Protein transition in Amsterdam

Policy levers for a sustainable diet

CE Delft

Content

Protein transition in Amsterdam

Policy levers for a sustainable diet

This publication was written by:
Nikki Odenhoven, Pelle Sinke, Pien van Berkel (CE Delft)
Beth Preston, Daniel Stunell and Isabelle Williamson (Eunomia Research & Consulting)

Delft, CE Delft, August 2025

Publication number: 25.250133.168

Client: City of Amsterdam

All public CE publications are available via www.cedelft.eu

More information about the study can be obtained from the project leader Pelle Sinke (CE Delft)

CE Delft – Committed to the Environment

CE Delft is helping build a sustainable world through its independent research and consultancy work. Our expertise is leading-edge in the fields of energy, transport and resources. We support government agencies, NGOs and industries in pursuit of structural change with our wealth of know-how on technologies, policies and economic issues. Since 1978 the skills and enthusiasm of CE Delft's staff have been focused on achieving this mission.

Summary

Objective

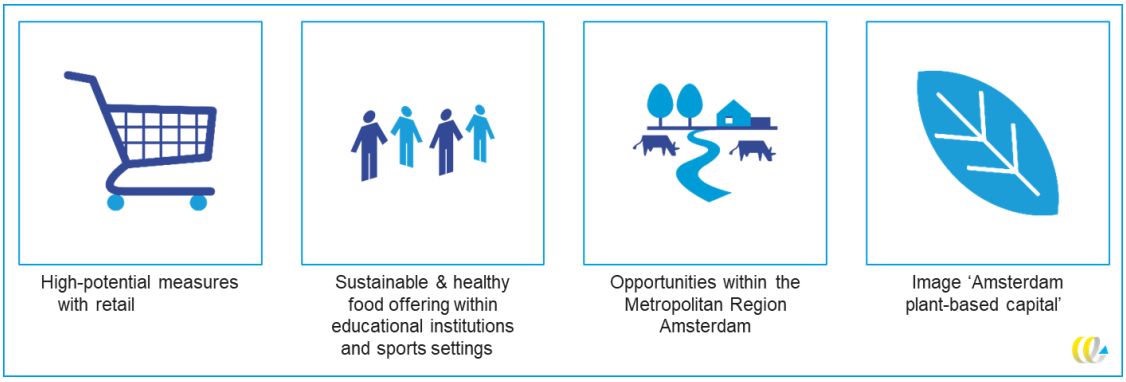
In its pursuit to become a net zero city, Amsterdam does not only focus on reducing scope 1 and 2 greenhouse gas emissions, but also on scope 3 emissions. As emissions from food consumption are dominant in scope 3, and animal protein products are the main driver of scope 3 emissions, Amsterdam wants to accelerate the transition from animal to plant-based proteins (protein transition).

The City of Amsterdam, via the NetZeroCities - EU Mission Platform for 100 Climate Neutral Cities by 2030, requested CE Delft and Eunomia Research & Consulting to research and assess what (additional) policy options could be effective in reducing emissions from food consumption and advance the protein transition.

Results

Together with the municipality, we selected four policy themes (see Figure 1) that are most promising in accelerating the protein transition in Amsterdam.

Figure 1 – Protein transition policy themes



These themes were selected because they offer a combination of strong potential for reducing emissions and high potential to change consumer behaviour. In addition, they focus on different target groups, build on existing strengths of the city and help address policy gaps where little action is currently taking place. Procurement powerful tool that is not on this list because Amsterdam already focuses on this.

Recommendations for Amsterdam

We recommend Amsterdam to implement policies based on the four key themes identified in this report:

- The **retail** sector is dominant in food consumption and therefore has high impact potential. Alignment with existing commitments in the Netherlands is helpful, and opening a dialogue with retailers on how the municipality can help them would be a first recommendation.
- The **educational sector** offers easy wins due to the relatively high level of control the city has, making it an ideal area for quick action.
- By building on the already established **collaboration in the Amsterdam Metropolitan Region (MRA)**, Amsterdam can strengthen the connection between the city and its citizens with regional food producers, and influence spatial issues.
- Amsterdam can use its control over measures such as tourist tax and the transshipment of goods through the Port of Amsterdam to strengthen its position as a **plant-based capital**. For the hospitality, events, and tourism sectors, a voluntary approach, such as through covenants or event criteria, could be effective as an initial step, with regulation considered if voluntary measures fall short.

Recommendations for other cities

To identify prioritisation areas within the protein transition, an approach similar to this report can be used by other cities. The first step is creating a longlist as a starting point, with ranking done according to the specific context of each city. Prioritisation should be a mix of high-scoring policies, leveraging the city's strengths and the extent of the city's influence in implementing certain policies.

Examples of policies with a high potential based on this project's longlist that can be interesting for other cities are:

- sustainable procurement policies, firstly within the own organisation and secondly at other organisations via coalitions and agreements;
- designing tailored interventions that relate to other policy goals, e.g. by including protein transition criteria in health or social food policy;
- applying pressure on the government to regulate the protein split in retail or negotiate agreements with retailers;
- regulating the food environment through bans or restrictions on food sales in specific locations or at events;
- city-level food policy has the flexibility to pilot innovative measures, In this way, cities can act as demonstration laboratories (also for national-level policy);
- appointing an alderman specifically responsible for the protein transition and a food council to ensure diverse perspectives are heard.

We identified six success factors for (food) policy that should be kept in mind when designing and implementing protein transition policies:

- **Effective policy combinations:** a combination of interventions is crucial, as evidenced by lessons from other cities and countries. For example, information campaigns to enhance public support, or maintaining 'hard' policies such as regulations in reserve where progress relies on 'soft' policies such as voluntary coalitions.
- **Policy clarity and longevity:** a clear, long-term vision with e.g. protein split or carbon footprint targets, and consistent communication of this vision are essential. This is also key for stakeholders so that they can align their efforts with the city's strategy.
- **Equitable impact and communication:** a broader narrative and linking to other food-related policy objectives such as health can make the message more inclusive and acceptable.
- **Leadership and inclusive engagement:** strong leadership includes diverse perspectives, e.g. by involving a food council.
- **Monitoring and evaluation** are strongly encouraged, as early as possible in the transition process. This is especially important given the evolving nature of the protein transition policy field and lack of empirical evidence currently available, with best practices for accelerating the protein transition (at the city-level) still in development. Continuous evaluation helps to adjust and improve policies over time.
- **Taking action:** we identified concrete first steps for each of the policy themes. These include exploring regulatory options to implement policies, setting up a multi-stakeholder learning network to share knowledge and identify barriers and exploring funding opportunities.

Contents

1 Introduction

1.1 Background

Across Europe, citizens are calling for a food system that is sustainable, secure, healthy, and fair.[1] Research consistently shows that reducing reliance on animal agriculture is essential to decarbonise the agri-food sector, restore ecosystems and biodiversity, while improving public health and building resilience and security into our future food system. Increasing the consumption of alternative sources of protein, such as plant-based foods, cultivated meat and fermented products, offer huge potential to achieving this vision, while delivering a range of social, cultural, and economic co-benefits.

Governments across Europe are beginning to recognise and respond to the need and opportunity for change at local, national, and international scales. In November 2024, a coalition including Germany, Denmark, Czechia, Estonia, Ireland, and Luxembourg submitted a joint proposal to EU agriculture ministers advocating for broader protein source diversification.[2] The paper emphasised the environmental benefits of increased reliance on plant-based proteins and called for an EU-wide protein strategy. At the national level, Denmark has launched a National Action Plan to promote plant-based foods,[3] with cities such as Aarhus launching a carbon tax on high-emission foods such as beef, and offering plant-based cooking courses.[4]

Amsterdam is taking bold action as part of their net zero commitments, with the Circular Economy Monitor identifying the consumption of animal proteins as the leading contributor to the city's scope 3 emissions, with emissions from plant-based proteins being substantially lower (Gemeente Amsterdam, 2024a). In response, the city has prioritised the protein transition as a key lever to cut emissions and advance animal welfare, [5] while

[1] Source: https://gfieurope.org/
[2] Source: Animal or plant? EU countries at odds over protein strategy | Euronews
[3] Danish Action Plan for plant-based Foods: https://en.fvm.dk/Media/638484294982868221/Danish-Action-Plan-for-Plant-based-Foods.pdf
[4] Source: Danish city Aarhus introduced CO_2 tax on beef & air travel - please copy paste! - True Animal Protein Price Coalition
[5] **Public health**: the City of Amsterdam committed to the City Deal Healthy and sustainable food environment and strives towards a healthy living environment with healthy food, especially around schools.
Animal welfare: the Animal Agenda 2024-2026 describes what the municipality is doing for animal welfare in Amsterdam.

also presenting the opportunity to improve health outcomes as major Dutch food institutes recommend a predominantly plant-based diet for optimal health and wellbeing.[6]

Amsterdam has already set itself apart as the first European capital to sign the Plant-Based Treaty and wants to encourage residents to have a diet consisting of 60% plant-based protein and 40% animal-based protein by 2030.[7] Its Food Strategy Implementation Agenda focuses on municipal procurement, supporting institutions to shift towards plant-based options, public awareness campaigns, and advocacy for stronger national targets.

To accelerate this work, the City of Amsterdam, via the NetZeroCities - EU Mission Platform for 100 Climate Neutral Cities by 2030 (from here on named NZC), commissioned CE Delft and Eunomia Research & Consulting to research and assess effective policy options for reducing food-related emissions and advancing the protein transition.

1.2 Objective and research questions

The main objectives of this research are to:

- Facilitate an evidence-based approach to reducing scope 3 emissions in Amsterdam's food system by accelerating the shift towards plant-based diets.
- Create an evidence review that can form the basis of a policy innovation trajectory that explores and prioritises relevant and realistic policy interventions.
- Provide actionable recommendations for next steps to accelerate the protein transition in Amsterdam.

The central research question is as follows:
What policy options can the City of Amsterdam implement to contribute to accelerating the protein transition in the most effective way?

To answer the central research question, we formulated sub-questions in three categories:

- **Impact:** What measures are the most effective in decreasing scope 3 food-related CO_2 emissions?
- **Scope of influence:** Which policy options are actionable within the municipality's scope of influence? What role can the City of Amsterdam play within the Dutch multi-level governance system to accelerate the protein transition?
- **Overcoming barriers and learning from other cities:** What are the key barriers and opportunities to implementing the policy options? What lessons in overcoming these barriers from other cities or jurisdictions can be transferred to Amsterdam?

[6] Both the Health Council of the Netherlands (*Gezondheidsraad*) and the Netherlands Nutrition Centre (*Voedingscentrum)* advice a 60:40 plant-based:animal protein ratio.
[7] See Amsterdam first EU capital to embrace the Plant Based Treaty | I amsterdam

1.3 Scope

We envisage three ways in which the City of Amsterdam can seek to achieve impact. Firstly, it could take action in areas under its direct control (e.g. via procurement). Secondly, it could seek to influence other actors in Amsterdam (e.g. businesses, residents, visitors). Finally, it could seek to influence wider changes (e.g. national policy).

This study focuses on the protein transition: a shift in dietary patterns from high consumption of animal-based proteins towards more sustainable, primarily plant-based proteins. Plant-based proteins are protein-rich foods derived from non-animal sources that serve as substitutes for meat, dairy and other animal products in human diets. Examples include legumes (e.g. lentils, chickpeas, beans), grains (e.g. bread, oats), nuts and seeds. Alternative protein sources with low greenhouse gas impact such as insects, algae and cellular (cultivated) meat are typically considered within the scope of the protein transition, even though they are not plants.

The original scope of this project was to identify 20 policies as part of a longlist, but we ultimately identified 75 policies. Despite this expansion, the list should not be considered exhaustive in terms of all possible protein transition measures for cities. Additionally, the deep dive focuses on policy themes rather than specific policies, which deviates from the original project scope and led to less detailed insight into the implementation aspects in the deep dives. The evidence about effectiveness of specific protein transition policies is limited and still emerging. In particular, quantitative evidence on the potential impacts of dietary shift is lacking, especially when compared to other food-related policy areas such as food waste, packaging, and health. Adjacent policy fields with greater evidence and research are therefore also of interest to this work. Two promising adjacent areas for consideration are behaviour change efforts in relation to food waste prevention and promotion of healthy diets. These are both policy outcomes that are centred on the complex area of food behaviours and attitudes for individuals, where change relies on actions by multiple stakeholders and individuals, and where policy changes at different levels are needed. Arguably, improvements in both these areas would also align with the protein transition, both in terms of outcomes and in terms of how action might be taken (e.g. the healthy eating message can be as powerful as the sustainability message in promoting a plant-based diet).

Given that protein transition policies are still early in development and best practice continues to evolve, our review will identify which measures show the greatest evidence of effectiveness and which may be promising, but as yet have less supporting evidence. Hence, our method of policy identification and shortlisting has involved a semi-quantitative assessment, with the use of expert estimates throughout.

The City of Amsterdam aims to reduce emissions from food consumption. In our evidence review, the primary focus is therefore on *consumption*-related measures, and changing the behaviour of citizens. Examples include education and information-based measures, economic and regulatory measures. Despite this, our review does include some producer-side measures and structural adjustments to the physical, social, and economic environment of consumers as these play a crucial role in shaping sustainable behaviour.

1.4 Research method

The method in this report consists of four main steps:

1. Longlist development: desk research and interviews were conducted to create a broad inventory of 75 potential policy measures, inspired by examples from other cities and policy domains.
2. Shortlist selection: the longlist was assessed using three criteria:
   - potential climate mitigation impact;
   - implementation cost;
   - likelihood of influencing behaviour or action.
3. Deep dive: based on the ranking in Step 2, and on other criteria brought in by Amsterdam, four policy themes were selected for further in-depth analysis. In this step we also conducted two expert interviews with frontrunners in the protein transition: the former deputy mayor of climate and agriculture of the City of Ghent, and a representative of the Danish vegetarian society.
4. Peer-to-peer (P2P) learning session: the outcomes of the deep dives were presented and discussed in a peer learning setting to facilitate knowledge exchange and feedback. As this P2P session will take place after delivery of the report, the findings are not incorporated here.

