustainability Potentials and Presentation of Policy Action Plans". Partial report (AP2) of the project "Sustainable Management: Socio-Ecological Transformation of the Food System" (STErn)); Umweltbundesamt, Dessau.



3 Measures

Measures for Implementation

The following fact sheets describe the proposed measures in more detail. The fact sheets are structured around three approaches:

A) Policy development and integration,

B) Strengthening demand and value chains, and

C) Education, knowledge, innovation.

Sequencing the fact sheets across the strategies makes cross-thematic connections easier to see, and allows the measures associated with different strategies to be clustered. The color coding enables quick identification of the strategy to which the measures are assigned:

- **pink for the strategy “Promoting a more plant-based diet”,**
- **purple for the strategy “Further development of the organic agriculture and food sector”,**
- **blue for the strategy “Strengthening regional value chains” and**
- **green for cross-strategy measures.**

This structure allows readers to quickly navigate the document - especially if they are only interested in specific measures, for instance the proposed measures for organic agriculture and food management (purple fact sheets) or for plant-based nutrition (pink fact sheets).

Cross-strategy clusters - i.e. measures from the three sub-strategies that closely resemble each other and should ideally be addressed simultaneously – can be identified by the “pointed finger” icon. They describe why and, if necessary, how joint implementation should take place.

An interactive graphic providing an overview of all the proposed measures can be found on pages 56/57.

A

Measure: “Policy development and policy integration”

3.1 Measure: “Policy Development and Policy Integration”

M1: Integrating the goal of a plant-based diet into policy strategies and funding programs

Objectives: The goal of a plant-based diet and the setting of corresponding priorities (e.g., in terms of measures, indicators, etc.) should be integrated into all national and, where appropriate, European framework strategies and their implementation, as well as into support policies and support programs. Contribution to the strategic objectives O1, O2 and O3.

Time Frame: Starting in 2023, occasion-related/ongoing

Design: The BMEL’s existing staff unit “Policy Issues, Coordination of Transformation Processes in Agricultural and Food Policy” is mandated to regularly conduct a “Coherence Review of Plant-Based Nutrition” for new and to-be-updated strategy processes and funding programs in the thematic areas of agriculture and food management, nutrition and the environment. The question of whether, in the medium term, the coherence review should be embedded in a structure outside of a single ministry should be examined in order to ensure a more “neutral” role across ministries.

- **The following framework strategies should be considered:** The Nutrition Strategy (Now Being Developed), The Protein Crop Strategy[16], The German Sustainability Strategy, The German Government’s Climate Protection Plan, The Future Strategy for Organic Farming, The Livestock Strategy, The Arable Farming Strategy, The National Program For Sustainable Consumption, And The EU Commission’s “Farm-To-Fork” Strategy.
- **The following funding policies and programs should be considered:** The Innovation Promotion Program, The Federal “Zukunft Region” (“Future Region”) Competition, Urban Development Funding, And the Federal “Weiter.Bildung!” Program.

Key Target Groups: BMEL and other ministries, interministerial working groups

Background and details on this proposed measure can be found in Quack et al. 2023, chap. 5.1 und 5.3.

16 As part of current developments in the protein crop strategy, greater emphasis will be placed on promoting alternative protein sources for human nutrition.

M2: Integrating the “organic” goals into policy strategies and funding programs

Objectives: Integrating the “organic“ goals (expanding organically farmed agricultural land, increasing the share of organically grown produce and products in out-of-home catering) into all national and, where applicable, European framework strategies and their implementation, as well as funding policies and programs. This will allow leveraging synergies to further expand organic agriculture; contributing to the strategic objectives O4, O5, O6, O7 and O8.

Time Frame: Starting 2023, event-dependent/ongoing

Design: The existing BMEL staff unit “Policy Issues, Coordination of Transformation Processes in Agricultural and Food Policy” is mandated to regularly conduct an “Coherence Check for Organic Agriculture” for new and to-be-updated strategy processes and funding programs in the subject areas of agriculture and food management, nutrition and the environment. It should be examined whether the coherence check can be integrated into a structure outside of a single ministry in the medium term in order to ensure a more “neutral” role across ministries.

- The following framework strategies should be considered: The National Food Strategy Currently Under Development, The German Sustainability Strategy, The National Biodiversity Strategy, The Climate Protection Plan 2050, And Measures Under The EU Farm To Fork Strategy.
- The following funding policies and programs should be considered: Continued Development of the Current CAP In Germany (2023), CAP Concept for the Next Reform Stage in 2027 Based on the Evaluation of the Current CAP (By 2024), Revision of the GAK and GRW (By Mid-2024), Start-Up Funding Within the High-Tech Fund (by mid-2024).

Key Target Groups: BMEL, BMBF, BMUV, BMWK.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.1.1 und 7.1.2.

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M3: Integrating the goal of strengthening regional value chains into policy strategies and funding programs

Objectives: Integrating the goal of strengthening regional value chains and setting appropriate priorities (e.g., in terms of measures, priorities, etc.) into all national and, where applicable, European framework strategies and their implementation, as well as into funding policies and programs; contributing to strategic objectives O10, O11, O12, and O13.

Time Frame: Starting 2023, on an event-related/ongoing basis.

Design: The existing BMEL staff unit "Policy Issues, Coordination of Transformation Processes in Agricultural and Food Policy" is mandated to, on a regular basis, conduct a "Coherence Review for Strengthening Regional Value Chains" for new and to-be-updated strategy processes and funding programs in the subject areas of agriculture and food management, nutrition and the environment. It should be examined whether the coherence check can be integrated into a structure outside of a single ministry in the medium term in order to ensure a more "neutral" role across ministries.

- **The following framework strategies should be considered:** National Nutrition Strategy, National Sustainability Strategy, ZÖL, Livestock Strategy, Protein Crop Strategy, Arable Farming Strategy, National Program for Sustainable Consumption.
- **The following funding policies and programs should be considered:** Further development of the current CAP in Germany (2023), CAP concept for the next reform stage in 2027 based on the evaluation of the current CAP (by 2024), revision of GAK and GRW (by mid-2024) - targeted expansion to promote (artisanal) food processing and small regional farms.

Key Target Groups: Line Ministries, Interministerial Working Groups, the Federal Government, BMEL (Staff Unit "Policy Issues, Coordination of Transformation Processes in Agricultural and Food Policy") (cf. M1 and M2).

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M1+M2+M3:

Policy integration and coherence checks are important for all three strategies (plant-based, organic, regional) and should be implemented together or in an integrated manner.

M4: Developing and implementing a federal program for plant-based nutrition

Objectives: Creating a central hub for activities to promote more plant-based diets, with institutional linkages to a federal ministry and dedicated resources to promote more plant-based diets; setting a long-term agenda for more plant-based diets; contributing to the strategic objectives O1 and O2.

Time Frame: Development starting in 2023, 1st evaluation and impact assessment in 2026, then every 3 years to review the extent to which O1 and O2 indicators and milestones have been achieved at the relevant time horizons. An initial funding period could be set to 2035, as half of the PHD/DGE 2.0 target should be achieved by then.

Design: The federal program should be the focal point for activities that effectively promote more plant-based diets and assume essential responsibility for their coordination. Interfaces with existing programs and strategies and their relevant activities should be identified and considered in conjunction. For example, individual action concepts of the nutrition strategy could be integrated into a comprehensive and practice-oriented funding approach of the federal program. In addition, the federal program should identify and address measures promoting more plant-based diets that have not yet been (sufficiently) taken into account in other programs and strategies.

Key Target Groups: BMEL, BZfE, research institutions, practice partners such as actors from food retail, out-of-home catering and manufacturers of plant-based and animal product-reduced (alternative) products and indirectly consumers.

For background on this proposed measure, see Quack et al. 2023, chap. 7.3.1.

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M5: Establishing a non-profit organization for plant-based nutrition

Objectives: Advancing the impact and pace of projects that change the dietary behaviors of the general population through appropriate organization and structure; contributing to strategic objectives O1 and O2.
Time Frame: Establishment 2023-2024, followed by annual activity report and impact-centered evaluation at project level.

Design: The non-profit organization should be operational and able to implement its own projects independently, dynamically, in the long term and in previously underrepresented, new collaborations (e.g. from nutrition, health and media sectors with nutrition psychologists). As first activities, the foundation and organization of a network (cf. M6) and the development and implementation of a campaign (cf. M13) are proposed.