In Chapter 4 we describe each step in more detail.

1.5 Outline of the report

This report is structured as follows:

- Chapter 2 describes the present situation in Amsterdam regarding the climate impact of food consumption and existing food and protein transition policy.
- In Chapter 3, we provide theoretical background and outline factors for success when designing and implementing food policies.
- Chapter 4 describes how we identified possible policy measures (longlist) and prioritised the four policy themes for the deep dive.
- Chapter 5 presents the four protein transition policy themes that were selected to accelerate the protein transition in Amsterdam.
- In Chapter 6 we present our conclusions and recommendations.

Appendix A describes the policy landscape. It describes how the protein transition is mentioned in Amsterdam's policy documents and the multi-level policy landscape (regional, national and international food-related policies).

In the Supplementary Excel, the longlist of policy measures is included.

2 Present situation

This chapter describes the present situation in Amsterdam regarding food policy and the protein transition. First, we assess the climate impact of food consumption in Amsterdam. Second, we describe Amsterdam's present food policy and how it addresses the protein transition.

2.1 Impact of food consumption in the Netherlands and by Amsterdam's residents

Protein transition is an important leverage point to decrease the environmental and health impact of Dutch consumption patterns

A previous CE Delft study shows that food consumption is responsible for 20% of the total environmental impact[8] of the average Dutch person's consumption pattern (CE Delft, 2020). Another study by CE Delft (2023) on sustainable food for the municipality of The Hague shows that 85% of the climate impact[9] of food consumption is caused by animal proteins (meat, cheese and dairy) and that replacing a proportion of animal protein consumption by plant-based proteins (legumes, meat substitute, bread, etc.) is the most effective way to decrease the environmental impact of food. In a study by the Netherlands Environmental Assessment Agency (PBL, 2019b) it was calculated that adapting the average Dutch diet towards a diet with 60% plant-based proteins, reduces climate impact by 26%. These numbers show that food (and specifically the protein transition) is an important point of leverage for interventions that decrease the environmental/climate impact of the Dutch consumption pattern.

The climate impact of the total Dutch food consumption is approximately 35 million tonnes CO_2 equivalent per year (PBL, 2019a). As 5% of Dutch residents live in Amsterdam[10], we estimate that the total amount of carbon dioxide emissions caused by food consumption by Amsterdam residents is 1.8 megatonnes.[11] Amsterdam's Food Monitor (Gemeente

[8] Definition/scope environmental impact consists of climate impact as well as land use, acidification and eutrophication.

[9] Definition/scope climate impact: greenhouse gas emissions.

[10] Number of inhabitant in the municipality of Amsterdam 92025): 934,526 (source: Inwoners per gemeente | CBS). Number of inhabitants in the Netherlands (2025): 18,044,027. This means that Amsterdam makes up 5% of inhabitants.

[11] This is probably an underestimation of the total food-related climate impact in Amsterdam, as this number excludes the climate impact of food consumed by visitors/tourists.

Amsterdam, 2024b) shows similar findings (1,750 kton CO_2 emissions, which equals about half the emissions caused by energy consumption in Amsterdam).

In addition to environmental benefits, the protein transition also has health gains. According to the Dutch Health Council's advisory report 'Gezonde eiwittransitie' (Gezondheidsraad, 2023), a dietary pattern consisting of 60% plant-based and 40% animal-based proteins is not only more sustainable but also healthier for most Dutch people. It aligns more closely with the Dutch dietary guidelines ('Richtlijnen goede voeding') and helps lower the risk of chronic diseases. The Health Council further notes that such a shift does not pose a significant risk of nutrient deficiencies, provided it is implemented with basic nutritional knowledge.

Protein transition inherently provides spatial opportunities

The food system, and animal protein production in particular, has large influence on the spatial structure of the Netherlands, as well as globally. Over 60% of total land use in the Netherlands is in use for agricultural, and over 70% of agricultural land is used for production of animal proteins, either directly or indirectly via feed production (Strootman et al., 2024). It is well evidenced that that total food production per unit of land, and via that food self-sufficiency, is higher for more plant-based production and consumption, see e.g. Sun et al. (2022). This means that the protein transition inherently creates land use opportunities (because less land would be needed for agriculture), and therefore is an important factor in spatial planning in the Netherlands. The Netherlands has spatial issues related to food production, housing, nature (restoration), greenhouse gas emission reduction (e.g. in drained peatlands or through forestation), climate resilience, energy production (e.g. wind and solar energy on land), and feedstocks for the biobased economy. Including spatial aspects explicitly in protein transition policy can ensure policy goals for food production as well as other policy goals are met. An example would be to support livestock farmers on peatlands in transitioning to a new business model including plant-based protein production, extensive animal agriculture, nature restoration and maintenance, or energy production, or a combination of these (RLi, 2020).

Amsterdam is frontrunner in the protein transition, but action is still needed to achieve 40:60 animal:plant-based protein ratio

Amsterdam's Food Monitor shows that citizens of Amsterdam consume 52% animal-based protein and 48% of plant-based proteins The percentage plant-based is slightly higher in Amsterdam than the Dutch average, which is 43%. 19% of citizens of Amsterdam say they do not consume any meat, compared to an average of 5% in the Netherlands (Gemeente Amsterdam, 2024b). These numbers show that Amsterdam is a frontrunner in the protein transition in the Netherlands. However, action is needed to achieve a 40:60 animal-based:plant-based protein ratio.

2.2 Protein transition in Amsterdam's present food strategy

In this section, we give an overview of Amsterdam's current food policy and protein strategy. This is important to identify which policies are relevant to and would complement Amsterdam's existing food strategy. Firstly, we have reviewed Amsterdam's present food policy. We focus on the 'Implementation Agenda Food Strategy 2023-2026' (Gemeente Amsterdam, 2021b), which is the most relevant policy document regarding objectives and activities for sustainable food. In Appendix A, we explore other policy documents that are related to sustainable food or reference the protein transition.

The section 'multi-level policy landscape' in Appendix A gives an overview of the policy objectives regarding the protein transition by other regional and (inter)national governments.

Stimulating consumption of plant-based foods is one of the objectives of Amsterdam's food strategy

The City of Amsterdam wants to be climate neutral (zero CO_2 emissions) and circular by 2050.[12] Amsterdam wants to contribute to these goals through its food strategy. Amsterdam wants to reduce food waste by 50% in 2030 compared to 2015, "returning surplus food to the food system, reusing organic waste streams, stimulating the consumption of plant-based foods and ensuring there is more locally and sustainably produced food (25% in 2030) at a fair price on the Amsterdam market" (Gemeente Amsterdam, 2021b).

Amsterdam's Implementation Agenda Food Strategy 2023-2026 (Gemeente Amsterdam, 2021b) focuses on six actions, see Figure 2. Action line 6 ('more plant-based foods') focuses on the protein transition.

[12] Source: Volg het beleid: duurzaamheid - Gemeente Amsterdam

Figure 2 – Actions from Amsterdam's Implementation Agenda Food Strategy 2023-2026

Source: (Gemeente Amsterdam, 2021b).

Present activities to stimulate plant-based foods are centred around sustainable procurement and lobbying

Within the action 'more plant-based foods', the City of Amsterdam undertakes the following five activities:

- *Implementing a plan accelerating the transition to plant-based food and beverage supply within the municipal organisation*, together with the Facilities Office, Public Health Service (GGD) and Green Office.
- *Collaboration with Amsterdam public institutions on accelerating the transition to plant-based food and beverage offerings within their own organisations.*
- *Lobbying and collaboration in City Deal* (track 2, life-changing events – changing food patterns to become more plant-based), in collaboration with Rotterdam, Utrecht, The Hague, Ede, Almere and Wageningen.
  - The objective of the City Deal healthy and sustainable food environments is to make the food environment in 2030 predominantly healthy and sustainable -

especially around schools, in public buildings, in supermarkets, catering and hospitality sector.[13]

- *Sign the Plant Based Treaty*, as one of the first European cities.
  - The Plant Based Treaty is a global initiative urging individuals, groups, businesses and cities to support a call to action for national governments to negotiate an international Plant Based Treaty, which puts food systems at the heart of combating the climate crisis.[14]
- *Lobbying for increasing the protein ratio to 60:40 (plant-based to animal) by 2030.*

We conclude that the present activities Amsterdam undertakes in the field of the protein transition are centred around public procurement, coalition forming and lobbying. There is potential for Amsterdam to expand the scope its activities, e.g. by implementing economic, spatial planning and/or communicational policy measures.

Synergies with adjacent policy domains

The protein transition is also mentioned in other actions from Amsterdam's Implementation Agenda Food Strategy:

- Regarding action 3 'Healthy food environment', the City of Amsterdam mentions that a diet with more vegetable protein has a positive impact on health (see also Section A.1).
- In Action line 5 'Entrepreneurship and AmsterDoen' the protein transition is also mentioned. Amsterdam wants to support, connect and facilitate innovative start-ups and scale-ups, "particularly focused on more plant-based foods and protein transition".

On top of that, synergies are possible with adjacent policy fields. For instance, the Strategy Circular Amsterdam 2020-2025, the Health Policy 2021-2025 as well as the Strategy on Spatial Planning and the Environment stress the need to stimulate healthy and sustainable food. On top of that, the Animal Agenda 2024-2025 strives towards increasing the consumption of plant-based food and decreasing intensive livestock (see Appendix A.2 for more links with adjacent policy fields).

[13] Source: Gezonde en duurzame voedselomgeving - Agendastad
[14] Source: The Plant Based Treaty | Eat Plants, Plant Trees

3 Theoretical background

In this chapter, we describe the need for urban food policy, go into the evidence base regarding protein transition policy and present success factors for designing and implementing effective food policies.

3.1 Multi-level policy landscape: why cities should take action to accelerate the protein transition

Food is not traditionally seen as the responsibility of local authorities and many policy measures to stimulate the protein transition are outside of the city's local legal mandate (e.g. implementing a meat tax). However, cities play an important role in providing food to their citizens. On top of that, food makes significant contributions to the fabric of cities. Therefore, cities can play a key role in accelerating the protein transition.[15]

The most important instrument that cities have at their disposal to reach all of their citizens, are related to **urban planning**. Furthermore, urban food policy brings the advantage of direct proximity to citizens, producers and institutions, hereby enabling **tailored interventions**. Another advantage of developing and implementing food policy on a local level, is that city-level food policy has the flexibility to pilot innovative measures, In this way, cities can act as **demonstration laboratories**. If proven successful, cities can **lobby** for implementing such measures on a national scale.

The most important instrument for Amsterdam at this moment is **sustainable procurement**. Within their own organisation this is an effective measure to guarantee the protein transition takes place. Within coalitions of organisations (public, semi-public and private) their experience and tools for sustainable procurement are offered and stimulated, and through this the municipality aims to reach a wider audience. By procuring food sustainably, cities stimulate the development of a more sustainable food market and normalising more sustainable and healthy consumption.

[15] Source: Why and how to develop urban food policies? - Eurocities

3.2 Evidence in protein transition policy

Evidence on protein transition policies is growing

Across Europe, evidence on protein transition policies shows a growing but uneven landscape of initiatives aimed at encouraging greater consumption of plant-based proteins. Several countries, particularly in Northern and Western Europe, have begun to integrate protein transition goals into national food and climate strategies, emphasising the environmental and health benefits of reducing animal-based protein consumption. For example, Denmark launched a dedicated National Action Plan for Plant-Based Foods in 2021, including investment in innovation, education, and export promotion.[16] Germany's updated National Nutrition Strategy also prioritises a shift towards more plant-based diets, reinforced by changes to public procurement standards.[17] At the EU level, overarching frameworks such as the Farm to Fork Strategy highlight the role of sustainable diets, but binding regulation directly targeting protein transition remains limited.[18] Reviews of policy evidence in this field emphasise that while there are promising examples, Europe is at an early stage of coordinated action, with best practice policies still emerging to support the protein transition for both consumers and producers.

Effectiveness of interventions for sustainable dietary behaviours

A recent review by Ran et al. (2025) evaluated the effectiveness of a wide range of interventions for their behavioural change. We summarised the findings of this report in the following text box. These findings were kept in mind when creating the longlist (making sure the suggestions of policy types such as using nudges and strengthening food environment were incorporated as policies. Furthermore, the suggestions and findings are in line with the success factors (e.g. on designing effective policy combinations) which we propose in Section 3.3.

Summary of main findings review "Are interventions for environmentally sustainable dietary behaviours effective?"

This report emphasises the need for a combination of intervention strategies, such as information-based approaches and environmental restructuring, to drive sustained behavior change. Single strategies, like informational campaigns, are generally insufficient in significantly altering consumer behavior on their own. The review highlights several barriers, including entrenched food habits, social norms, and motivational challenges, particularly in shifting diets away from meat consumption. These barriers make interventions targeting dietary changes more difficult than those focused on food waste reduction. The review suggests that policymakers should promote tailored multi-component interventions, design strategies specific to different

[16] Source: Action Plan on Plant-Based Foods - Ministry of Food, Agriculture and Fisheries of Denmark
[17] Source: BMLEH - Publications - Good Food for Germany - The Federal Government's Food and Nutrition Strategy
[18] Source: Farm to Fork Strategy - European Commission

groups, use nudges strategically, strengthen food environment design (e.g. by increasing the availability of plant-based options), enhance education and training on sustainable diets, support reduction of meat consumption through structural and informational policies, and engage stakeholders across the food system to scale effective measures.

3.3 Success factors for (food) policy

This section outlines factors for success when designing and implementing food policies. These have been grouped into six themes. While these success factors were not directly involved in the ranking and prioritisation of the protein transition policy themes outlined in the deep-dive, they were used to:

- Review the combination of policies shortlisted, to encourage a complementary and synergistic policy mix presented.
- Support the shaping of the 'Communications', 'Impact Potential', and 'Challenges and trade off's' sub-sections for each deep-dive, to help maximise the potential impact and overall effectiveness of the policies discussed.

Overall, designing effective food policy requires strategic combinations, long-term thinking and a commitment to equity and impact. These themes echoed with the values communicated by Amsterdam during the research, and have therefore been prioritised throughout the deep-dive analysis. Strong governance, clear communication and real-world action guided by evidence are all essential success factors. With careful planning, alignment and ambition, food policies can contribute significantly to achieving environmental, health and social objectives.

1. **Design Effective Policy Combinations**
   Effective policy design considers the interplay *between* a range of policy measures, and how they collectively contribute to multiple political objectives simultaneously. Within food policy, these objectives could span across economic sustainability, public health, food security, inequality, agriculture and climate change. For Amsterdam, food policy is distributed over different policy areas, and the protein transition can be seen as a solution to a range of societal challenges. Additionally, the acceptability of the protein transition to the public may be enhanced where it is aligned to broader societal narratives such as around improved health, access to affordable food and supporting local supply chains. Finding connections between policy areas to support framing and delivery can therefore increase stakeholder buy-in and behaviour change. Furthermore, some policy interventions may be insufficient alone to deliver the speed and scale of change desired, and therefore the interaction of different policies can improve overall effectiveness.

As an example, where policies are targeting behaviour change, communication is essential for public understanding and acceptance. However, communication *alone* is often insufficient for driving real change. Soft approaches (e.g., awareness campaigns) may need to be accompanied by harder policy tools (e.g. regulation or fiscal measures) to be effective. In doing so, different aspects of the COM-B framework for behaviour change (capability, opportunity, motivation)[19], can be addressed, making behaviour change more likely.

While aligning policies to support several goals can create synergies ('killing two birds with one stone'), it is equally important to avoid overburdening individual policies with too many aims. Simplicity and focus can yield better outcomes in certain contexts. For example, within food policy, it is important to clearly distinguish whether a measure is primarily focused on protein transition (e.g. reducing animal protein consumption), or another objective such as salt or sugar reduction, food waste, or public health, that may have a co-benefit in terms of the transition.

Sequencing is another consideration for policymakers to help maximise impact, being particularly relevant for economic instruments. For example, an escalating tax or charge that which rises predictably over time may create market certainty but not impose an immediate huge jump in price.

2. **Design for Policy Longevity and Clarity**

Long-term commitment is vital to give direction and confidence to key stakeholders, such as retailers, industry actors and investors. Clear targets, well-defined audiences and plans for monitoring can help build trust and momentum. In food policy, this might mean establishing timelines for nutritional reformulation or other regulatory changes, providing the clarity retailers and manufacturers need to prepare and adapt.

Policy framing also matters, especially around politically sensitive topics such as income and inequality, as well as animal welfare, development and landscapes. A focus on the social and economic benefits of food policies, such as improved access to healthy foods, leading to increased quality of life, productivity and reduced healthcare costs, can build broader political and public support.

Despite this, policymakers should also recognise that the solution to an inequality concern in a 'green' policy may come via non-green policy rather than a policy redesign. For example, policymakers could seek to make food price rises in animal-based protein, balance out reductions in price of plant-based protein or fruit and vegetables. Alternatively, the revenue could be used to target money at

[19] The behaviour change wheel: A new method for characterising and designing behaviour change interventions - PMC

disadvantaged groups in a separate way, such as via the benefits system. Sometimes, asking green policy to fix the environment and inequality simultaneously, can be a hard design requirement.

3. **Plan for Equitable Impact**
   Just as important as how a policy is designed, is how a policy is communicated and received by the public – which often influences its success as much as the policy's actual content. A strong policy should anticipate public perception, and mitigate potential unintended consequences, particularly those that may impact vulnerable groups. In the food system, affordability and nutrition are especially important for public buy-in, particularly in the context of a protein transition. As a result, communication strategies should be evidence-informed, sensitive and strategically assessed.

   Additionally, where policies generate public revenues (e.g. through taxes or levies), these should be strategically reinvested to support equitable outcomes. In food policy, this might involve using tax revenues to subsidise healthy and sustainable food products, helping to offset regressive impacts and increase accessibility.

4. **Ensure Strong Leadership and Inclusive Engagement**
   Strong, coordinated leadership is essential[20] throughout policy design, implementation, and evaluation. Effective governance requires cross-departmental collaboration, particularly in food policy, where environmental, health, economic and agricultural objectives intersect. Establishing clear roles and accountability is therefore crucial to success. One approach could involve creating a cross-governmental Food Council to ensure coherence and integration.

   Additionally, while local-level action can be a powerful enabler of change, it should be supported rather than relied upon exclusively. Empowering local actors with resources and guidance can help ensure that national ambition is translated into action on the ground.

5. **Plan for Robust Monitoring and Evaluation**
   The food system is complex, making it difficult to predict the effects of measures, experiments and initiatives in advance. However, by monitoring these effects, adjustments can be made, and lessons can be learned about making the food system more sustainable. According to PBL (2019a) it is important that when setting up a monitoring system, the various preferences and values surrounding sustainable food in society are taken into account. Such a monitoring system may include indicators such as land use, greenhouse gases, regional products and

[20] The Netherlands Environmental Assessment Agency (PBL, 2019a) also states that governments with a clear vision and well-defined goals can encourage and guide residents and businesses towards sustainability.

animal welfare. Be ready to incorporate insights from monitoring and evaluation into adaptive programme management. Amsterdam's vision is ambitious, and there is no single perfect model to copy from elsewhere. So, learning and optimising as delivery progresses is essential. Insight may also come from elsewhere - Amsterdam will not be alone on this journey.

Establishing a transparent monitoring and evaluation framework from the beginning is key to tracking progress, making improvements and building accountability. Policies should include clear metrics and processes for measuring impact and learning from successes and failures. Drawing from broader networks such as Net Zero Cities, may provide valuable insights into what works elsewhere and how it can be adapted.

Possible indicators for monitoring the protein transition

Establishing a robust framework for monitoring and evaluation is strongly encouraged – and from the very beginning. Monitoring the effects of food policies is essential for tracking progress, building accountability, enabling adaptations, and for sharing lessons learned as other cities embark upon similar protein transition journeys. While indicators for monitoring will vary according to specific policies, examples could include:

- Consumption indicators, such as: share of plant-based versus animal-based protein as a percentage of total protein consumed; sales data of plant-based protein products compared to meat and dairy; frequency of plant-based meals consumed outside the home; ratio of plant-based to animal-based meals or snacks served in public settings.
- Environmental indicators, such as: greenhouse gas emissions associated with national protein consumption (CO_2e/capita); land use intensity of protein production (ha/kg of protein).
- Economic indicators, such as: public and private investment in alternative protein R&D per year; number of new plant-based products launched on the market per year).
- Social indicators such as: consumer awareness of health and environmental impacts of protein sources (% of population); public acceptance of plant-based products (survey data).
- Health indicators, such as: prevalence of diet-related chronic diseases (e.g. obesity, cardiovascular disease); alignment of diets with national dietary guidelines (grams/day).

Drawing from broader networks such as Net Zero Cities, may provide valuable insights into monitoring and evaluation frameworks used elsewhere, and how these could best be adapted for Amsterdam.

6. Take action

While consultation and design are important, action must take precedence over excessive deliberation. Where uncertainty exists - particularly regarding political or public acceptability - piloting can offer a useful strategy. However, pilots should be used with caution:

- small-scale pilots may not accurately predict large-scale impact at the population-level;
- start-stop pilots can risk wasting resources, especially as initial phases (e.g. staff training, habit-building) are the most resource-intensive, and these benefits can be lost when the pilot stops.

Instead, policymakers should aim for continuity and scaling up where possible. Where robust evidence or previous research already exists, policymakers should build on it rather than duplicating efforts, enabling quicker wins and faster impact. And where insight comes from delivery in Amsterdam, adapting delivery may retain momentum more than a stop-start cycle of small initiatives.

4 Inventory of policy measures and prioritisation

An inventory of possible policy measures for Amsterdam was made, resulting in a longlist. This longlist was assessed using several criteria, which helped to determine which policy themes should be prioritised for Amsterdam. This chapter describes the process used for this synthesis.

4.1 Longlist

The goal of the longlist was to create an inventory of potential policy measures related to the protein transition, food waste and general food policy. We began with input from the kick-off meeting with the City of Amsterdam and Dark Matter Lab, who provided relevant materials. This was supplemented by desk research and interviews with two stakeholders in the Amsterdam organisation: one from the Trade & Invest team and one from the Food Procurement team.

For each policy we identified the following components:

- policy group and subgroup;
- reference example (from other cities, governments, or sectors);
- target audience;
- type of policy instrument;
- main behavioural change function;
- food transition theme.

Table 1 summarises the policy groups and subgroups identified, and the number of policies identified in each of these. The full longlist for all 75 policies and the above components can be found in the Supplementary Excel. Please note that this longlist does not represent an exhaustive overview of all potential protein transition measures for cities. The scope of this project was to identify approximately 20 policies as part of the longlist, which we have exceeded, but in reality, more than 75 policies are certainly possible.

Table 1 – Summary of the policy groups, subgroups and number of policies identified in the longlist

Policy group	Policy sub group	# of identified policies
Governance	Develop, implement and monitor a municipal food transition policy	5
Advertisement & Marketing	Restrict the sale of unhealthy and unsustainable foods	7
	Promote the sale of healthy and sustainable foods	
Education & Upskilling	Upskill food industry about plant-based cooking and food waste reduction	14
	Support public education on sustainable and healthy eating	
	Facilitate knowledge and learning exchange across key stakeholders	
Adapting Food Choice Environments	Influence consumer behaviour change	17
	Decrease availability of unhealthy and unsustainable foods	
	Increase availability of healthy and sustainable foods	
Public Procurement	Establish new sustainable public procurement requirements	8
	Lead by example through changes to municipal organisation	
R&D	Work with industry on research projects	9
	Undertake research and trials with academia and public sector	
Regulating & Influencing Industry	Set regulatory targets / restrictions aimed at industry	15
	Implement taxes on industry	
	Incentivise action through other financial mechanisms	

4.2 Ranking

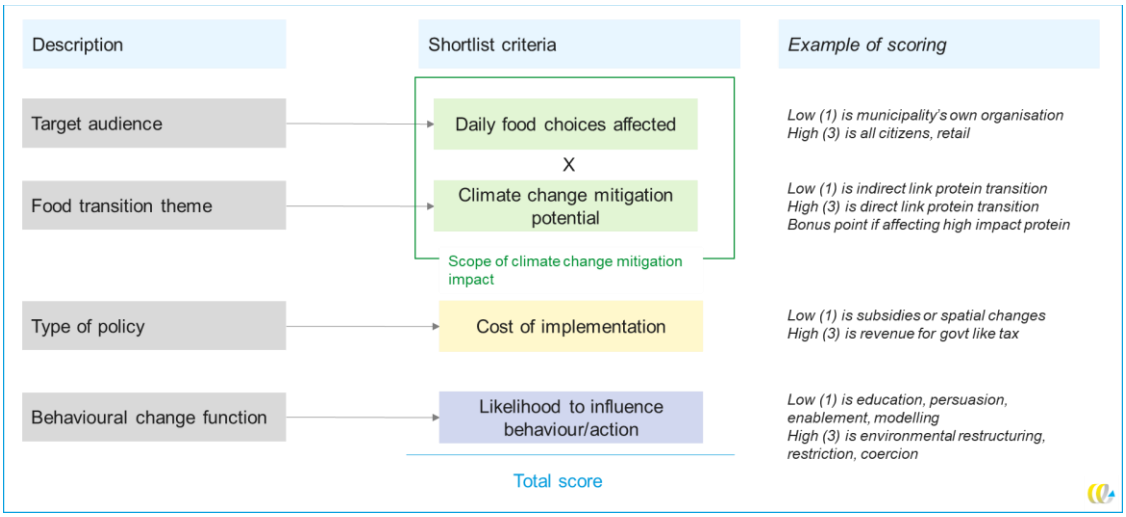
To prioritise the policies on the longlist we ranked the policies according to a high-level, semi-objective scoring method. This was based on three main criteria which were ranked on a scale from 1 (low impact) and 3 (high impact) (as shown in Figure 3):

1. Climate change mitigation potential.
2. Implementation cost.
3. Likelihood to influence behaviour or action.

In certain cases, specific contextual factors were also considered, leading to adjusted scores in some cases (e.g. if a policy targeted specifically high-impact animal proteins, extra points were given for climate change mitigation potential). These contextual factors will vary across cities, meaning the ranking method may differ depending on the specific context. Each policy received an aggregated score based on these criteria, which we categorised in ‘Low’, ‘Medium’, ‘High’ and ‘Very high’. An overview of the scores for each

of the 75 policies can be found the Supplementary Excel. Disclaimer: the ranking of the three criteria was based on expert estimates. Specifically, for climate change mitigation potential, we focused solely on whether a policy directly targets the protein transition, assigning maximum points in such cases. A more detailed or alternative approach could yield different scores. Additionally, as certain factors vary across cities, the ranking method may differ depending on the specific context. The primary aim of the ranking is to stimulate discussion and offer inspiration, rather than to provide a precise, definitive score.