Key Target Groups: Non-profit and for-profit organizations, actors in food retail and out-of-home catering, manufacturers of plant-based and animal-product-reduced (alternative) products, multipliers from science, civil society and politics, and indirectly consumers.

For background on this proposed measure, see Quack et al. 2023, chap. 7.3.2.

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M6: Creating and coordinating a network for plant-based nutrition

Objectives: Increasing the success of activities through the participation of different actors in the network; promoting cooperation among actors within the network; professionalizing actors and supporting them in their activities for a more plant-based diet by providing financial and/or human resources; contributing to strategic objectives O1, O2 and O3.

Time Frame: Launch of network development in 2023 by the operational core team of the nonprofit organization (see M5).

Design: The network consists of various multipliers from the professional public and media landscape. Actors from science, civil society, politics, companies (including start-ups) contribute their experience and own networks. The network is coordinated by the non-profit organization (cf. M5). Incentives should be created for the participation of different actors in activities of the non-profit organization (e.g.; campaign, see M13). In addition, regular exchange and working formats should be organized and coordinated. Particularly effective and promising activities should be supported by the nonprofit organization in terms of personnel and funding in order to have a greater impact.

Key Target Groups: Actors in the professional public: non-profit organizations, scientists, politicians, companies, start-ups, influential personalities from the food sector and in the media.

For background on this proposed measure, see Quack et al. 2023, chap. 7.3.2.

M7: Fostering municipal nutrition environments that support plant-based diets

Objectives: Actively engaging municipalities in more plant-based diets and create nutrition environments that make it easier for consumers to adopt more plant-based diets; contributing to the strategic objectives O1, O2 and O3.

Time Frame: The elements listed under design have varying time horizons: 1. one-time implementation and achievable in the short term, e.g., 2024: element d). 2. Implementation in multiple pilot communities, e.g., 2024-2027: element a). Longer time horizons for broader implementation, e.g., 2025-2035: elements b) and c).

Design: Municipal stakeholders are to help make the food and dining options in their municipalities more plant-based, and citizens are to have access to grow their own fruits and vegetables (e.g. in communal gardens, school gardens, public green spaces) and accompanying services (e.g. educational outreach programs).

a) Initiation and implementation of integrated urban development concepts with (special) consideration of plant-based nutrition in pilot municipalities.
b) Support for a more plant-based local supply in municipalities, e.g. in food retailing, at local markets and in gastronomy, by funding multi-year projects, e.g. for storage and (micro)logistics, as well as the networking of local food suppliers, (micro)logistics, and networking of stakeholders.
c) Initiation of a program to promote the production of fruit and vegetables on municipal land for citizens with a focus on communal gardens, public green spaces, school gardens, etc. as part of urban development funding.
d) Preparation of a legal expertise and action guide that shows which possibilities municipalities have to restrict advertising for animal-based foods.

Key Target Groups: Local politicians and local political actors

Background and details on this proposed measure can be found in Quack et al. 2023, chap. 7.4

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M8: Developing indicators for monitoring the strategy "Promoting a more plant-based diet"

Objectives: Developing and establishing indicators for monitoring the strategy "Promoting a more plant-based diet"; contributing to strategic objectives O1 and O2.

Time Frame: 2023–2027, timely start, integration into the nutrition strategy.

Design:

- Indicator for the monitoring of O1 "Increase of the proportion of plant-based foods in average dietary patterns": According to the findings of the STErn project, such an indicator should be composed of sub-indicators for the most important food groups for which a major change in consumption behavior is foreseeable and which represent the progress towards the objective. It will be further elaborated and concertized with the aim of defining food groups that are to be included in the food group index with a sub-indicator. Additionally, the concrete target values and percentages of the sub-indicators must be defined so that they can be merged into an index value. A database is to be established to enable regular monitoring. Should the MRI begin collecting data on dietary behavior in Germany[17] on an annual basis in the future, the survey should be design in such a way that it provides an annually updated data basis for the Food Group Index.
- Two indicators for monitoring O2 "Increase the proportion of appealing plant-based foods in food retailing": An indicator is being developed that can be used to evaluate the range of products on offer in food retailing regarding the strategic objective O2. For this purpose, several questions need to first be addressed. For instance, it must be determined whether it is more appropriate to evaluate the range of products on offer in food retailing based on the assortment (what is available for sale) or based on the quantity and type of product sold (what actually gets purchased). The latter thus indirectly takes into account other factors beside the pure product range (e,g, placement, pricing, special offers). It must also be determined, which products and product groups are to be included in the evaluation, how composite products are to be approached and how a data basis can be provided. It may be possible to build on the indicator given in the first indent.

Key Target Groups: BMEL BMEL and other line ministries as well as the scientific community.

For background on this measure proposal, see Quack et al. 2023, chap. 5.2 und 5.3.

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17 Mentioned in the workshop "Strengthening research and improving data" held on 7.2.2023 as part of the development of the nutrition strategy.

B

Measure:
“Strengthening demand and value chains”

3.2 Measures: “Strengthening demand and value chains”

M9: Supporting program for municipalities to build (innovative) plant-based value chains

Objectives: Create innovative economic clusters of plant-based value chains; facilitate the development of new, attractive plant-based products; bring together production and (pre)processing for food retail and restaurants; contribute to strategic objectives O2 and O3.

Time Frame: Longer time horizon for broader implementation, e.g., 2025-2035.

Design: The funding program comprises project and investment funding - including for consulting services for start-ups, for the establishment of processing structures and for the networking of stakeholders. The federal “Zukunft Region” (“Future Region”) competition could be expanded to include the topic of sustainable or plant-based nutrition.

Key Target Groups: Municipalities, companies in plant-based value chains (e.g. processing, gastronomy).

Background and details on this proposed measure can be found in Quack et al. 2023, chap. 7.4.1 und 7.4.2

M9+M10+M11+M12: Strengthening bio-regional value chains for plant-based products.

Thinking in terms of entire value chains (as opposed to individual chain links) is a major achievement of the sustainable food systems concept. A one-sided focus on either production or consumption carries the risk of unbalanced developments, and of neglecting processing and marketing. The isolated development of organic, regional or plant-based value chains alone would be an equally ineffective approach.

The silver bullet: the preferential support and development of bio-regional value chains for plant-based products. This formula combines numerous sustainability potentials.

M10: Research and funding program for the establishment and expansion of value chains for organic food products

Objectives: Developing and implementing a research and funding program to establish and expand value chains for organic food in order to strengthen artisanal, decentralized organic processing and economic structures and rural areas, and to further develop cooperative ventures; contributing to strategic objectives O7 and, subsequently, O8.

Time Frame: 2023-2026.

Design: The focus will be on the following elements:

- Implementation of binding and ambitious sustainability criteria in funding frameworks such as GRW and GAK while coupling funding levels to shares of organic products in order to specifically promote a strong commitment to organic processing (i.e. the higher the organic share, the higher the funding rate);
- De-bureaucratization of the application procedure for existing and new investment support programs;
- Establishment of consulting support (technical & investment consulting) along the entire value chain, based on the funding model for agricultural consulting services (also when planning new production facilities);
- Introduction of an inspection cost subsidy for (small) craft enterprises in order to lower the inhibition threshold, especially for initial certifications;
- De-bureaucratization (funding guides, hygiene, documentation, etc.) by conducting a systematic review and adjustment of bureaucratic requirements for artisanal and medium-sized food processors in order to achieve more effective and efficient implementation of regulations (but not their complete removal) (see also M34);
- The continuation and expansion of organic model regions, including stronger networking of production, processing, and marketing operations, including across regions;
- Further development of concepts and support offers for cooperative production and marketing structures (“organic machinery rings,” cooperative use of storage and processing infrastructures and logistics);
- Development and implementation of a strategy for the further development (both qualitative and quantitative) of producer-consumer cooperation models (solidarity-based agriculture, solidarity-based processing, regional value corporations, cooperatives, model regions, organic cities) and networking of existing initiatives to create synergies;
- Strengthening research activities on value chains through appropriate research funding programs. The analysis of success factors and the analysis and documentation of processes for successful value chain models are of particular interest. In addition, the visibility and knowledge transfer of corresponding model projects and processes should be improved.

Key Target Groups: BMEL, BMWK, Businesses.