Figure 3 – Summary of ranking methodology of policies



4.3 Highest scoring policies

Policy grouping	Policy sub grouping	Measure	Example	Ranking
Adapting Food Choice Environments	Decrease availability of unhealthy & unsustainable foods	Ban on non-vegetarian food (examples include a complete ban and a ban within a set radius of temples and heritage sites).	Several cities in India	Very high
Regulating & Influencing Industry	Set regulatory targets/ restrictions aimed at industry	Make agreements with the major retailers in Amsterdam about how they will achieve their own formulated protein transition targets (mostly 60% plant-based in 2030) and discuss how Amsterdam can facilitate/incentivise this.	-	Very high
Governance	Develop, implement and monitor a municipal food transition policy	Appoint an alderman in the council with the protein transition specifically in the portfolio.	Groningen	Very high
Adapting Food Choice Environments	Influence consumer behaviour change	Encourage nudging through changing the routing and promotional strategies in supermarkets for protein products, especially beans and whole plant foods.	Belgium (Flanders)	Very high
Adapting Food Choice Environments	Decrease availability of unhealthy & unsustainable foods	Regulate the food environment by restricting the sale of unhealthy food (fast food) in or near schools through site allocation policies (standplaatsenbeleid).	Zwolle, Groningen, London and Chile	Very high
Adapting Food Choice Environments	Increase availability of healthy & sustainable foods	Regulate food environment at events. i.e. ban non-vegetarian food at festivals or Encourage vegetarian stalls at festivals through rate reduction.	Groningen	Very high
Adapting Food Choice Environments	Increase availability of healthy & sustainable foods	Stimulating healthy food offerings at schools, sporting locations and other semi-private facilities.	Milan	Very high
Adapting Food Choice Environments	Increase availability of healthy & sustainable foods	In collaboration with hotels: make vegetarian/plant-based breakfast the default option for tourists.	-	Very high
Regulating & Influencing Industry	Set regulatory targets/ restrictions aimed at industry	Require mandatory reporting on animal:plant protein split among food businesses, and lobby for a mandatory share of sustainable proteins for retailers, where they are being held responsible for achieving (e.g.) 60% plant-based protein sales.	France	Very high

4.4 Prioritisation for Amsterdam

The goal of this step was to narrow down the longlist of 75 policies to 3-5 prioritisation policies. The ranking of policies served as input for an open discussion with the City of Amsterdam. We presented a list of the highest-scoring policies, but the final selection for deep dives was made by the municipality. Amsterdam based its final choice not only on the objective scores, but also on broader strategic considerations, including the diversity of target audiences, potential for inclusive/social impact, potential for tangible land use impact in MRA, diversity of policy type and synergy with other policy objectives (socio-economic, health, food waste). Notably, Amsterdam opted to select policy themes rather than individual policy measures. This aligns with the understanding that meaningful change often results from combinations of interventions, not isolated actions.

The following four policy themes were prioritised by Amsterdam:

1. High-potential measures with retail.
2. Sustainable and healthy food offering within educational institutions and sport settings.
3. Opportunities within the Amsterdam Metropolitan Region (MRA).
4. Image of Amsterdam as a 'plant-based capital'.

Please note some high-scoring policy themes were not selected for further analysis. A brief rationale is provided below:

- **Procurement**. Amsterdam has developed a framework for the food and beverage product group (this is an internal document) that outlines how to sustainably source food and drinks. The goal is to provide inspiration and practical tips to other organizations so they can implement these practices. The protein transition is a key element of this document. Examples include ensuring that plant-based options are always available and aiming to have a certain percentage of procurement come from plant-based proteins. Since Amsterdam uses this internal document as a source of inspiration for other parties, and increasingly incorporates these requirements into procurement processes, they are considered pioneers on this topic. As such, it was not included in the deep dive analysis.
- **Port of Amsterdam***:* The emissions of transhipment do not directly fall under the scope 3 emissions of the city of Amsterdam. Therefore, these emissions are out of scope. We have however included this policy under the 'Image of Amsterdam as a plant-based capital' but did not make a separate theme for it.
- **Governance**: The policies in this group are important for implementing the food strategy but are regarded as supporting measures rather than core focus areas. For example, appointing an alderman responsible for the protein transition is seen as a means to an end, not a policy in itself. Other governance measures are therefore included as supporting policies in our deep dives.

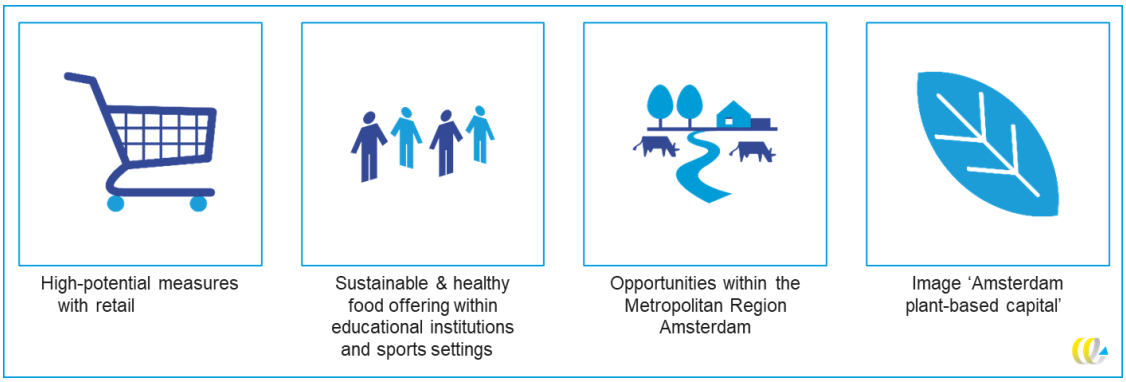
5 Deep dive into four protein transition policy themes

In this chapter, we take a deep dive into the four policy themes that were selected to accelerate the protein transition in Amsterdam (Figure 4):

- high-potential measures with retail;
- sustainable and healthy food offering within educational institutions and sports settings;
- opportunities within the Metropolitan Region Amsterdam (MRA);
- image 'Amsterdam plant-based capital'.

For each of the themes, we describe the policy aims, scope and reasons why it was prioritised. Furthermore, we give examples of specific policy measures that were implemented in other cities and the impact potential of the policy theme. In addition to this, we explore the synergies with other policy objectives of the city of Amsterdam, present the relevant stakeholders and considerations regarding communication. Finally, we describe the initial actions that Amsterdam can undertake to put the policies into practice. For all deep-dives, the policy success factors were used to inform and shape the assessment and recommendations made, particularly with regards to sub-sections covering: policy synergies; communications; challenges and trade-offs; and impact potential.

Figure 4 – Protein transition policy themes



Expert interviews to support the deep dives

As part of the deep dives, we conducted two expert interviews:

- one with the former deputy mayor for climate and agriculture of Ghent;
- one with a representative from the Danish Vegetarian Society who contributed to the design and delivery of Denmark's Action Plan on Plant-Based Foods.

Both Ghent and Denmark have made substantial progress in the protein transition. Their lessons learned and success factors have been integrated into the deep dive analyses.

5.1 High-potential measures with retail

Overview	
Policy Aims & Scope	This policy theme is targeted at the food retail sector operating in Amsterdam through regulatory measures as well as advisory support and multi-sector collaboration. These policies aim to: 1. Increase the supply and demand of plant-based proteins in the food retail environment. 2. Encourage reductions in operational and household food waste.
Reason for priority	This theme has been prioritised due to the high potential for impacting CO_2 reduction and because it represents an opportunity where Amsterdam has not yet taken broad action. It can build on existing initiatives and leverage strong partnerships between the city and business community, for instance through relationships with retail, trade and investors. Food retailers are seen as a high impact target audience for the protein transition because they: • **Account for the majority of protein sales (~70% in the Netherlands)[21]:** Most protein consumption is channelled by the food retail sector, surpassing other market sources and distribution methods. • **Shape food environments:** Food retailers decide what products are available, and how they are priced, promoted placed. As well as being highly influential in shaping food environments, they also respond to consumer demand (often quicker than government, through pricing, marketing, packaging, communications, labelling), and are extremely experienced in doing so to influence consumers as part of their overall business model. • **Have a wide and regular consumer reach:** Food retailers reach nearly every household on a regular basis, influencing several meals a day, representing significant potential to normalise healthier and more sustainable choices across wide population. • **Have significant power over suppliers and producers**: Food retailers have the power to influence changes in production practices through implementing sustainability standards, reformulation strategies, and negotiating contracts. • **Influence wider industry:** Food retailers can have knock-on effects in the wider food industry, by setting industry norms and pushing competition to follow suit. • **Can be an innovation and data hub:** Food retailers can pilot innovations and hold a lot of consumer purchasing data to track trends and monitor changes.

[21] Source: Detailhandel food: veranderende consument vraagt meer creativiteit - Rabobank

	With some food retailers in the Netherlands already committed to change, this policy theme aims to identify how the City of Amsterdam can encourage and enable the change to go further and faster. Food waste prevention is included as another area that already commands broad support; the benefits in terms of the protein transition will come from reduced waste of animal-based proteins, and the opportunity to explain the specific benefits of waste prevention in this context will support wider messages and reconsideration of diets.
Policy in practice	There are numerous policy measures that the municipality of Amsterdam could take to target change in the food retail sector. Below, we explore three policy themes: 1) adapting food choice environments through retail nudging, 2) building partnerships with retailers, and 3) driving retailer reform through targets, regulation and product reformulation. For each policy theme, examples of specific policy measures are provided. 1. **Policies that aim to change consumer behaviour through adapting food choice environments:** Retailers are powerful influencers in the food system and are extremely experienced in knowing how to communicate with and shape the choices of their customers. Retailer actions to nudge customer choices can include changing promotional strategies for protein products and to reduce food waste, changing packaging for longer shelf life to help customers use food more efficiently. Retailers have already experimented with encouraging sustainable behaviours (e.g. food waste prevention) in many different countries and contexts. It is also the case that retailer actions can be counterproductive (e.g. if they use these tactics to promote animal-based proteins) - having retailers on board is therefore essential to success. Retailers may also be well placed to participate in and gain conclusive data on the effectiveness of interventions and pilots, given the large volumes of products they sell, and the high degree of product, sales and marketing data they collect. Amsterdam could partner with retailers to support, inform and encourage nudging techniques used in supermarkets. For instance, in Belgium the Flemish government undertook nudging studies together with the retailer Colruyt, in which the routing in the supermarket was changed for protein products.[22] Other changes, such as reformulation, may not directly impact consumers at all, or provide cheaper alternatives such as 'beef and veg' mince,[23] which reduces the meat content, while providing an ingredient that can be used in the same way while cooking. *Relevant policies could include:* • *Encourage retailer nudging through changing the routing and promotional strategies in supermarkets for protein products, especially beans and whole plant foods.* • *Encourage retailer nudging through retail practices that support consumers to reduce household waste (pricing and promotional strategies, pack and portion size, store layout designed to promote higher waste purchases, packaging for longer shelf life).* 2. **Policies that aim to build partnerships between the City and retailers:** For the City of Amsterdam, the challenge under this theme is to encourage and enable changes that favour the protein transition. In the Netherlands, this can build on existing national commitments by retailers. Amsterdam could take this further by developing partnerships with retailers at local level - reflecting the fact that retailers are a key interface with citizens when it comes to food. By collaborating to create and monitor pilot projects and supporting retailers to make and deliver protein transition targets (with City of Amsterdam facilitating, and perhaps, incentivising), longstanding collaborations can be formed. As an example from Denmark, the national government collaborated with Lidl on an initiative which aimed to increase consumer consumption of legumes and pulses.[24] Municipalities, private kitchens, producers, and other stakeholders worked together to set targets and actions for how they would help increase

[22] Source: https://www.wri.org/research/playbook-guiding-diners-toward-plant-rich-dishes-food-service
[23] Source: https://www.tesco.com/groceries/en-GB/products/309484201
[24] Source: Interview with the Danish Vegetarian Society, 06.08.2025

consumption of pulses. Other national examples include the UK's Food and Drink Pact[25], originally focused on food waste and packaging, which facilitated exchange of best practice and linked retailer action to national and local campaigns on the Love Food Hate Waste brand, including local pilots. Government support ensured there were no concerns about collaboration being anti-competitive. Amsterdam could instead build such partnerships at local level, emphasising community and localised elements.

Relevant policies could include:

- *Monitoring and developing pilot projects with retail and restaurants, including a potential protein transition project with a food retailer.*
- *Make agreements with the major retailers in Amsterdam about how they will achieve their own formulated protein transition targets (mostly 60% plant-based in 2030) and discuss how Amsterdam can facilitate/incentivise this.*

3. **Policies that aim to drive retailer reform through regulation, targets, and product reformulation:** Some enabling factors for the above shifts may sit outside the jurisdiction of City of Amsterdam, but Amsterdam could take a key role in encouraging retailers directly, and in encouraging change in the wider regulatory environment, from target setting to monitoring structures. Key desirable outcomes would include mandatory reporting of animal:plant protein sales split across all food businesses. Furthermore, lobbying national government for regulatory targets on the nutritional reformulation of products to improve the nutritional quality of food products sold could deliver change at retailers and manufacturers. This has been done in the UK through a soft drinks industry levy (SDIL) or 'sugar tax', which is applied to UK-produced or imported soft drinks containing added sugar.[26] The tax has been widely regarded as a success, with the total sugar sold in soft drinks by retailers and manufacturers decreasing by 35% between 2015 and 2019, resulting in a lower overall daily sugar intake both for children and adults. In practice, many producers reformulated products to avoid paying the tax, so this policy did not necessarily increase prices for many products. A salt reformulation tax has since been recommended for use in processed foods and drink.[27] Implementing a similar policy for the protein transition would require building a strong evidence base that links reformulation with public health outcomes, designing regulatory targets, and defining categories, timelines and enforcement mechanisms. It would also involve mobilising support from public and health organisations to lobby government, as well as working with food businesses to understand barriers to reformulation. Engagement of food businesses in voluntary pilots or early compliance would result in retailers or manufacturers introducing systematic reformulation of products. Gaining support and working with public health agencies will ensure they are prepared to monitor progress and compliance of retailers and manufacturers.

Relevant policies could include:

- *Require mandatory reporting on animal:plant protein split among all food businesses, and lobby for an industry-wide mandatory share of plant-based proteins for retailers, where they are being held responsible for achieving (e.g.) 60% plant-based protein sales.*
- *Require mandatory reporting on food waste among all food businesses, and lobby for restrictions that ban food retailers from disposing of food waste in commercial waste settings*[28]*.*
- *Lobby for regulatory targets for the nutritional reformulation of products (to be aimed at retailers & manufacturers).*
- *Lobby for a mandatory maximum average carbon footprint of protein to be procured or sold by retail, catering or restaurants.*

[25] Source: UK Food and Drink Pact | WRAP - The Waste and Resources Action Programme
[26] Source: Sugar tax | Institute for Government
[27] Source: SHEFS Impact of salt + sugar tax FINAL.pdf
[28] Source: Food waste - Who is responsible for what? - CircuLaw

	• *Lobby for a tax on animal products based on their external costs to society, the revenue of which could be used to finance the sustainable transition of the food system and compensate low-income households.* • *Lobby for a tax on sugar, salt or fat based on external costs to society, the revenue of which could be used to subsidise access to healthy products such as fruit and vegetables.* • *Lobby for mandatory restrictions on retailers on multibuy or BOGOF offers on unsustainable and unhealthy, similar as is done in the UK for HFSS food.*
Impact potential	Compared to other policy themes, this theme represents high CO_2 reduction potential given that most protein consumption is channelled by the food retail sector. As a result, even small percentage changes in retail protein sales will have significant impact. **Policies that aim to change consumer behaviour through adapting food choice environments** Nudging consumers towards plant-based proteins in retail settings could have high CO_2 reduction potential due to the potential to influence food decisions for a majority of citizens in Amsterdam - however, this change is not directly or wholly driven by City of Amsterdam hence the lower rating. The reduction potential is dependent on the success of consumer behaviour change efforts, which is somewhat uncertain. This will in part, be driven by the effectiveness of the nudge approach, with some prompts (e.g. pricing) likely to be more impactful than others (e.g. marketing only). **Policies that aim to build partnerships between the City and retailers** For the City of Amsterdam, developing retailer partnerships could lead to medium CO_2 reduction potential. Developing partnerships with retailers to support, encourage and enable them to take action on protein transition, may deliver savings in the supply chain (upstream only), or as a result of changed consumer sales and demand (downstream changes with resulting upstream impact). Again, Amsterdam's impact may be indirect, but even a small influence has the potential to scale to large savings. Lessons are also more likely to be replicated and scaled if best practice is shared. Additionally, norms are more likely to be established if pilots and interventions are seen by the public and other food businesses, perhaps prompting them to consider their own behaviours. By monitoring and developing pilot projects with retail and restaurants, traction and momentum can be built. Some partnerships might relate to enabling and encouraging consumer behaviour change (see above) while others could target retail suppliers, by making agreements on target setting and where City of Amsterdam could support. **Policies that aim to drive retailer reform through regulation, targets and product reformulation** By setting regulatory targets and restrictions for industry bodies, concepts such as target-setting and monitoring schemes can be put in place for both retailers and the City of Amsterdam to maximise impact potential. Here, City of Amsterdam may be slightly restricted in the choice of instruments available, and some change pathways are semi-indirect or somewhat uncertain in terms of impact. Such initiatives ensure transparency and visibility - even where targets are not mandatory, public and customer pressure may push action. Dutch retailers already report national protein sales data, but scope to better capture this in Amsterdam might drive change further and faster and help create distinct expectations and norms among the public too. Financial incentives may not be in scope for Amsterdam but have been used in different jurisdictions in related fields (e.g. varying business rates to reflect sustainable practices). Some city level measures around food waste prevention could also have an indirect impact on protein sales, where they reduce animal-based protein production through waste elimination.
Analysis	
Existing related policy	**Synergies with other policy goals** In its Protein Transition Action Plan 2021-2023 (Gemeente Amsterdam, 2021c), the municipality outlines measures to stimulate the increase in availability of plant-based food in order to achieve the Netherlands national goal for the protein transition: a shift in the consumption of proteins towards 60% plant-based

and 40% animal proteins by 2030. To achieve this, the National Protein Strategy highlights the important role of retailers in influencing food choice environments, which would "stimulate the purchase of NL-grown plant-based proteins".[29]

In addition to this, Amsterdam's strategy for a circular economy (Gemeente Amsterdam, 2020) defines ambitions for food and organic waste streams, with one of the ambitions for this value chain being: 'healthy and sustainable food for all residents of Amsterdam'. This is in alignment with the National Protein Strategy, which set the target of achieving 50% less food waste by 2030, with retailers playing a key part in the achievement of this goal through influencing both commercial and household food waste reduction.[30]

Policies taken forwards from this research should look to align with these plans and build on existing partnerships in the city working on healthy and sustainable food, such as those between universities and retailers, demonstrated through projects such as 'Supreme Nudge' between Amsterdam UMC and Coop,[31] which aimed to implement strategies to make the healthy choice the easier choice for consumers.

Opportunities to combine with existing initiatives

If the municipality chooses to use hard policy measures to drive retailer reform, through regulations, targets and/or taxes, for example, it should look to align with national dietary recommendations, which may include a stronger emphasis on protein shift due to the recent recommendations of the Health Council of the Netherlands (2023). Building on lessons learnt in Denmark in the development of the Action-Plan on Plant-Based Foods, the Plan's close alignment with a timely update in Dutch dietary recommendations, was considered a key factor for success, by providing a scientific case for change to encourage key stakeholder and consumer buy-in.[32]

Policy combinations and synergies

All of the polices listed above are likely to work in tandem, if planned well and delivered coherently. Adaptations in the retail environment, such as increased availability and promotions of healthy and plant-based foods, may help to increase the perception of healthy and sustainable foods as being the norm, which would support policies outlined in Sections 5.2 and 0. Furthermore, if retailers are required or encouraged to reach plant-based protein sales targets, this could work in tandem with policies outlined in Section 5.3 related to the production of plant-based proteins, given their significant power over suppliers and producers. Retailers have the power to influence changes in production practices through implementing sustainability standards, reformulation strategies and negotiating contracts, for example.

[29] Source: Nationale Eiwitstrategie | Kamerstuk | Rijksoverheid.nl
[30] Source: Nationale Eiwitstrategie | Kamerstuk | Rijksoverheid.nl
[31] Source: Supreme Nudge for healthy food choices supermarket | Amsterdam UMC
[32] Source: Interview with the Danish Vegetarian Society, 06.08.2025.

Existing related legislation	Amsterdam has more limited influence on adapting food choice environments, although they have direct control on offerings at food markets. With regards to establishing retailer partnerships and supporting pilot projects, this is within full control of Amsterdam, with many covenants already in place. For regulatory change, this is not controlled by Amsterdam, and will require national government decision-making. However, Amsterdam can enforce mandatory monitoring and reporting, for example, against the Eiweet Protein Tracker,[33] and on food waste.
Stakeholders	**Key stakeholders relevant to this policy theme include**: • Food retailers and supermarkets operating in Amsterdam. • Scientific experts, including behaviour change specialists, nutritionists, and sustainability experts. • Tier 1 suppliers to food retailers, including manufacturers. **Key stakeholders within the City of Amsterdam's organisation and external network include:** • Economic Services Departments: Planning and Sustainability. • Area Based Approach and Public Space Management: Waste and Recycling.
Communication	Consistent and coherent communications should be prioritised for policies in this theme. This is applicable across three levels: • **Retailer communication to customers:** Retailers communications strategies relating to shifting diets should use a broad framing around encouraging healthy and affordable diets - as well as being sustainable. • **Retailer communication to City of Amsterdam/other partners:** The City of Amsterdam should establish clear and efficient communication channels to support knowledge and impact sharing. • **City of Amsterdam communication to the public:** The City of Amsterdam should consider communication which ensures transparency on policy aims and outcomes, as well as alignment with other policies to help encourage public understanding and buy-in to the overall food system transition. The City should also consider communications with other governance levels to share knowledge and learnings, and influence change. Overall, it is recommended that the City of Amsterdam collaborates with retailers as early as possible, to align their communications on why dietary shift is needed, with the aim of maximising influence on consumer purchases. As indicated above, this may result in communications being framed around the health benefits rather than sustainability objectives.
Summary and first action	
Challenges and mitigation strategies	Potential risks and trade-offs with the policies in this section are listed below, with suggested mitigation strategies. **Nudges could result in dietary shifts that result in perverse nutritional outcomes:** If citizens lack sufficient knowledge on nutrition and daily recommended amounts of protein, vitamins and minerals, etc., there could be a risk of experiencing nutritional imbalance or deficiencies, such as in B12, Iron, Zinc. This could be particularly concerning if impacting children. Alternatively, some consumers may shift consumption towards less healthy and sustainable plant-based protein products i.e. those which pose environmental challenges of their own at scale. This could be particularly applicable for consumers who might lack the skills and/or knowledge around how to cook plant-based meals or do not have enough time to cook (whether this is real or perceived). *Mitigation strategy:* Public communications and retailer nudge techniques, including price or promotional strategies, should present plant-based whole foods as the best option, from both a health and environmental perspective. Additionally, any skills training, knowledge-building activities, or public

[33] Source: Eiweet – Eiweet monitor

	campaigns running as part of the food system transition in Amsterdam, should encompass content on how to achieve nutritional balance in a diet higher in plant-based foods (for adults and children). **Reduced demand for animal-based protein could have negative economic impacts on domestic farmers:** As retailers are encouraged to increase sales of plant-based protein and reduce sales of animal-based protein, domestic livestock farmers could be vulnerable to ending contracts or reduced purchase volumes. This could result in job losses and undermine rural economies. This trade-off could be compounded if public procurement also changes sourcing practices simultaneously. *Mitigation strategy:* The City of Amsterdam should carefully consider how to ensure a just transition in the short- and long-term as demand for animal-based proteins reduce (at both retailer and consumer levels). This could involve establishing a scheme which provides funding to local livestock farmers, to support them to diversify into plant protein crops or regenerative agriculture. These farmers could also be supported through upskilling programs and/or access to agronomic advisers focused on plant-based protein farming methods, business diversification, and on-farm environmental practices. **Negative public response to policies:** These policies could fuel resistance or polarisation among citizens who disagree with state intervention in their dietary choices or the overall transition to reduced consumption of animal-based protein. In turn, this could reduce consumer buy-in to the proposed policies. This could align with farmer concerns as identified above. *Mitigation strategy:* Well-considered communication is crucial. To avoid resistance among citizens, the City of Amsterdam should aim to use neutral framings in policy communications and public campaigns, such as around health and equity, and be prepared for challenging responses. As discussed previously, communication strategies should be aligned and well-coordinated with other acting stakeholders, including retail. The City could also consider using the voice of a popular public figure to support the policy movement. Similarly, to avoid resistance among farmers, the City should ensure that livestock farmers are included in policy planning from the outset (and not surprised by policy) and are recognised for their role in land stewardship and food security. Denmark is seen as having been highly successful in creating a national consensus around the need for a protein transition, and communication with all stakeholders was key.
Initial Actions	• Identify and convene leading supermarkets in Amsterdam via a retail roundtable hosted by the municipality. • Develop voluntary guidance for food-waste-sensitive pricing, promotion and packaging, in consultation with food retailers and behavioural experts. Launch a pilot with a retailer. • Initiate at least one pilot store redesign with a willing retailer and monitor consumer purchasing data on plant protein. • Co-develop a city-wide voluntary pledge on the plant-based transition. • Begin a voluntary protein reporting initiative with major retailers in the city. • Convene with public health authorities and NGOs to draft shared advocacy materials on nutritional reformulation targets. • Commission a scoping study on average carbon footprint per gram of protein across food categories. • Initiate a local voluntary moratorium with retailers on BOGOFs for unhealthy/unsustainable items.

5.2 Sustainable & healthy food offering within educational institutions and sports settings

Overview	
Policy Aims & Scope	This policy theme aims to improve the availability, affordability and appeal of healthy and sustainable foods within a range of educational institutions and sports settings. The target group of this theme consists of: 1) educational institutions, including schools, nurseries, universities, colleges, libraries, and 2) sports settings, including stadiums, sports halls, swimming pools, tracks/courts, parks, and recreation grounds. Policies are aimed at encouraging sustainable and healthy food offerings, including nutritious, plant-based food, across snacks, drinks and meals.
Reason for priority	This policy theme has been prioritised due to the following reasons: • **Children are the primary target audience:** This is important because: health habits developed in early years can last a lifetime; 1 in 6 children in the Netherlands are overweight or obese[34]; children's health is crucial for growth and educational attainment while having longer-term outcomes related to income and wellbeing.[35] As a result, by targeting children, these policies could help reduce and mitigate long-term health and wealth inequalities. • **Modelling out-of-home solutions:** By setting standards in health and sports facilities, this could help normalise healthy and sustainable food and model out-of-home solutions more widely. • **Capacity to act may be higher:** Targeted organisations may be motivated to act on environment and health already and just need some support. • **Sports play an important role in healthy lifestyles:** As a supportive setting for healthy lifestyles, sport facilities should offer healthy and nutritious food which enables high performance and participation. • **City of Amsterdam can have a direct influence:** several educational institutions (primary schools) and sports facilities (e.g. pools, sports halls, parks and recreations grounds) in Amsterdam are run by the City or already collaborate with them and are therefore within their direct control for delivering impact.
Policy in practice	There are numerous policy measures that the municipality of Amsterdam can take to increase sustainable and healthy food offerings within educational institutions and sports facilities. Below, we explore three policy themes: 1) policies that limit unhealthy food options, 2) policies that increase availability of healthy and sustainable food, and 3) facilitating policies for behaviour change. For each policy theme, examples of specific policy measures are provided. 1. **Policies that limit unhealthy food options:** To reduce exposure to unhealthy food advertising in settings frequented by children and the public, and to promote healthier dietary choices and prevent diet-related diseases, these policies propose a variety of actions. For example, banning advertisements for unhealthy foods in specific high-risk locations. This would involve developing and proposing legislation to ban advertising of unhealthy food (e.g. HFSS) in and around schools, sports venues, stations and on public transport, alongside establishing monitoring and enforcement mechanisms to ensure compliance. Implementing such policies would involve developing and revising site allocation policies to restrict licenses and permits for fast food vendors and outlets near educational institutions and sporting facilities. This would entail defining zoning restrictions or distance limits (e.g. no fast food within 500 m of a school) and would be supported by consulting with local neighbourhoods' urban planners, and school

[34] Source: The development and implementation of integrated care for childhood overweight and obesity in the Netherlands - Vrije Universiteit Amsterdam
[35] Source: The impact of health on GDP: A panel data investigation - ScienceDirect

boards with mapping and enforcement tools established for local authorities. This is already being done in the municipalities of Zwolle and Groningen, which regulate restrict the sale of unhealthy food (fast food) near schools through site allocation policies (*standplaatsenbeleid)*.[36] By removing such advertisements and reducing the visibility of these unhealthy products in everyday settings, this could limit influence on children's food preferences and consumption habits.
Providing guidance or incentives for healthier food vendors to operate in these locations as well as communicating these changes to the public could also be of benefit. For example, Toronto runs a 'Mobile Good Food Market',[37] a joint initiative between the city government and NGOs which runs a bus providing fresh and subsidised produce to low-income neighbourhoods.