Background and details on this proposed measure can be found in Jánszky et al. 2023, chap. 7.4.2.

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M11: Promoting regional networking centers and value chains – developers

Objectives: Providing long-term subsidies for administrative positions and workspace for food councils, pilot/model organic regions, and organic cities; expand previous pilot/model region programs to all regions; contributing to O10 and O11.

Time Frame: Starting immediately; development and dovetailing of funding structures with current state programs until 2025; window of opportunity through the adaptation of the GAK framework and the further development of BULE into BULE+, especially by means of the model regions competition held as part of this program.

Design: Central to this is the subsidization of personnel and material resources (positions, working spaces)

a) through a federal program (e.g. along the lines of the funding for climate protection management positions, which can be integrated into the federal program for rural development and regional value creation, BULE+);
b) via the GAK; if necessary, regional economic actors can also be involved.

If the programs are appropriately resourced, the competencies of the organic model regions and organic cities could be expanded (e.g. funding pilots, consulting services on regional marketing, conversion to community supported agriculture). Personnel positions should be linked to municipal structures wherever possible.

Key Target Groups: BMEL (regarding GAK and BULE); federal states; regional economy, municipal administration.

Background and details on this proposed measure can be found in Hanke et al. 2023, p. 67f.

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M12: Establishing a federal networking body of regional value chain development agencies and regional food strategies

Objectives: Creating a networking and coordinating body at the federal level that supports the development of regional (federal; municipal in some cases) nutrition strategies and facilitates knowledge transfer; contributing to strategic objectives O10 and O12.

Time Frame: Beginning immediately, through 2025.

Design: The networking and coordination unit is to be designed primarily as a supervising entity for the various value chain development units, rather than as a superordinate unit. At the same time, it should serve as a contact point and mouthpiece for ”value chain developers“ and regional networking bodies (including nutritional councils, organic cities). If necessary, the German Networking Agency for Rural Areas (dvs*) or the BZfE can provide more detailed information.

Key Target Groups: Administration, civil society

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M13: “Sustainable Nutrition“ Campaign – “Plant-Based Nutrition“ Subcampaign

Objectives: Raising awareness of diets with a stronger focus on plant-based products; positively influencing attitudes toward a plant-based diet, changing social norms and transforming food environments; contributing to strategic objectives O1 and O2.

Time Frame: high-profile campaign launch in 2024, accompanying annual evaluation and impact analysis on dietary behavior starting in 2025, on an ongoing basis starting in 2027.

Design: A high-profile campaign will be developed and implemented, inspired by such initiatives as “Eat Them to Defeat Them” or “Veganuary” (3-5 years). The campaign will be ongoing, by means of accompanying campaigns and programs in food retail and in schools, in order to shape food environments.

Key Target Groups: Consumers, children and adolescents (through accompanying school programs), food retailers, actors in gastronomy and in out-of-home catering by means of accompanying campaigns and programs.

For background on this proposed measure, see Quack et al. 2023, p. 113ff.

M14: “Sustainable Nutrition“ Campaign – “Regionality“ Subcampaign

Objectives: Shaping food environments and creating awareness of the benefits of a diet focused on regional products; increasing awareness of the issue and initiating change in social norms; contributing to O11, O13, and O14.

Time Frame: Starting in 2024; accompanying evaluation and impact analysis starting in 2027.

Design: A high-profile campaign for regional products will be developed and implemented in coordination with the campaign for a more plant-based diet and the communication strategy ÖLW (see M13 and M15).

Key Target Groups: Food retail trade, actors in individual catering in out-of-home catering through accompanying campaigns and programs.

M15: Communication Strategy for the Organic Agriculture and Food Industry

Objectives: Increasing awareness of the environmental benefits of organic agriculture among a large percentage of consumers; developing an authentic way to communicate the organic movement using a common, effective language; expanding communication of the organic sector with all relevant stakeholders so that visibility and networking are increased and transformational impulses are adopted more effectively. Contributing to the strategic objectives O4, O5, O6, O7 and O8.

Time Frame: From 2023 onwards.

Design: Communication should not only be thought of in terms of high-profile, short-term campaigns. Well-founded and relevant communication around the transformation of organic agriculture must be improved across systems and include, inter alia, the fields of research, education and vocational training as well as knowledge transfer at and between different stakeholder levels (practice, science, politics, civil society). For this purpose, communication must be easily comprehensible and tailored to the specific target groups. The following measures have been deemed particularly productive:

- Professionalization and cooperation of communicators along the organic value chain. Joint agenda setting and development of common narratives and organic-specific framings;
- Promote active networking and communication between sectors, municipalities, food councils, and other civil society actors on topics related to organic agriculture. Here, support can be provided through funding opportunities or, if necessary, through public networking bodies (BLE, BZfE, DVS, etc.);
- Cross-system, interorganizational cooperation of relevant institutions - such as ministries (members of the interministerial working group for the further development and implementation of the ZöL), the Federal Center for Nutrition (BZfE) and other public actors - in order to design funding guidelines and framework conditions in a way that creates incentives for the appreciation and acceptance of organic products by society as a whole;
- Provision of public funds for the development and implementation of communication tools. Realistic calculation and setting of financial resources for communication measures such as information campaigns on organic performance, the organic label, or the benefits of organic nutrition;
- A wide-reaching and long-term awareness campaign for consumers on the benefits of organic products should be implemented. A corresponding campaign is being planned at the BMEL for a start in the fall of 2023;
- Increased use of online media to supplement classic media. Consumer-oriented, high-reach and regular knowledge transfer in online media with testimonials / “Sinnfluencers” as well as “Silver Ager / 50+” in classic media based on the cooperation of organic agriculture communicators in the private and public sector;
- Expansion of publicly funded communication to target groups beyond consumers.

Key Target Groups: BMEL, BLE, if applicable BzfE, organic associations.

Background and details on this proposed measure can be found in Jánszky et al. 2023, chap. 7.5.

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M13+M14+M15: Communicating the transformation of food systems

A large-scale public relations campaign for sustainable nutrition should address all three STErn strategies, while focusing them to varying degrees depending on the campaign element in question (social media, training, activity, etc.). Positive, enjoyment- and fun-focused narratives should be developed in all three strategy areas to free sustainable nutrition from the defensive communication position associated with restrictions in the name of ecology. The interfaces of the three strategies should always be kept in mind. A joint campaign design and coordination of communication content are recommended.

In the area of organic agriculture and food, the communication strategy should not solely focus on a public relations campaign to the outside world, but also aim to improve communication along the value chain and between relevant stakeholders in the food system.

M16: Support program for the implementation of the plant-based future DGE 2.0 quality standards in communal catering facilities

Objectives: Expand the range of appealing plant-based meals in communal catering facilities by implementing the DGE 2.0 quality standards; contribute to strategic objectives O1 and O3.
Time Frame: Spanning several years (e.g., 5 years, 2024-2029).

Design: Funding programs support consulting services for communal catering facilities to implement and certify with future DGE 2.0 quality standards. This includes federal government canteens, daycare and school canteens, canteens in hospitals, retirement homes, and businesses. The funding program is to be linked to the establishment of a nationwide Future Canteen (“Kantine Zukunft “) as a central competence center for communal catering (see M19).

Key Target Groups: Users/customers of communal catering services in federal canteens, daycare and school canteens, canteens in hospitals, retirement homes and companies.

Background and details on this proposed measure can be found in Quack et al. 2023, chap. 5.3 and 7.1

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M17: Implementation strategy for the expansion and strengthening of organic sales in the communal catering sector (Gemeinschaftsverpflegung - GV)

Objectives: Increasing the share of organic products in communal catering (30 % by 2030, 100 % by 2050 (in public institutions) in line with Future Vision 50 % plus); contributing to the strategic objectives O8, as well as O6-7.

Time Frame: Design and implementation of measures – in some cases, starting as early as 2023; window of opportunity for implementation arises from the advancement of the measure “Future of Organic Agriculture” and the adaptation of the “ Joint Task: Improving Agricultural Structures and Coastal Protection” (Gemeinschaftsaufgabe Verbesserung der Agrarstruktur und des Küstenschutzes - GAK) framework.

Design: The focus is on:

- Further development of the Ordinance on the Labeling of Organic Food in Communal Catering Facilities for more practice-oriented rules on the use of organic products in communal catering;
- Development of a marketing strategy for organic food in communal catering as a central element for a convincing sustainability strategy for communal catering kitchens, taking into account market-based mechanisms (“Earning money organically”);
- Further development of the existing advisory support (RIBE guideline) or flanking of the RIBE support with further measures to ensure a comprehensive advisory infrastructure that is available in the longer term;
- Special investment support program to increase the availability of organic assortments suitable for communal catering (e.g., equipment for bulk consumer packaging, peeling machines, etc., e.g., as part of the aforementioned GAK framework;
- (Renewed) revision of the Federal Canteen Guideline in order for the federal government to subsidize the additional costs for organically produced ingredients in the future.

Key Target Groups: BMEL, BMWK, BMI.

Background and details on this proposed measure can be found in Jánszky et al. 2023, chap. 7.4.1.

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M18: Expansion and intensification of sales of regional products with environmental and/or social benefits through out-of-home catering

Objectives: Significantly increase the use of ingredients produced regionally and having environmental and/or social benefits in AHV with a target of 30% regional ingredients. The extent to which a further increase in the regional quota makes sense from a sustainability perspective cannot be assessed at present; contribution to strategic objectives O11 and O13.

Time Frame: Effective immediately; in communal catering in state institutions, the 30% target is to be achieved by 2040.
By 2050, the achievement of a 30% quota in the entire (also non-governmental) AHV could be targeted, even if a legal requirement for this is not possible.

Design: Due to European competition law, “regionality” is not currently permissible as a criterion. If regionality were to be permitted as a criterion (which is unlikely), it could be included in calls for tenders and a quota could be established. A different, easier way to enable regional procurement of food could be an exemption from the tendering requirement for this supply area. A legal review of this option would need to precede this, see M35 (below). In any case, a clear definition of what regional means in concrete terms would still be required in order for a quota to be established.

Key Target Groups: Federal, state and local government contracting agencies; the economic sector (gastronomy).

For background and details on this measure proposal, see Hanke et al. 2023, p. 70f.

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M19: Establishing a nationwide “Future Canteen” („Kantine Zukunft“) as a central competence center for communal catering (Gemeinschaftsverpflegung - GV)

Objectives: Establishing and financing a central, nationwide competence center for communal catering, based on the “Kantine Zukunft Berlin” and the “House of Food” in Copenhagen. The goal is to strengthen the competencies of the actors in the communal catering sector (actors in canteens of schools, daycare centers, public institutions and, in the future, clinics) and to support them in switching to more plant-based, organic, fresh and tasty meals, within the given budget and without incurring significant additional costs. Contributing to strategic objectives O3, O8, and O13.

Time Frame: 2023 Creation of implementation concept, including target values for the number of canteens that can be converted per year and contribute to achieving the goals in all three strategies (plant-based: O3, organic: O8, regional: O13).

Design: The competence center, modeled on “Kantine Zukunft Berlin”, provides support in public tenders through proactive consulting services as well as on-site coaching on key issues (menus, communication, organic certification, quality assurance, regional procurement, food waste and waste management, economic implementation of the DGE guidelines, general business management consulting). Consultation and training should be offered to both the entire kitchen staff, caterers and kitchen managers, and to the management level of the facilities, sponsors or school and daycare organizations. Consulting services for the kitchen team are to be carried out in a collegial and practical manner using best-practice examples (e.g. Studentenwerk Frankfurt Oder, NURISHD project at Charité Berlin, etc.).

Key Target Groups: BMEL; Kitchen staff, caterers, kitchen managers, facility leadership, sponsors, or school and daycare committees.

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M16+M17+M18+M19: Making out-of-home catering sustainable - especially communal catering

Out-of-home catering represents a food consumption sector that has been growing for years. Creating a more sustainable range of options in this sector is an essential building block in the transformation of the food system – not least because standards and notions of normality are shaped by patterns of public consumption. Government actors have direct access to the communal catering sector of governmental agencies and other government institutions such as schools and hospitals, particularly through the design of procurement policies and legal regulations, advisory services, and guidance documents.

Through an integrated approach to the three strategies addressed in the STErn project, government-owned catering operations can play an important role in building bio-regional value chains for plant-based diets across the out-of-home catering sector. The Canteen Future exemplifies the added value of such a confluence of strategies.

M20: Introducing reduced VAT rates for plant-based food products

Objectives: Reducing the VAT rate for plant-based food products so that they become cheaper and thus more attractive to consumers; contributing to the strategic objectives O1 and O2.

Time Frame: Until 2025

Design: The value-added tax rate for plant-based food products that are not (or only slightly) processed will be lowered to 0%. Processed plant-based foods will be taxed uniformly at a value-added tax rate of 7%.

Key Target Groups: Consumers

For background and details on this measure proposal, see Quack et al. 2023, chap. 7.1 and 6.5.12

M21: Examining the extent to which a performance-based assessment of corporate sustainability can be integrated into the lending process

Objectives: Previous plans to integrate sustainability into lending have focused on assessing sustainability risks, i.e. negative aspects such as the use of fossil fuels or environmentally toxic chemicals. In this case, the focus is meant to be primarily on risks of default or costs, which could, for instance, be subject to corresponding risk premiums in the interest rate. In contrast, the potential for taking sustainability performance into account in a positive way appears to be limited. It is therefore necessary to examine how sustainability can be established as a key positive criterion in lending.

Time Frame: Review 2024-2027, then aim for implementation steps.

Design: A possible approach lies in a performance-based assessment of companies that takes sustainability aspects into central consideration. Both environmental damage and positive performance are quantified and monetized where appropriate (e.g. contributions to biodiversity). More specifically, it is necessary to examine the ways in which performance-based assessment in relation to sustainability can be strengthened as a tool and made relevant for lending. As with measure M22 (below), the extent to which proven certifications can replace or complement a complex assessment of individual performances should be examined in order to both minimize the effort involved in the assessment and prevent economic actors from focusing on a narrow range of criteria that are dominant in the assessment systems (e.g. climate - excluding biodiversity).

Key Target Groups: The UBA/ BMUV is responsible for the assessment. The target groups for implementation are, above all, banks.

For background on this measure proposal, see Brunn et al. (2023), chap. 3.

M22: Definition of sector-specific sustainability core indicators for small and medium-sized enterprises in the further development of the EU’s Corporate Sustainability Reporting Directive (CSRD)

Objectives: Taking sustainability aspects into account in investment decisions is a key lever for redirecting financial flows towards sustainable changes (not least in the food system). Especially in the case of loans, sustainability has so far only played a subordinate role. At the same time, loans continue to be the main financing instrument for small and medium-sized enterprises (SMEs) in Germany, including in the agricultural and food sector. Current developments at the European and national levels already aim to make sustainability a mandatory factor, e.g. in risk assessment when granting loans. If banks are to take greater account of sustainability when granting loans in the future, they will need the relevant information and data on potential borrowers and the objective of the investment. The sustainability of a borrower, or of the investment object, must be assessable with a few sensibly selected parameters. This is the only way to ensure that the effort required on the part of both banks and companies remains manageable. The EU’s Corporate Sustainability Reporting Directive (CSRD), which will come into force in January 2023, is a suitable regulatory starting point.

Time Frame: According to the CSRD, delegated acts are to be adopted by the European Commission by June 30, 2024, in which the standards for sustainability reporting for companies are to be defined. This could be used as a central starting point for defining industry-specific sustainability core indicators.

Design: The CSRD will initially have a direct impact on companies subject to reporting requirements under the directive, i.e. large and publicly listed small companies. However, it can be assumed that the requirements will be passed on by reporting companies within their own value chain - leading to an indirect effect on non-reporting companies within supply chains as well. Since the CSRD is intended as the central standard for sustainability-related reporting, it can be assumed that it will keep developing in the future (at least within Europe) as a key guideline for sustainable business - even beyond its immediate scope. The standards set out in the CSRD are thus likely to become a guideline for most companies, including SMEs. When developing the reporting standards, it is therefore of central importance to establish targeted sector-specific standards for SMEs as well - as is already planned for large companies. Ideally, this should be done in collaboration with representatives of the respective sectors, relevant users of the information/data (e.g. banks/investors) and other stakeholders and environmental associations. In this way, an agreement can be reached on which information is absolutely necessary and should thus be collected within a reasonable framework, and how “greenwashing” can be avoided. The integration of existing standards and certifications is particularly valuable as an alternative to reporting on individual aspects, especially for smaller companies. Clearly defined legal standards such as “organic”, backed up by a monitoring system, provide lenders and/or investors with a high level of security due to their well-documented sustainability benefits, while their feasibility has been tested in companies of varying sizes and product groups. Looking ahead, consideration should be given to the extent to which reporting requirements are to be extended to SMEs in general - ideally in conjunction with the development of tools that minimize the reporting burden. This is the only way to ensure broad availability of relevant sustainability information (e.g., when granting loans).