In addition to this, reducing the number of fast-food vendors and limiting accessibility in targeted areas, could lead to fewer impulse purchases of unhealthy foods before or after educational or sporting activities. This in turn, may encourage healthier eating habits among children and sports enthusiasts.
Relevant policies could include:

- *Reduce the availability and advertising of unhealthy foods in and around educational institutions and sports settings.*
- *Restrict the sale of unhealthy food (fast food) in or near educational institutions *and sporting facilities* through site allocation policies (standplaatsenbeleid).*
- *Regulate food options available at educational and/or sporting events. i.e. Ban unhealthy/non-vegetarian food at large sports matches or encourage vegetarian stalls at school events.*

Building on lessons learnt in Ghent, one of the success factors included framing protein transition as 'better food', opposed to singling out foods or products that are solely plant-based. Therefore the framing and wording of any marketing material should be carefully considered to aid success.

2. **Policies that increase the availability of healthy and sustainable food and snacks**:
If unhealthy foods were to be banned, there is opportunity to increase the availability of healthy and sustainable foods and snacks. Activities to support this policy could include providing guidance, incentives, or standards for food service providers in Amsterdam, as well as supporting training and capacity-building for canteen managers and caterers on healthy and sustainable menu design. For example, in Ghent, the city organised workshops for institutional kitchens (e.g. in care facilities or companies) to share knowledge on affordable, tasty and plant-based cooking, with Ghent's culinary school integrating plant-based cooking into its curriculum.[38] Additionally, in Milan, the school meals programme has seen the renovation of school canteen spaces and menus to reduce food waste prevention and encourage healthy food choices.[39]

Additional actions might involve financial or procurement incentives for offering plant-based, low-sugar, locally sourced, or seasonal products, along with developing recognition programs, such as healthy canteen labels or school awards. An incentive-based example from England includes the government-run 'Healthy Start' voucher scheme which provides financial assistance to low-income families and pregnant individuals for specific food products high in

[36] Source: Municipalities have limited options for ensuring a healthy food environment - LHL - University of Amsterdam
[37] Source: Toronto gets a food market on wheels
[38] Source: Interview with an alderman in Ghent, 06.08.2025.
[39] Source: Low-Def-TOTAL-Web-upload.pdf

	nutrition, such as pulses, fruit and vegetables.[40] Additionally, a public procurement example can be taken from the city of Ghent, where all municipal school contracts for meal provision specify that a substantial share of proteins must be plant-based, tasty, and affordable.[41] Overall, these actions are likely to increase the number of facilities offering healthy and sustainable food options and lead to new or improved food service contracts aligned with health and sustainability goals. *Relevant policies could include:* • *Require reconfiguration of vending machines in the city to sell healthy and sustainable options through vending regulations.* • *Include plant-based proteins as part of the curriculum in vocational schools (MBOs), hotel schools, and culinary training programs.* • *Stimulate healthy and sustainable food offerings available at schools, sporting locations and other semi-private facilities.* 3. **Policies that help facilitate behaviour changes:** Additional activities could include stakeholder engagement projects and public awareness campaigns with the aim of supporting attitudinal shift and behaviour change. This could include formal education, food media campaigns, workshops on cooking and growing food, or public events (such as those explored in Section 4.4). An example includes Milan's 4-year scheme which delivered booklets on healthy and sustainable food habits to all kindergartens and primary schools.[42] These aimed to raise awareness among children, families and teachers on food waste prevention, local food production and healthy diets, being distributed to all kindergartens and primary schools. Additionally, in Ghent, the city communicated its ambition to offer more plant-based options through the *Gentse Feesten* (Ghent Festival).[43] *Relevant policies could include:* • *Roll out education on sustainable food and food waste for children (both within and outside schools), include practice (vegetable gardens, cooking).* • *Run and support positive food media campaigns across the city, including collaborate on with food organisations developing healthy and/or sustainable food campaigns. These campaigns could be aimed at reducing fat/salt/sugar consumption, encouraging five fruit and veg a day, being active, increase consumption of legumes and plant-based proteins.* • *Run cooking workshops on 'healthy and sustainable food on a low budget'.*
Impact potential	Within this section, three themes are discussed as examples to support CO_2 reduction. Advertisement & Marketing, Education & Upskilling and Adapting food choice environments. The policies below showcase different concepts to achieve CO_2 reduction potential. **Policies that limit unhealthy food** The concept of restricting sales and regulating food options available have a direct impact on CO_2 reduction potential. By restricting the sale of unhealthy food, this is likely to have the most direct and predictable impact of all policies proposed in this section. By influencing supply and demand, consumers are not given the choice, therefore cannot have the product; and suppliers are unable to sell the product, reducing volume procured. It is important to note that although the focus is on unhealthy food generally, these foods, and fast food in particular, is associated with animal-based protein, therefore has a positive impact on CO_2 reduction potential by restricting them.

[40] Source: The new Healthy Start Scheme – Get help to buy food and milk (Healthy Start)
[41] Source: Interview with an alderman in Ghent, 06.08.2025.
[42] Source: Low-Def-TOTAL-Web-upload.pdf
[43] Source: Interview with an alderman in Ghent, 06.08.2025.

Policies that increase availability of healthy and sustainable food and snacks
By having greater availability of healthy and sustainable offerings, the City of Amsterdam can provide more accessibility and appeal to the consumer. In time, it might be considered as more of a social norm too, influencing behaviour and perceptions. Given the dominance of schools and sporting facilities, it is likely to impact at least one or two meals (or one meal and snacks), on a fairly widespread scale. Additionally, this has the potential to have long term benefits given this is targeted mostly at children. It is important to note that this policy will likely work in complementarity to policies above around banning and/or restricting unhealthy options available, by increasing the general choice of healthy options.

Policies that help facilitate behaviour changes
Aspects of CO_2 reduction potential can be indirect. Behaviour change is an aspect that can result in lower CO_2. Within Amsterdam, food media campaigns that promote positive benefits will lead to a higher success rate. Collaborations with food organisations and others would gain more traction to the campaign. Examples of what this could cover would be reducing fat/salt/sugar, increasing or encouraging fruit and vegetable intake, being active and increase the consumption of legumes and plant-based proteins. Additionally, this policy may impact specific meals only, such as snacks purchased near schools and leisure centres or light meals in educational settings, rather than reaching lots of different meals.

Education also has the potential to influence the majority of daily food choices. Furthermore, it could also influence children's habits for the long term and parents' behaviours at home and when out. However, the extent to which behaviour will change in other contexts or persist over time is hard to predict or assess. This policy would therefore have an indirect impact on CO_2 reduction potential, and the CO_2 reduction potential is likely to be very dependent on the quality of education provided on sustainable food and food waste. For example, if it is practical, hands-on, action-orientated, it is perhaps more likely to increase engagement and result in behavioural spillover.

Analysis

Existing related policy

Synergies with other policy goals
This policy theme aligns with several policy goals at the city level, including:

- **Amsterdam's Health Policy 2021-2025** (Gemeente Amsterdam, 2021a), with one of the seven priorities focusing on Amsterdam as 'a healthy city'. To contribute to this ambition, the municipality aims for healthy food to be 'logical and abundant' and for a healthy school environment in particular.
- **Amsterdam's Strategy on Spatial Planning and the Environment** (Gemeente Amsterdam, 2021d), which strives towards a healthy food environment in Amsterdam and wants to restrict fast food and high-calorie snacks in residential areas and specifically near schools.
- **Amsterdam's Implementation Agenda Food Strategy** (Gemeente Amsterdam, 2021b), which has the following goals:
  - By 2028, 80-100% of the food supply from municipal policies (sporting events, canteens, community activities and events, municipal procurement) complies with the Netherlands Nutrition Centre's healthy and sustainable food environment guidelines.
  - By 2040, the unhealthy food supply in the streets (commercial food environment) will be reduced to no more than 55% (currently it is 80%).

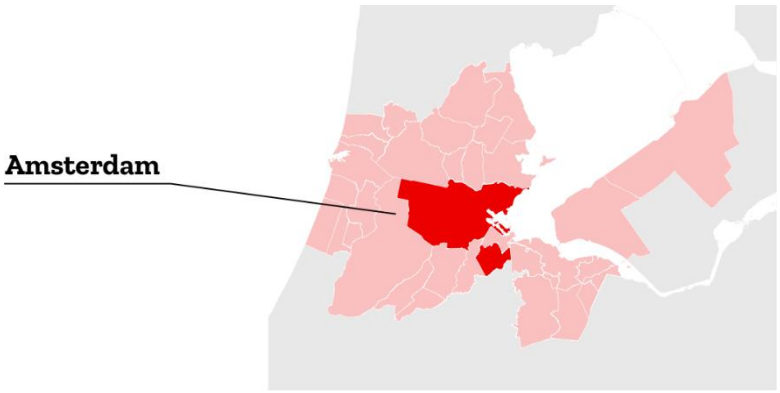
Policy combinations and synergies
Educational policies which support citizen awareness and skills around how to cook healthy and sustainable food, should complement policies targeting the retail environment (Section 5.1), by giving consumers the capability and opportunity to change their food choice behaviour. Policies related to the Image of Amsterdam as plant-based capital (see Section 5.4), are also likely to complement these policy measures through supporting attitudinal shift around the appeal of plant-based foods, and by shifting social norms.

Existing related legislation	Amsterdam already prohibits advertisements for unhealthy food targeted at children in metro stations through its public transport advertising tender. There is opportunity to expand the scope of these site allocation policies by implementing zoning restrictions or distance limits from educational institutions and sporting facilities (e.g. no fast food within 500 m of a school), rather than just metro stations, like has been done in the municipalities of Zwolle and Groningen.[44] Limitations may be experienced when attempting to introduce distance limits. Two studies (City Deal Voedsel op de Stedelijke Agenda, 2021; UvA, 2020) concluded that the municipal instruments are limited on what foods can be banned and, where healthy food environments can be promoted. Therefore, it may be even more difficult for plant-based food environments to be promoted in this way.
Stakeholders	**Key stakeholders relevant to this policy theme include:** • **Providers:** Caterers, chefs, and canteen managers (although likely to be directed by procurement departments; corner shops, post offices and fast-food outlets near to educational or sports facilities; event organisers; vendors. • **Educational institutions:** (schools, nurseries, universities, colleges, community education centres/youth clubs, libraries). • **Sports institutions:** (stadiums, sports halls, swimming pools, tracks/courts, parks, recreation grounds); teachers and educational staff. It is important to note that within an organisation, different roles should be engaged in discussions and/or feedback. As mentioned earlier, from chefs and caterers to mangers and board members should be given the opportunity to be involved to increase success likelihood. **Key stakeholders within the City of Amsterdam's organisation include:** • Department of economic affairs. • Department of spatial planning. • Department of sports. • Department of education. • Public Health Service (GGD). • Facilities Office (public procurement).
Communication	It is recommended that nuance and framing in communications is considered for this policy theme, particularly for: • **Children's health.** Communications should ensure clear information (and reassurance) on how to ensure sufficient protein intake for children when promoting plant-based foods. The voice of a trusted nutritionist or health organisation could be used to support the City with communications, and be used to support messaging delivered to schools, for example. • **Nutrition for athletes and gym-users**. The public backing of a popular athlete or sports personality in Amsterdam could support the City in the communication of these policies to encourage consumer buy-in.

[44] Source: Municipalities have limited options for ensuring a healthy food environment - LHL - University of Amsterdam

Summary and first action	
Challenges and mitigation strategies	Potential risks and trade-offs with the policies in this section are listed below, with suggested mitigation strategies. **Increased consumption of 'diet' products:** In response to an advertising ban/restriction of sale of unhealthy foods, consumers may switch to 'diet' products (e.g. artificially sweetened or 'low-fat' processed foods), for which the health benefits are unclear and some evidence on potential risks is emerging. *Mitigation strategy:* Public communications, and retailer nudge techniques, including price and promotional strategies, should present whole foods as the best option for health, and diet products should have limited advertising with nudges towards whole food swaps. Diet products should be avoided in publicly procured meals and replaced with whole-food alternatives. Additionally, the City of Amsterdam may consider working with industry and academia on a research project focused on the consumption of 'diet' products, including their impacts on both health and sustainability. This could result in clearer front-of-pack labelling for diet foods, such as warnings for artificial sweeteners. **Public backlash around nutrition and protein availability:** Without carefully considered communications, these policies could fuel resistance among those concerned about nutrition and protein content in plant-based foods, such as parents, athletes and sports enthusiasts. This could have negative knock-on effects through peer influence and reducing buy-in to the proposed policies. *Mitigation strategy:* Well-considered communication is crucial (as discussed in Section 5.1). To avoid resistance among citizens, the City of Amsterdam should actively consider the 'health' framing for campaigns and communications regarding dietary shift, and potentially incorporate nutrition literacy campaigns. These communication strategies should be aligned and well-coordinated with other acting stakeholders, including educational settings and sports facilities themselves. The City could also consider using the voice of a popular sports figure to support the policy movement.
Initial Steps	• Map current advertising and food availability around schools and sports facilities. • Scope the development of a zoning or licensing policy to prohibit unhealthy food advertising within a specified radius (e.g. 250 m). • Draft new vending machine guidelines requiring a minimum percentage of healthy/sustainable items (e.g. 60%). Develop a list of approved products in collaboration with health experts and vending companies. • Collaborate with schools and sports clubs to pilot healthy vending zones. • Engage stakeholders (including school boards and vendor associations) in co-developing standards for food provision in/around educational institutions and sports settings. • Explore the integration of sustainable food modules into local curricula in partnership with schools and curriculum developers. • Develop a list of approved healthy and plant-based food vendors for event planners. Partner with public event organisers to trial healthy food requirements at selected events.