Key Target Groups: Proposals for sector-specific sustainability core indicators would have to be specifically introduced into the EU process for developing standards relating to sustainability reporting. This is the responsibility of the European Financial Reporting Advisory Group (EFRAG). The target groups of the standards themselves are companies directly affected by the CSRD - as well as indirectly all companies and SMEs that orient themselves to the CSRD.

For background on this proposed measure, see Brunn et al. (2023), chap. 3.

M23: Subsidizing recipients of transfer benefits for participating in prosumer food-supply models

Objectives: Encouraging participation in prosumer food-supply models for low-income households, especially recipients of transfer payments, contributing to strategic objective O14.

Time Frame: Starting a model project in 2025, then on an ongoing basis – if model project is successful

Design: Participation in Community Supported Agriculture (SoLaWis), the management of self-harvesting gardens or the purchase of “farm shares” (spending vouchers) can be subsidized (e.g. up to half of the expenses). The subsidy can be paid out on a monthly basis upon application upon submission of proof of eligibility and in conjunction with housing allowance or unemployment benefits (Arbeitslosengeld - ALG).

Key Target Groups: BMAS.

For background on this measure proposal, see Hanke et al. 2023, p. 74.

C

Measure: “Education, Knowledge, Innovation”

3.3 Measures: “Education, Knowledge, Innovation”

M24: Support program for the development and testing of educational content for vocational training and further education aimed at promoting plant-based nutrition

Objectives: Improve the technical skills of professionals to expand the range of appealing plant-based foods and meals; contribute to strategic objectives O1, O2, and O3.

Time Frame: 2025-2030, possibly the funding program should be even more long-term (e.g., through a second round of funding 2030-2035).

Design: Funding is provided for projects to develop training and educational content that is adapted to the needs of the respective workplace to support plant-based diets, e.g. in the context of education for sustainable development. The cooperation of scientific and practical actors, certification of the additional qualifications by the Chamber of Crafts, etc. is a prerequisite for project funding. Two successive project phases are funded:

- Phase 1: Development and testing of the respective qualifications or educational content;
- Phase 2: Implementation, transfer to the wider community.

Relevant professions include, inter alia, cooks, home economists, food trades, hotel specialists, food retail salespersons, vocational school teachers, trainers.

Key Target Groups: Employees in the above-mentioned professions, teaching staff (e.g. trainers, vocational school teachers).

Background and details on this proposed measure can be found in Quack et al. 2023, chap. 7.5

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M25: Funding program for the development and testing of educational content for vocational training and continuing education to strengthen regional value chains

Objectives: Improve the professional competencies of specialized personnel for the production, processing, marketing and procurement of regional food; strengthen the professional image of “value chain developer”; sensitize personnel of municipal economic development for the importance of regional food value chains; contribution to the strategic objectives O10, O11 and O13.

Time Frame: 2025-2030; possibly the funding program should be even more long-term (e.g., through a second funding round 2030-2035).

Design: Funding is provided for projects aimed at developing educational content that addresses the specifics of regional value chains (smaller product quantities, heterogeneous qualities, large product diversity, small-scale cultivation, direct marketing concepts, assessment of environmental and social added values that are not certified, etc.). In food production, this concerns the courses of studies, education and training in horticulture and agriculture; in processing, the artisan education and training as well as food technology; in marketing, all previously mentioned professions and training; in procurement, the kitchen management of communal and out-of-home catering (chefs, home economics, specialized training in gastronomy). Project funding can be linked to conditions, e.g. cooperation between scientific and practical actors, certification of additional qualifications by chambers of crafts, etc. Funding will be provided for two successive project phases:

- Phase 1: Development and testing of the respective qualifications or educational content;
- Phase 2: Implementation and wide-scale dissemination.

Strengthening the professional profile of the value chain developer (employee in organic model/eco-model regions) requires a concrete job description by a panel of experts a as well as the availability of further training.
The implementation can be carried out by the federal networking office of the regional value chain development offices named in M11.
Raising awareness among municipal economic development staff of the importance of regional food value chains is aimed at preferential allocation of commercial land and, where appropriate, also agricultural land by the public sector in the case of leasing or purchase, cf. also M38.

Key Target Groups: Academic actors and actors in education, institutions specializing in (vocational) training and education.

For background on this measure proposal, see Hanke et al. 2023, p. 73f.

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M26: Guidelines on content in training regulations and frameworks to support plant-based diets

Objectives: Incorporating (examination-related) elements to support plant-based diets in the training regulations and training frameworks of relevant occupations. Improving the professional competencies of the specialist staff to expand the range of appealing plant-based foods and meals; contributing to the strategic objectives O1, O2 and O3.

Time Frame: Starting in 2023, on an as-needed basis.

In the course of the revision and preparation of training regulations by the Federal Institute for Vocational Education and Training (Bundesinstitut für berufliche Bildung - BIBB), content that supports plant-based diets is to be integrated into the training regulations (including content relevant to examinations). Relevant professions include cooks, hotel and catering professions (note: new version 2022[18]), housekeepers, grocery retailers. This process is to be followed by the development of teaching materials and the further training of teaching staff regarding the newly integrated elements/content.

Key Target Groups: Trainees in food retailing, in the food industry, in gastronomy, in the field of home economics; teaching staff (e.g. trainers, vocational school teachers).

Background and details on this measure proposal can be found in Quack et al. 2023, chap. 7.5

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18 Even though the 2022 revision includes content on a more plant-based diet, there is still potential for optimization: For instance, the training regulations for chefs only include an optional “additional qualification for vegetarian and vegan cuisine”, which is only offered in the workplace and is not taught at the vocational school. The new content on plant-based nutrition is furthermore only relevant to a limited extent for examinations. Other training ordinances do not even contain any reference points to the subject (e.g. food retailing or retail salesman/woman).

M27: (Vocational training) education campaign focused on organic production

Objectives: Enable actors involved in organic agriculture to develop and expand organic agriculture; establish organic agriculture know-how as an essential component in training, higher education and on-the-job education in food-related professions from farmers to cooks, so that a sufficient number of well trained, knowledgeable organic specialists in agriculture, food processing and retail is available consistent with organic area or consumption targets; increased “organic training” of professionals in agriculture, extension services, processing and retail; teachers with basic and practical know-how on organic agriculture; contribution to all strategic goals concerning the further development of organic production.

Time frame: 2023-2028.

Design: The education campaign includes the following elements:

- Teaching content and teaching methods on organic farming in (university-level) basic training of future vocational, technical and university teachers. The studies should be supplemented by practical content to really teach the craft (e.g. baker: natural dough management vs. baking mix; handling of wholemeal flours, dough preparation with various (pseudo)cereals).
- Development and implementation of training concepts on organic farming for practicing teachers, consultants, and training providers (train the trainer). Networking among teachers should also be facilitated and promoted.
- Financial support for small and medium-sized organic farms as secondary learning sites in education and training in addition to (vocational) school.
- Recruitment of new teachers and qualification of career changers for vocational education and opportunities for gaining practical experience in organic agriculture during studies or – at the latest – during the traineeship.
- Simplified access to teaching material on EALW on a new online platform. The platform should be provided and maintained by all relevant federal ministries (BMEL, BMBF, BMWK and/or downstream institutions). The material should be reviewed, developed, and prioritized in exchange with teachers, educational stakeholders, and representatives of the organic farming community.
- Inclusion of cross-value chain topics related to organic agriculture in the curricula and examination topics of vocational schools offering dual training[19].
- Staffing vocational training and examination committees with organic experts to incorporate a practical perspective and obtain application-oriented ecospecific knowledge. This requires mutual agreement among the responsible institutions and the representatives of the teaching staff, employees and employers who participate in the committees.
- As part of the project “Status-quo analysis and development of options for greater integration of organic farming in vocational training” (see footnote), measures were developed for a greater integration of organic farming in the training of farmers, gardeners and winegrowers. This was to be followed by a status quo analysis of educational content for organic processing.
- Apprenticeship marketing and career counseling for students for apprenticeships in organic agriculture (incl. better communication on the professions in textbooks, etc.).

Key Target Groups: Federal states and chambers of agriculture, federal policy on training frameworks and frameworks for continuing education and training, and creation of funding opportunities, the business sector, professional chambers.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.3.1.

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19 At present, the nationally applicable KMK (Standing Conference of the Ministers of Education and Cultural Affairs of the German Länder in the Federal Republic of Germany) framework curriculum from 1994 still forms the basis for this. The subject of “alternative agriculture” is allocated 80 teaching hours in this curriculum. A status quo analysis of 2019 shows that half of the federal states have directly adopted the framework curriculum. The other half are implementing it in their state curriculum. Apart from a few ambitious schools, no federal state formally achieves the stipulated number of teaching hours. With this in mind, it is essential to modernize the framework curriculum. This will be done regularly as part of the amendment of the training regulations. In the case of agricultural training, the social partners have repeatedly rejected an amendment, so the question of whether it is possible to revise the KMK framework curriculum independently should be examined. Cf. John, Jörg; Beringer, Jutta (2019): Status-quo analysis and development of options for action for greater integration of organic farming in vocational training in the occupational profile of farmer, gardener and vintner.

M28: Funding program “More education for more plant-based diets”

Objectives: Enabling employees in the food industry, especially in gastronomy and food retail, to increase the range of appealing plant-based meals and foods; encourage companies to motivate their employees to participate in or send them to relevant training courses; contributing to strategic objectives O1 and O3.

Time Frame: starting 2025; long-term funding program.

Design: The program is to (partially) cover participation and examination fees for the relevant training courses (e.g. vegetarian and vegan cuisine, vegan confectionery, specific courses in food retailing) as well as the remuneration of employees for the participation time. The already existing federal program ”Weiter.Bildung!“ (“Further.Education!”)[20] could be adapted for this purpose so that vocational training courses with less than 120 hours would also be eligible for funding. At present, many of the relevant training programs available are not compatible with the program[21] .
Additionally, a concept for networking centers is being developed. The aim is to find temporary staff to fill vacancies in companies while their employees participate in a training program, in order to compensate for the loss of working hours associated with their participation in the training. The reason for this measure is the current shortage of skilled workers and the resulting low staffing levels in many businesses, e.g. in kitchens, which can prevent companies from allowing employees to take part in training courses. The networking center could be affiliated with the chambers of commerce and industry or chambers of crafts. It can support companies in helping each other out with temporary employees as well as in hiring personnel specifically for this purpose.

Key Target Groups: Companies and employees of the communal catering trade, the food retail trade, the grocery trade

Background and details on this measure proposal can be found in Quack et al. 2023, chap. 7.5

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20 https://www.arbeitsagentur.de/datei/flyer-weiterbildung-qualifizierungsoffensive_ba031290.pdf
21 For example, the national IHK certificate course “Vegetarian and Vegan Cuisine” for employees in the catering industry does not currently reach the number of hours required for funding, nor do other courses such as vegan confectionery.

M24+M25+M26+M27+M28: Vocational training and continuing education for a sustainable food system

An intensification of organic production, regional value chains and plant-based nutrition is only possible once the specialized personnel at all levels of value creation, as well as in the authorities setting the framework, have received further training and education. When developing support programs, educational initiatives, training regulations, etc. to this effect, measures M22-M26 should be considered integrally.

M29: Trainee program “Plant-based value chains in the food industry”

Objectives: Expanding the competencies of young professionals and companies in the food industry with regard to the development, production and distribution/trading of plant-based foods; supporting knowledge transfer and networking in plant-based value chains; contributing to the strategic objectives O2 and O3.

Time Frame: To be developed in 2025, with a long-term roll-out starting in 2026.
Design: A one-year trainee program with central educational elements for the trainees and a training framework will be developed. The program will include project work in the training institution itself as well as job shadowing in other companies.

Key target groups: Young professionals in the food industry with an academic or vocational college degree and companies in the food industry (with a focus on plant-based production).

Background and details on this measure proposal can be found in Quack et al. 2023, chap. 7.5

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M30: Gathering meaningful statistics on organic agriculture and food production

Objectives: Regular statistical recording of the status and development of organic agriculture based on additional quantitative indicators in order to create the basis for regular monitoring and steering of political measures. Statistical data will also inform decision-making by political and economic actors; contributing to strategic objectives O4, O5, O6, O7, and O8.

Time Frame: From 2023 onwards, ongoing implementation.

Design: The existing “structural data” collection of the BLE is to be further developed, especially in the downstream area (processing, gastronomy, trade, imports). To ease the burden on small and medium-sized businesses, new data collection should be integrated into existing statistical surveys. It also makes sense to standardize data collection across the federal states. This can be achieved, for instance, by commissioning departmental research (e.g. Thünen Institute) to develop a standardized, low-bureaucracy documentation system for relevant data.
Existing statistical records in the agricultural/food sector are to be supplemented by the category “organic”/”non-organic” or “organic share” (e.g. HIT database, Destatis statistics on the processing industry and on handicrafts, mill statistics, import statistics, export statistics, etc.).
Key Target Groups: BMEL, Federal Statistical Office.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.1.3.

M31: Campaign for more research and research infrastructures on organic agriculture and food management

Objectives: Creating a political framework to enable ecospecific research and significantly expanding the research infrastructure required in line with the eco-expansion goals. In the medium term, this should make it possible to answer questions regarding the further development of organic agriculture by acquiring new scientific knowledge. Contributing to strategic objectives O4, O5, O6 and O7.

Time Frame: Embedding the necessary steps with the 2023 revision of the ZöL (Future Strategy for Organic Agriculture) for implementation starting in the second half of 2023; anchoring further (research) framework strategies from 2023 (see also measure M15).

Design: Research strategies should be coordinated across departments and with the participation of practical experts from the organic value chains in line with the goals of the federal government and the Future Strategy for Organic Agriculture (ZöL) in order to cover real research and knowledge needs comprehensively and cost-effectively (see also M15)

The expansion of research infrastructures should be addressed as follows:

- Gathering current data on existing and required research infrastructures in departmental research, as well as at universities and higher education institutions (number and distribution of ecospecific scientific posts, infrastructure of specific research facilities, e.g. experimental facilities), on the basis of which a development plan can be drawn up for the further expansion of structures, particularly in the field of departmental research. Redefinition of departmental research structures for more food systems-oriented research and expansion of ecospecific departmental research centers and research institutions, especially within the BMEL’s area of responsibility;
- Developing a concept aimed at networking research institutions and researchers from departmental research with ecospecific research foci with each other, as well as promoting the networking of experts in research fields of the eco-economy and the transformation of the food system with research institutions of the countries, independent research institutions, and practitioners (model: research on renewable energies);
- Research infrastructures should be geared to the “organic food chain” system by reallocating resources, developing appropriate curricula, and providing additional resources, especially in the area of departmental research through federal research funds;
- Targeted and interdepartmental funding of (transdisciplinary) junior research groups for research on development concerns in the organic food chain and on the transformation of the food system to be made available to universities of applied sciences and independent research institutions via public research funding as well;
- The structures for implementation at the respective research institutions, including the review panels, must be strengthened in line with the expansion;

The following steps are necessary to promote transdisciplinary and participatory research (“practice research”) as best practice for system-related innovations:

- The increased promotion of transdisciplinary practice research projects and collaborations, including the higher coordination and communication tasks required;
- Developing quality criteria for ecospecific research and research funding in terms of subject-related and methodological inter- and transdisciplinary research designs and, more broadly, regarding the further development of innovation indicators for socio-ecological innovations/general interest services (as opposed to patent orientations). There will be a stronger focus on the impact paths of research rather than on scientific indexes;
- Integrating practice advisory boards into research institutions and projects funded by the federal government (and, where appropriate, by the federal states), and integrating practical expertise and transdisciplinary research expertise in expert committees of research funding;
- Creating low-threshold bottom-up funding approaches in project funding (e.g., via initiative sketch tool
- of the BMEL/BLE) with the participation of practitioners;
- Improving the funding of overhead costs of public welfare-oriented research projects
- Strengthening stakeholder involvement in the early coordination of research projects at the federal level regarding the research goals regarding organic agriculture, especially when it comes to the further development of the Future Strategy for Organic Agriculture into a cross-departmental strategy.
- Establishing a networking center for innovations in organic agriculture including existing and new research infrastructures or an innovation center as a platform for dialogue and implementation for research and innovation issues of organic agriculture integrating science, consultation services and practical know-how.