5.3 Opportunities within the Metropolitan Region Amsterdam (MRA)

Overview	
Policy Aims & Scope	The two main aims of this policy theme are: 1. To **strengthen the connection between the city/citizens and regional food producers**. Strengthening their ties contributes to increasing mutual understanding and interest and can open up a short-chain market. 2. To **support regional farmers in the protein transition**. Livestock farmers that want to transition to more extensive practices, or that want to (partially) switch to cultivating plant protein crops can face economic and sometimes regulatory issues. By leveraging its purchasing power and influence, the municipality can remove several barriers in this transition. In doing so, the municipality can have a positive impact on climate and land use. 3. **Wider system impacts through influencing stakeholders within the MRA.** The protein transition always affects spatial issues (see Section 2.1). Already within the MRA this is visible in the landscape. A city, with its many inhabitants and strong ties to its businesses, infrastructure and hinterland, can play an influential role in these spatial issues either directly or indirectly. This policy theme is focused on farmers in the Metropolitan Region of Amsterdam (MRA, see Figure 5). In Amsterdam itself, there is not much agricultural land, however, in the MRA there is. In this deep dive, we focus on concrete actions, achievable through working with the food farmers within the direct environment, where Amsterdam has governance influence. This is where policies can have most visible spatial effect. It must be noted the influence of a city can also reach further, even across borders, and a cities should try to map these impacts as a first step. Figure 5 –Metropolitan Region of Amsterdam  Source: Cultuurmonitor - metropoolregioamsterdam
Reason for priority	This theme is prioritised because the protein transition is rooted in society as well as in the landscape. One of the social dimensions is that of the connections between consumers/city dwellers and regional food producers. This leads to improved consumer awareness and contributes to a better understanding, value and appreciation for food, ultimately contributing to better (more sustainable, healthy) food choices. This theme is also likely to improve relationships between consumers and producers (e.g. encourage greater participation in local production networks, such as vegetable box schemes) and ultimately decrease the urban/rural divide.

	The protein transition is also a land-use issue. Supporting farmers in the protein transition can result in more efficient land use (plant-based diets need less land) and can address environmental challenges specific to the MRA region, such as reduction of greenhouse gas emissions from oxidation of peat lands.
Policy in Practice	There are numerous possible policy measures that the municipality of Amsterdam can take to stimulate the production and consumption of plant-based food in the MRA. Below, we go into two overarching strategies: 1) facilitation, and 2) providing economic support. For each strategy, we provide examples of specific policy measures that can strengthen cooperation with farmers in the MRA. 1. **Policies that facilitate interaction between regional farmers and city dwellers:** these policies are focused on facilitating farmers to sell their produce in Amsterdam. This expands the market for these producers, while buyers/city dwellers develop a closer connection with both the producers and their products. The food strategy of the municipality of Ghent, for instance, is focused on creating a more accessible market for local products by creating an online platform[45] that brings together food producers and buyers from the Ghent region, and by organising a networking event or 'festival' for entrepreneurs. Also, city dwellers can also be encouraged to visit the regional farms. The municipality of Ede, for example, has created a Food Map for local products from the Foodvalley Region. *Relevant policies could include:* • *Support regional (e.g. MRA) farmers markets around the theme of plant-based. Connect farmers and producers to consumers on this topic.* • *Support mobile food markets which provide healthy and sustainable foods through rate reductions, preferably regional produce (MRA), especially in food desert locations.* 2. **Policies that provide economic support to famers that contribute to the protein transition:** these policies are centred around supporting farmers economically, e.g. by strengthening local food chains through public procurement or by providing subsidies or loans to stimulate the production of plant-based and alternative proteins, such as legumes (e.g. beans, peas or lupin), insects and algae. Amsterdam already has programs related to local and circular food supply. In these programs, protein transition criteria could be included. The municipality of Groningen, for instance, has signed a covenant with public and semi-public organisations to stimulate local/regional procurement. However, this covenant does not specifically address vegetarian or plant-based procurement. An example of an initiative that supports farmers in transition is the Urgenda transition fund.[46] *Relevant policies could include:* • *Extend the Covenant 'Together we eat Amsterdam healthy, sustainable and fair' with organisations from the MRA and targets for regional (MRA) sourcing of plant-based proteins, potentially coupled with farmers in transition.* • *Give a long-term purchase guarantee for regional (MRA) plant-based proteins/legumes, potentially coupled with farmers in transition from animals to plants.* • *Grant subsidies to accelerate the protein transition and help plant-based start-ups.*
Impact potential	The *Regionale klimaatmonitor* shows that the non-energetic emissions from agriculture (excluding land use) in the MRA are more than 500 kton CO_2-eq., in addition to the existing emissions of feed production and methane from cows. For comparison: this amounts around 20% of total emissions from energy use in all dwellings in the region. This shows that the potential for greenhouse gas reduction in this sector is substantial, e.g. by extensive animal agriculture, wet agriculture (*'natte teelt'*) or non-farming practices such as nature revitalisation or renewable energy production.

[45] The webshop is called VANIER.
[46] Source: Urgenda breidt samenwerking met boeren uit: 1.000 euro per hectare - Nieuwe Oogst

	There is no convincing evidence in the Netherlands that shorter food chains or local/regional food production is an effective strategy to decrease greenhouse gas emissions. Replacing (a part of) animal-based proteins by plant-based proteins is by far the most effective way to decrease greenhouse gas emissions from food consumption. Shorter chains should therefore not be seen as a goal in itself, but rather as a means to an end to sell and inflate product prices from local/regional farmers in transition.[47]
Analysis	
Existing related policy	**Regional collaboration in the MRA** Amsterdam already has already established policies and partnerships that are aimed at strengthening the ties between the city and the surrounding region. The MRA economic region (comprised of 30 municipalities and two provinces) is the most relevant. One of the ambitions in the MRA Agenda for the period 2025-2028 is to establish local food chains that contribute to a circular economy, and to produce and consume at least 25% of all food locally. The region already participates in a European pilot on local food chains (foodCLIC). **Opportunities to combine with existing initiatives** If the municipality chooses to provide economic support to start- or scale-ups (e.g. that produce plant-based or alternative proteins), it is worth combining efforts with the province of North Holland. In its Vision on Food, the province mentions the ambition to have carried out at least five projects on the cultivation of protein-rich crops and new sources of protein (seaweed, algae, aquaculture). Another possible synergy on financing of food innovation is *Kansen voor West,* which is a European, economic incentive programme, financed by the European Regional Development Fund. **Synergies with other policy goals** Extensive animal agriculture and wet cultivation contribute to climate adaptation (increase soil health, prevent land subsidence). This policy theme also contributes to other policy goals, such as food system resilience and future-proofing farmers businesses. If agricultural land would be freed up, other policy goals such as housing, nature restoration or energy production could be met. **Policy combinations** To increase the success chance of this policy theme, we suggest working together with the Amsterdam food council.
Existing related legislation	Many actions can take place within a context where Amsterdam can determine the terms and conditions. Relevant legal frameworks include spatial planning regulations concerning land use (e.g. re-purposing or multifunctional use of agricultural land). The province is the main authority on this topic. Also, procurement rules apply if public catering is involved.
Stakeholders	**External stakeholders:** • Farmers in the MRA. • Farmer and supply chain associations such as *LTO*, *Biohuis* and *Bionext*. • MRA economic region (consisting of 30 municipalities and the provinces of North Holland and Flevoland). • Water board. • Amsterdam organisations part of the covenant 'Together we eat Amsterdam healthy, sustainable and fair'. • Food processors and retailers. • Research and living lab institutes such as *Flevocampus* and *Nieuwe Boerenfamilie*. • Producer organisations such as *Eiwitboeren van Nederland*. • Sustainable direct-sale organisations such as *Task Force Korte Keten* and *MOMA*. • Hospitality and food industry.

[47] Source: Korte ketens: de (on)mogelijkheden in de Nederlandse food & agri sector - Rabobank

	• Amsterdam citizens. **Internal stakeholders:** • Department of economic affairs. • Events and permitting units. • City communication/Marketing Channels.
Communication	Communication around this theme is very important. The debate around the topic of the protein transition and farmers in transition is rather polarised. A food council with own communication is used as a platform for communication by other cities (e.g. by the municipalities of Ede, Ghent, and the Bordeaux Metropole Region).
Summary and first action	
Challenges and mitigation strategies	**Economic risk for farmers without guaranteed offtake or price stability** *Mitigation strategy*: to reduce economic risk, we encourage public and private actors to establish long-term purchase agreements, providing farmers with more predictable income. Another option is to sign a covenant with public and semi-public organisations to stimulate local/regional procurement of protein crop. In addition, financial risk-sharing mechanisms - such as transition funds, crop insurance or guaranteed minimum prices - can support farmers during the early adoption phase. **Limited processing and logistics infrastructure for novel protein crops** This can result in consumer prices remaining high initially, and/or limited availability. *Mitigation strategy*: Amsterdam (in collaboration with surrounding municipalities or regional governments) can invest in shared infrastructure (e.g. local hubs for drying, sorting or processing). Another option is to support the development a short chain platform that connects farmers and their produce to consumers/buyers (e.g. like the online platform called VANIER in the City of Ghent). **Skills and knowledge gaps among farmers** There may be general resistance to change among farmers, based on cultural and heritage factors, e.g. farmers may have been farming a certain crop of livestock for many years. *Mitigation strategy*: investing in farmer-oriented education and peer-to-peer learning (demonstration farms, knowledge exchange networks) can reduce knowledge barriers and foster openness to changes. The emotional and identity-based dimensions of farming should be recognised: acknowledging past experience while offering a pathway to future-oriented farming practices.
Initial actions	• Conduct a regional scan to identify potential front-running farmers, suitable crops, and existing initiatives. • Initiate one or more pilot projects. • Establish a multi-stakeholder learning network to share knowledge and identify opportunities and barriers. • Explore funding opportunities (EU, national or local).

5.4 Image of Amsterdam as a 'plant-based capital'

Overview	
Policy Aims & Scope	This policy theme aims to establish 'Amsterdam plant-based capital' as the internationally recognised identity of the city. It targets multiple actors who contribute to this image, including businesses in the tourism and event sectors, as well as internal actors such as the port of Amsterdam.
Reason for priority	This theme is prioritised because it matches the strengths of the municipality of Amsterdam, such as strong partnerships and coalition building. As a major tourist destination with a large event and hospitality industry, the city can leverage these domains to reduce food-related CO_2 emissions. Amsterdam has a strong sustainability reputation (including a high ranking in indices such as the Arcadis Sustainable Cities Index) and relative high plant-based protein intake compared to Dutch and European average. This provides a solid foundation to position the protein transition as a visible part of Amsterdam's international image, while attracting innovators in the food system.
Policy in practice	The international image of Amsterdam can be shaped along four potential pathways. Below, we summarise how each pathway can contribute to the city's image as a plant-based capital, and which policies from the longlist are most relevant to strengthen this positioning. 1. **Innovative policies with international visibility**: These policies have an innovative character - we found no examples of other cities that have implemented these policies. In addition to their potential for CO_2 reduction, they allow Amsterdam to lead by example and position itself as an example for other cities. *Relevant policies could include:* • *Phase-out or setting minimum criteria of animal feed transhipment in the port of Amsterdam.* • *Phase-out or setting elevated welfare standards for transport of live animals via the port of Amsterdam and Schiphol.* 2. **Policies directed to public-facing spaces and tourism:** Amsterdam is a popular tourist destination, famous for its events, museums, cultural history, and festivals. These are highly visible platforms that can be used to promote a plant-based identity. Notably, the world's first cultured meat exhibit is showcased at Museum Nemo in Amsterdam[48]. Examples from other cities, such as Warsaw - considered one of Europe's vegan capitals - highlight the potential of public-facing interventions[49]. *Relevant policies could include:* • *Regulate food environment at events. i.e. Ban non-vegetarian food at festivals or encourage vegetarian stalls at festivals through rate reduction.* • *In collaboration with hotels: make vegetarian/plant-based breakfast the default option for tourists.* • *Incorporate carbon pricing of (food) consumption in tourism tax, use revenue for protein transition portfolio.* 3. **Policies directed to the business and innovation climate**: The city's business climate is a key driver for attracting enterprises. Amsterdam can leverage the Netherlands' frontrunner position in alternative proteins, including cultivated meat, precision fermentation, and high consumption of plant-based meat alternatives. Conferences such as Future Protein Production Amsterdam (FPP) and KindEarth.Tech already support this positioning. *Relevant policies could include:* • *Facilitating the settlement of plant-based enterprises in Amsterdam via network development and outreach.* • *Grant subsidies to accelerate the protein transition and help plant-based start-ups.*

[48] Worstje van kweekvlees is museumstuk in Nemo | Amsterdam | AD.nl
[49] How Warsaw became the unlikely vegan capital of Europe | Karol Adamiak | The Guardian

	• *Support food businesses to create or use hybrid products and reformulate e.g. a third of meat content in dishes.* 4. **Supporting policies through communication and visibility**: Supportive media and visibility campaigns can increase the reach and impact of the above policy pathways. For example, Amsterdam's iconic IAMSTERDAM branding could be strategically linked to the protein transition, reinforcing the city's identity as a plant-based frontrunner. *Relevant policies could include:* • *Run and support positive food media campaigns across the city, including collaboration with food organisations developing healthy and/or sustainable food campaigns. These campaigns could be aimed at reducing fat/salt/sugar consumption, encouraging five fruit and veg a day, being active, increasing consumption of legumes and plant-based proteins.* • *Run a campaign for a meat and dairy-free day/week/veggie challenge, learn from successful campaigns from ProVeg and Ghent.* • *Develop a city map of healthy and sustainable shops, restaurants, community gardens, etc.*
Impact Potential	The exact CO_2 reduction potential of the policy pathways is uncertain. However, we are able to conclude the following: • Food related emissions in tourism and events: According to research by (A Greener Future, 2025) analysing 40 European-based festivals, food and drink are responsible for an average 34% of a festival's carbon footprint. (Herrero et al., 2025) estimate that food and drink contribute 26% of the environmental impact of tourism. This stresses the relevance of this policy theme in the protein transition. • Port of Amsterdam: Elevated criteria for transhipment may have significant effects beyond the borders if there are no shift effects (e.g. less sustainable goods being transported via other harbours). • Indirect effects include replication of similar policies by other cities, behaviour change among tourists who take habits or ideas back home and increased visibility of sustainable food businesses and innovations.
Analysis	
Existing related policy/law	**Innovative policies with international visibility:** Amsterdam already has policy instruments in place for the transhipment of feed through its port, over which it has full operational control. For example, all soy transhipped via the Port of Amsterdam must meet RSPO (Round Table on Sustainable Palm Oil) standards. **Policies directed to public-facing spaces and tourism**: Amsterdam already applies a tourism tax (toeristenbelasting) that covers overnight stays and short-term accommodation. It is currently not differentiated by environmental criteria. **Policies directed to the business and innovation climate:** The City of Amsterdam, via Amsterdam Trade & Innovate, already works on strengthening the business climate for sustainable and future-oriented sectors, including plant-based and protein innovation companies. Moreover, plant-based start-ups receive support through national and regional instruments such as *Kansen voor West*. **Supporting policies through communication and visibility**: Amsterdam already runs campaigns such as *Van Amsterdamse Bodem*, which promote local food initiatives and sustainable consumption. In addition, the municipality uses its own communication infrastructure (social media, city marketing platforms) to support food-related initiatives. This policy theme complements the other themes outlined in this report, as it offers shared rationale, direction and momentum. It can help align and strengthen the implementation of related policies. Experience from Denmark and Ghent shows that bringing diverse stakeholders together around a common goal is an effective way to advance the protein transition.