Key Target Groups: BMEL (lead), BMBF, BMUV and other ministries, science, industry, research institutions.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.2.1

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M32: Strategy for the (further) development of breeding and health maintenance of plants and animals

Objectives: Establishing and implementing a strategy to (further) develop breeding and health maintenance of plants and animals; this will result in improved organic soil-plant-animal production systems, enabling an area target of 50plus by 2050. Contributing especially to strategic objectives O4 and O5.

Time Frame: 2023-2030.

Design: Focus on promoting soil conservation and soil health, as well as healthy crops and livestock that produce high yields. Further improved environmental performance, increased productivity and the closing of nutrient cycles, including on low-livestock and livestock-free farms, are to be the focus of further development concerns. The following elements are planned:

- By the end of 2023: Establishment of a working group focused on developing better risk assessment models and guidance documents for natural products (mineral, plant, animal, microbial).
- By the end of 2023 (and ongoing thereafter): Further developing risk and prediction models for invasive pests; by the end of 2023, establish practical decision-making models for rapid intervention including impact assessments of the release of beneficial organisms – taking into account both climate change and the occurrence of pests in neighboring countries.
- Starting 2023: Development of a breeding strategy for organically bred plants combined with a research offensive for organic plant breeding from 2023 with sufficiently long terms (BÖL, BMBF, departmental research).
- Starting in late 2023: Targeted research on biodiversity integrated into cultivation, including implementation and support programs for practitioners and immediate inclusion of these topics in training curricula.
- By 2024: Negotiation and formulation of an overall strategy for the promotion of systemic approaches to maintaining the health of plants, including an implementation plan and integration into BÖL, BMBF, and the federal biodiversity program. The further development of concepts for improving nutrient flows in livestock and livestock-free and biocyclic-vegan farms, such as compost and humus management, are associated topics.
- Starting 2023: Development and implementation of a breeding strategy for organic animal breeds. For organic animal breeding, a comprehensive analysis of the breeding status quo for all organically farmed livestock, including insects, must be carried out from 2023 and regularly repeated at sensible intervals in the further development process.
- Starting 2023: Advancing research on animal welfare in organic agriculture, test it in practice, and publish the results (cf. the results on animal welfare according to the study by Heß, Sanders (eds.) 2019).

Key target groups: BMEL, BMBF; science, economy.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.2.2.

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M33: (Further) development and integration of (additional) innovative sustainable production methods and utilization of the findings for the qualitative further development of the EU organic regulation

Objectives: (Further) develop and promote innovative (“socio-)ecologically sustainable” production methods and adapt corresponding framework conditions in the EU Organic Regulation; contribution to strategic objectives O4, O5 and indirectly objectives O7-O9.

Time Frame: From 2023-2030 onwards. Research concerns and the adaptation or discussion of corresponding legal requirements should be initiated as soon as possible, as research takes time. All the measures mentioned should therefore be initiated as early as 2023 (if possible) in order to be able to achieve fundamental findings and results in the next five years. A process concept for the further development of the EU EIA must be available by 2026/27.

Design:

- In research funding, the focus will be on: Ways to increase yields in organic agriculture through the optimization of cultivation methods including long-term field trials; Topics related to soil health and prevention of soil degradation. In the case of low-livestock, livestock-free and vegan organic farming, this is linked to the development of improved solutions for soil regeneration and fertilization (see also M20).
- Separate funding guideline for research projects to improve the sustainability performance of organic farming within the Federal Organic Farming Program (see also measure 23) for the expansion of knowledge bases and simultaneous funding of knowledge transfer projects to enable farms to improve their sustainability performance (see also measure 23); further development of fundamental concepts for measuring sustainability performance.
- Assessment and implementation of research needs for further research on improving the environmental performance of organic farms along the value chain as part of the further development of the Future Strategy for Organic Agriculture as of 2023
- Integrating production methods such as mixed-crop farming, agroforestry and permaculture, low-livestock, livestock-free and vegan organic farming (see also M20), innovative structures and processes of cooperation and networking, as well as “innovation management on one´s own farm” in all vocational training and higher education curricula.
- Fostering a participatory debate and establishing definitions of criteria for innovative production methods such as agroforestry, permaculture, and regenerative agriculture to enable the standardization and (improved) integration into ecological management.
- Establishment of a separate funding priority for “socio-ecologically sustainable innovations” within consultancy funding for organic production in order to support the rapid development of an efficient specific consultancy network that can improve the coverage of farm consultations on sustainability and innovation management on farms.
- Commissioning a study to analyze the current EU organic regulation with regard to its structural/procedural support or “braking effect” with regard to sustainable innovations.
- Concept development on the process for the further development of the EU Organic Regulation from 2027 onwards, which supports an improvement of the environmental performance of the organic agriculture and food sector. The further development process should be designed in such a way that conducive approaches for the qualitative further development of the organic food and farming sector can be defined in the future in an EU-wide binding manner (as far as possible and reasonable). A focus of the concept for the further development of the EU EFA should be on the methodology for the participatory further development of the EU EFA.

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Key target groups: BMEL, BMBF, EU, IFOAM OE, TP Organics, science, industry.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.2.3.

M34: Initiative for the transfer of organic expertise to practitioners

Objectives: Improving the transfer of knowledge and networking between knowledge carriers and recognizing the equal value of knowledge from practice, consulting services and science for the further advancement of organic farming. Expanding and further developing knowledge transfer structures and systems. Contributing to the strategic objectives O4, O5, O6, O7 and O8.

Time Frame: Continuous from 2023 onwards.
Design: The central starting point is the further development of the “Future Strategy for Organic Agriculture” (ZöL 2) 2023, in which further development measures are to be embedded.

These include:

- An analysis of the consulting infrastructures in the federal states along with the promotion of the expansion of consulting infrastructures in regions with weak consulting structures through federal programs.
- Providing a low-threshold funding budget for knowledge transfer in the form of an initiative sketch tool in all relevant research funding and, in departmental research, also for modern formats.
- Expansion of funding for project-independent or cross-project programs at diverse knowledge transfer events (e.g., for the presentation of innovations at events, at trade fair booths, etc.).
- Improved processing and accessibility of findings, knowledge transfer and additional training options in the form of:
  - Development and application of quality criteria linking practical experience and scientific knowledge in order to prepare research results in a way that is appropriate for the respective target groups,
  - demand-oriented provision of subject-specific (!) information for the continuous bundling of new and practice-relevant research results in online databases by BÖL,
  - practice-relevant tutorials, recommendations, fact sheets and guidelines, apps and tools, and other instruments for practitioners and consulting services,
  - Preparation of system-related knowledge involving various disciplines and stakeholder groups (e.g. linking plant health and biodiversity, sustainability management and animal health. But also bundling new legal requirements with new research findings),
  - Provision of information regarding individual training, development and networking opportunities, e.g. in the form of a platform with an overview of ecospecific offers such as courses (e.g. soil practitioner courses) and conferences (e.g. expert advisor conferences) by the BÖL.

Key Target Groups: BMEL, chambers, industry.

Background and details on this measure proposal can be found in Jánszky et al. 2023, chap. 7.3.2.

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M35: Expert legal opinion on the EU-wide abolition of mandatory tendering for food and food-related services

Objectives: Facilitating the sourcing of regional food for public sector canteens, contributing to strategic objectives O11 and O13.

Time Frame: By 2025.

Design: An expert legal opinion will be conducted to examine whether the EU-wide tendering requirement for food and catering (cf. M18) (analogous to the abolition of the tendering requirement for legal advice, which has already been carried out) can be lifted. If, instead, it was possible to award contracts according to criteria chosen by the public sector itself, regionality could also be included in the invitations to tender. Adjusting the procurement guidelines to include sustainability-related criteria, including regionality, would be a necessary next step.
This measure is an alternative to the often-considered stipulation of regionality quotas in public sector canteens in political discourse, which presents legal issues and is, in some cases, futile in terms of the environment (e.g. if, as an alternative to organic quality, products with the quality seal of a federal state are targeted, for example 50% organic or regional in Bavarian state canteens).

Main Target Groups: Legislature, researchers

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M36: Promoting status-quo analyses in the context of setting up regional nutrition strategies

Goals: Enabling the development of viable and effective regional food strategies; contributing to O12.
Time Frame: Beginning in 2025, ongoing

Design: A federal funding program will be developed to support status quo analyses in the context of setting up regional nutrition strategies. If applicable, the measure can also be linked to the program proposed in M11 to promote value chain development agencies. Quality assurance should be linked to the funding. Status-quo surveys are particularly effective if they involve broad stakeholder participation and focus on missing links in value chains. At the same time, they should create the basis for identifying and naming concrete measures, budgets, time horizons and monitoring approaches. This could be preceded by the development of a guideline for the development of regional food strategies.

Key Target Groups: Federal states, municipalities (administration); research institutions.

Background and details on this measure proposal can be found in Hanke et al., p. 64 und p. 69.

M37: Study on easing the burden of bureaucratic regulation for small businesses

Objectives: Relieve small businesses - especially agricultural and artisanal manufacturing businesses that form the backbone of regional value chains - of regulation and documentation requirements without weakening protection goals. Contribute to strategic objective O11.

Time Frame: Call for proposals by 2024, implementation by 2027.

Design: Development of an implementation concept to survey potential improvements in regulation to relieve the burden on small businesses. The study conducted by Bex et al. (2020)[22] on reducing bureaucracy in the hospitality industry on behalf of the Association of German Chambers of Industry and Commerce or the recommendation report of the Baden-Württemberg Standards Control Council (2021)[23] on easing the regulatory burden on the bakery trade could serve as models. The aim of these projects was not to weaken or decrease protection targets, but to identify ways of implementing them more intelligently and in a less time-consuming and labor-intensive manner in SMEs. Round tables between authorities and practitioners might also be helpful in developing suggestions for improvement.

Key Target Groups: (departmental) research

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22 Bex, P. et al. (2020): Bürokratiebelastung für Unternehmen bremsen. Eine Studie am Beispiel Gastgewerbe. Im Auftrag des Deutschen Industrie- und Handelskammertags. (Putting the Brakes on Bureaucratic Burdens for Businesses. A study using the example of the hospitality industry. Commissioned by the Association of German Chambers of Industry and Commerce.) Available online at unter https://www.dihk.de/resource/blob/18690/d9172ef787eef2f6d984a8754051675a/studie-buerokratieabbau-data.pdf.

23 Normenkontrollrat Baden-Württemberg (2021): Entlastungen für das Bäckerhandwerk. Empfehlungsbericht des Normenkontrollrats Baden-Württemberg. (Relief for the bakery trade. Recommendation report of the Normenkontrollrat Baden-Württemberg). Status: 2021. Ed. v. Erika Maria Schmitt und Deborah Freudig. Available online at https://www.normenkontrollrat-bw.de/fileadmin/_normenkontrollrat/PDFs/Empfehlungsberichte_ und_Positionspapiere/Baeckereistudie_NKR_BW.pdf.

M38: Study to improve land access for regionally managed farms

Objectives: Facilitating land access for regionally-based food production businesses; contributing to strategic objectives O10 and O14.

Time Frame: By 2027 (mandate by 2025).

Design: To address the central problem of access to agricultural land for regionally operating, small-scale farms, it is necessary to examine options to make it more difficult for non-regional, especially non-agricultural actors to access land and thus curb price increases in this area. The extension of land transfer laws to include joint stock companies and limited liability companies might be a possible instrument. This would allow the granting authority to object to land purchases that endanger the agricultural structure. Another measure is giving preference to land leased or purchased by the public sector to regionally based farms. The study examines and evaluates the effects of and obstacles to the implementation of these (and other) options for preferential access to land for regionally based farms and develops corresponding policy measure proposals.

Main Target Group: (Departmental) research

M39: Expert assessment of the implications of including the aspect of “regional food security” in the catalog of municipal tasks of general interest

Objectives: Defining regional food security (in the sense of availability of resilient regional food supply structures that ensure at least rudimentary self-sufficiency in times of crisis) as part of basic services and thus as a municipal task, on a par with energy and water supply; contributing to strategic objectives O10, O11, O12.

Time Frame: By 2027 (commissioning by 2025).

Design: The report will address legal and governance aspects associated with an expansion of municipal public service tasks to include the guarantee of regional food security. At present, the municipal role in ensuring food security is limited to the few communal catering facilities, organizing markets, and land-use development aimed at facilitating the location of food outlets. Ensuring a rudimentary self-sufficiency in food from the region and developing corresponding value chains is not yet understood as a municipal task in the narrower sense. The will examine the implications of a more comprehensive approach to regional food security for municipal policy and assesses whether this would be conducive to a socio-ecological transformation of the food system.

Main Target Group: (departmental) research.

Overview: Measures to implement the three STErn-strategies

Plant-based · Organic · Regional · Cross-cutting/Integrative · coordinated implementation

2023 · 2024 · 2025 · 2026 · 2027 · 2028 · 2029 · 2030 · 2050

A. Policy Development & Integration

- Integrating the goal of plant-based nutrition into policy strategies and funding programs (M1)
- Integrating "organic" goals into policy strategies and funding programs (M2)
- Integration of the goal of strengthening regional value chains into policy strategies and funding programs (M3)
- Development and implementation of a federal program for plant-based nutrition (M4)
- Establishment of a non-profit organization for plant-based nutrition (M5)
- Establishment and coordination of a network for plant-based nutrition (M6)
- Promotion of community food environments that support plant-based diets (M7)
- Development of indicators for monitoring the strategy to "promote more plant-based diets " (M8)

B. Strengthening Demand & Value Chains

- Funding program for municipalities to establish (innovative) plant-based value chains (M9)
- Research and funding program for the establishment and expansion of value chains for organic food (M10)
- Promotion of regional networking bodies and value chain developers (M11)
- Research and promotion program for organic value chains (M12)
- Campaign "Sustainable nutrition" - sub-campaign "Plant-based nutrition" (M13) → Consolidation
- Campaign "Sustainable Nutrition" - sub-campaign "Regionality (M14) → Accompanying evaluation and impact analysis
- Communication strategy for the organic food and farming sector (M15)
- Support program for the implementation of the plant-based future DGE 2.0 quality standards in communal catering facilities (M16)
- Implementation strategy to expand and strengthen the organic approach in communal catering (GV) (M17)
- Expansion and intensification of sales of regional products with ecological and/or social benefits through out-of-home catering ((M18)
- Establishment of a nationwide " Future Canteen" as a central competence center for communal catering (M19)
- Introduction of reduced VAT for plant-based foods (M20)
- Examining the extent to which a performance-based assessment of the sustainability of companies can be integrated into the lending process (M21)
- Establishing sector-specific core sustainability indicators for SMEs in the further design of the CSRD (M22)
- Subsidizing beneficiaries of transfer payments for participation in prosumer models of food supply (M23)

C. Education, Knowledge, Innovation

- Funding program for the development and testing of teaching and learning content for vocational education and training to support plant-based diets (M24)
- Funding program for the development and testing of teaching and learning content for initial and continuing vocational training to strengthen regional value chains (M25)
- Guidelines for content in training regulations and framework plans to support plant-based diets (M26)
- (Training) campaign in the organic agriculture and food industry (M27)
- Support program "More training for more plant-based diets" (M28)
- Trainee program for plant-based value chains in the food industry (M29)
- Collection of meaningful statistics on organic agriculture and food (M30)
- Initiative to increase research and research infrastructures on organic agriculture and food (M31)
- Strategy for (further) development of breeding and health maintenance of plants and animals (M32)
- (Further) development and integration of (other) innovative sustainable production methods and use of findings for qualitative further development of the EU organic regulation (M33)
- Initiative for knowledge transfer of organic expertise for practitioners ((M34)
- Legal expertise on mandatory tendering in communal catering (M35)
- Promotion of status-quo analyses in the context of setting up regional nutrition strategies (M36)
- Study to reduce bureaucratic regulation for small businesses (M37)
- Study to improve land access for regionally managed farms (M38)
- Expert opinion on implications of including the aspect of "regional food security" in the catalog of municipal tasks of general interest (M39)

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