Existing related legislation	**Innovative policies with international visibility:** Municipalities have full control over the operations of their own port authority, which makes this domain especially suited for leading policies. **Policies directed to public-facing spaces and tourism**: Some instruments in this area fall within municipal legal competence, while others rely more on soft power, partnerships, or indirect influence. • Tourism tax: Municipalities have full control over this tax instrument. • Food at events: The level of control depends on whether the event is public and funded by the municipality. For privately organised events, legally regulating the food offering is possible but more complex and requires strong justification. A voluntary approach, for example through covenants or event criteria, could serve as a first step. Regulation may be considered if voluntary measures show limited results. • Hotel food offerings: Municipalities cannot legally prescribe what hotels serve. However, through partnerships, public campaigns, or procurement-linked incentives, Amsterdam can encourage hotels to adopt plant-based defaults (e.g. breakfast options). **Supporting policies through communication and visibility:** Amsterdam already works on the business climate through Trade & Innovate and provides targeted support to plant-based start-ups (e.g. via *Kansen voor West*). The question is whether the municipality can go further within its competence. Potential policy approaches could include: • Rent reductions or favourable lease terms in municipal property for plant-based companies. • Strategic outreach and international promotion to attract leading plant-based companies. **Supporting policies:** This area falls entirely within municipal control.
Stakeholders	**External:** • Tourism/event sector. • Cultural and creative sector. • Hospitality and food industry. • Tourism-related business associations. **Internal:** • Department of economic affairs/Trade & Innovate. • Events and permitting units. • Cultural affairs department. • Night mayor. • City communication/Marketing Channels.
Communication	To effectively position Amsterdam as a plant-based capital, clear communication among all relevant stakeholders and towards the public is essential. Small-scale initiatives, such as Ghent's Veggie Thursday, show how local government action can evolve into widely accepted behaviour. Amsterdam can build on this by engaging with influencers, chefs, and local businesses to drive engagement, create appealing plant-based options, and tell stories that link plant-based eating to the city's cultural identity.
Summary and first action	
Challenges and mitigation strategies	**Misalignment on the timing and coodination of policies** *Mitigation strategy:* Informing all relevant stakeholders well before major campaign launches, and by leveraging existing covenants such as *Samen eten we Amsterdam gezond, duurzaam en eerlijk* to align efforts. **Overemphasising the term 'plant' based risks distancing part of the public** *Mitigation strategy:* Do not put the sole focus on 'plant-based' but also highlight taste, quality, and culinary diversity rather than labels. This strategy was also a success factor in Ghent and appealed to a broader audience.

Initial actions	• Investigate legal possibilities for implementing selected policies, particularly those targeting businesses. • Assess the feasibility of introducing a higher tourist tax, with revenues allocated to supporting the protein transition. • Explore options within the tourism sector through covenants and voluntary agreements.

6 Conclusions and recommendations

Selecting policy priorities from a longlist of policy measures using a ranking method can be an effective way to identify priotisation areas for a city. In this chapter we present our conclusions and recommendations regarding the prioritisation areas for the City of Amsterdam. We also give recommendations for other cities.

Conclusions: Priority policies

In this evidence review, we examined four promising protein policy themes in more detail. These include measures in 1) **the retail sector**, 2) **sustainable and healthy food in educational institutions and sports settings**, 3) **opportunities within the Metropolitan Region of Amsterdam**, and 4) **the positioning of Amsterdam as a plant-based capital**. These themes were selected because they offer a combination of strong potential for reducing emissions and high potential to change behaviour. In addition, they focus on different target groups, build on existing strengths of the city, and help address policy gaps where little action is currently taking place. Other themes, such as **sustainable food procurement** for the municipality's own catering or in coalitions of organisations (with Amsterdam leading by example), also scored well on these criteria but were not selected for further analysis because Amsterdam has already made significant progress in this area.

The retail sector

Measures in the food retail sector show the highest potential for reducing emissions given that 70%[50] of all food is purchased in retail settings. To tap into this potential, Amsterdam can build on existing initiatives with retail, trade and investors, facilitate partnerships between the city and business community, and encourage ambitious target-setting, monitoring and action. The policies in this theme aim to: increase the supply and demand of plant-based proteins in the food retail environment; and encourage reductions in operational and household food waste, and have been grouped accordingly: 1) **adapting food choice environments through retail nudging,** 2) **building partnerships with retailers,** and 3) **driving retailer reform through targets, regulation and product**

[50] Source: Detailhandel food: veranderende consument vraagt meer creativiteit - Rabobank

reformulation, with the latter likely to result in the most significant change.
The Netherlands provides unique opportunities to implement regulation for protein splits, as there is already a uniform monitoring system in place and nearly all supermarkets have set (non-binding) ambitious protein split targets for 2030 (GPA & ProVeg NL, 2025). Specific policy examples included a range of both soft and hard measures, such as the requirement for mandatory reporting on plant:animal protein sales splits among all food businesses in the city, and retailer nudging through changing the routing and promotional strategies in supermarkets for protein products.

Sustainable and healthy food in educational institutions and sports settings

This policy theme aims to improve the availability, affordability and appeal of healthy and sustainable foods within a range of educational institutions and sports settings in order to support climate, health, and social equity. Children are therefore the primary target audience, however, policies are likely to reach a broader group of audiences including adults, teachers, parents, and staff.

Policies for this theme have been grouped by: 1) **policies that limit unhealthy food options**, 2) **policies that increase availability of healthy and sustainable food**, and 3) **facilitating policies for behaviour change**. Policy examples aim to change the food choice environment for consumers, such as by reducing the availability and advertising of unhealthy foods whilst increasing the availability and appeal of healthy, plant-based options, and matching this supportive education, workshops, and media campaigns to inspire and encourage behaviour change.

This policy area has been prioritised given that several educational institutions (primary schools) and sports facilities (e.g. pools, sports halls, parks and recreations grounds) in Amsterdam are run by the City or already collaborate with them. While Amsterdam does not provide school meals directly, its deep and varied experience with procurement in other public institutions is likely to support this approach and encourage best practice. By setting standards in health and sports facilities, these policies could help normalise healthy and sustainable food, and model out-of-home solutions more widely.

Opportunities within the Metropolitan Region of Amsterdam

Opportunities to work with stakeholders, specifically farmers, in the Amsterdam region are directly within the city's scope of influence (through the existing MRA collaboration). While the overall reduction in emissions may be lower than in other areas, these efforts can still have an effect, especially when connected to local consumption of the regionally produced plant-based and alternative protein sources.

Policies for this theme have been grouped by: 1) **policies that facilitate interaction between regional farmers and city dwellers,** and 2) **policies that provide economic support to famers that contribute to the protein transition**. Policy examples include supporting regional farmers markets that connect farmers and consumers and extending the existing covenant to include a wider range of organisations in the MRA and include criteria for regional sourcing of plant-based proteins. Animal farmers in transition can be supported financially by long-term purchase guarantees and subsidies.

This theme has been prioritised because of the wider system and spatial impacts that Amsterdam wants to achieve. The protein transition has a strong spatial component in that plant-based production and consumption need less land than animal-based. This means that the protein transition also inherently touches upon other policies with spatial issues (e.g. housing, nature, energy production, etc.). Amsterdam, as a city with many inhabitants and strong ties to its businesses, infrastructure and hinterland, plays an influential role in these spatial issues. It can therefore also be a living lab for incorporating multiple policy goals in protein transition policy. We also advice Amsterdam to map system land use impacts beyond the MRA and think about spatial opportunities and policy implications in those contexts (e.g. provincial or national levels).

Positioning Amsterdam as a plant-based capital

This policy theme aims to establish Amsterdam as the internationally recognised 'Plant-Based Capital.' It targets key stakeholders, including businesses in tourism, events, and internal entities like the Port of Amsterdam.

Policies for this theme have been grouped by: 1) **innovative policies with international visibility,** 2) **policies directed to public-facing spaces and tourism,** 3) **policies directed to the business and innovation climate**, and 4) **supporting policies through communication and visibility**. Policy examples include the phase-out or setting minimum criteria of animal feed transhipment in the port of Amsterdam, phase-out or setting minimum criteria for transport of live animals via Schiphol airport, regulating the food environment at events, i.e. ban non-vegetarian food at festivals or encourage vegetarian stalls at festivals through rate reduction, facilitating the settlement of plant-based enterprises in Amsterdam via network development, outreach and financial incentives, and developing a city map of healthy and sustainable shops, restaurants, community gardens.

This theme is prioritised because it aligns with Amsterdam's strengths, such as strong partnerships and coalition building. As a major tourist hub with a large events and hospitality sector, the city can leverage these areas to reduce food-related CO_2 emissions.

Effective policy combinations

A combination of interventions is crucial. Offering healthy food in schools and sports settings and promoting Amsterdam as a plant-based capital can help make plant-based food the default. Creating more opportunities for farmers and supporting plant-based protein businesses can strengthen the production side and improve its connection to local consumption. Retail plays a key role in reaching consumers, but depends on the success of other factors, especially changing norms and increasing production of alternative protein sources and reducing animal-based protein production. Information campaigns and education can further support and amplify the effects of the policy themes.

Recommendations

Recommendations for Amsterdam

Amsterdam **should implement policies based on the key themes identified in this report**: 1) the retail sector, 2) sustainable and healthy food in educational institutions and sports settings, 3) opportunities within the Metropolitan Region of Amsterdam (MRA), and 4) the positioning of Amsterdam as a plant-based capital. In terms of retail, alignment with existing commitments in the Netherlands is helpful, and opening a dialogue with retailers on how the municipality can help them and how they can help the municipality would be a first recommendation. Lobbying for nationally binding protein split targets is a second. The educational sector offers easy wins due to the relatively high level of control the city has, making it an ideal area for quick action. By building on the already established collaboration in the MRA and existing initiatives, Amsterdam can strengthen the connection between the city and its citizens with regional food producers. Incorporating targeted procurement criteria or long-term purchase guarantees in the covenant are concrete actions to be taken. Working together with a food council has been proven effective in other cities to bring different parties together. Finally, Amsterdam can use its control over measures such as tourist tax, and the transshipment of goods through the Port of Amsterdam to strengthen its position as a plant-based capital. For the hospitality, events, and tourism sectors, a voluntary approach, such as through covenants or event criteria, could be effective as an initial step, with regulation considered if voluntary measures fall short.

Amsterdam **should continue working on policies that scored highly but were not included in the deep dive analysis**. This includes advancing public procurement for sustainable food and drink, where Amsterdam's pioneering efforts can serve as inspiration for other cities. Furthermore, we advise Amsterdam to continue to strengthen its governance structures, such as the food council, and explore ways to expand its influence and control.

Recommendations for other cities

To **identify the prioritisation areas** within the protein transition, an approach similar to this report can be used by other cities. The first step is creating a longlist as a starting point, with ranking done according to the specific context of each city. Prioritisation should be a mix of high-scoring policies and leveraging the city's strengths. For example, if a city is a port city, transshipment policies might be effective, or if it is a tourist hub, policies targeting the city's image might have more impact.

In identifying priority areas, cities should assess their **strengths** and the extent of their **influence in implementing certain policies**. For instance, while Amsterdam may not have direct control over procurement for schools and other public institutions, this might be different in other cities, where more control could be exercised. When designing or diving deeper into policies, the six success factors for effective policies should be kept in mind.

Examples of policies with a high potential based on this project's longlist that can be interesting for other cities are: sustainable procurement policies, regulating the food environment through bans or restrictions on food sales in specific locations, applying pressure on the government to regulate the protein split in retail or negotiate agreements with retailers, and appointing an alderman specifically responsible for the protein transition.

Recommendations from two case study interviews

Through two case study interviews some practical lessons were derived:

- In order to implement protein transition policies effectively, **engage all levels of an organisation**. For schools and hospitals for instance, this means all staff, including chefs, nurses, and managers. **Communication should prioritise taste and price** over focusing solely on the plant-based aspect.
- **Social restaurants can create a dual impact**, providing job training for job seekers while also offering healthy, affordable meals that support the protein transition.
- The key to success in collaborating with events is having a **clear vision**, paired with **flexibility in implementation**. Additionally, the city's **facilitating role in connecting partners** plays an important part.
- For production-side policies, it is important to **listen to farmers** and understand their income models. Additionally, the **food council** can be a valuable tool for gathering input and developing strategies.
- Equity and strong communication go hand in hand. Denmark used **campaigns and media** to communicate its goals, using platforms like newspapers and billboards. Ghent's success was partly due to framing the policy around 'good food' rather than focusing on plant-based eating alone. This broader narrative made the message more inclusive and acceptable.

- Ensuring that collaboration with key stakeholders is **dynamic, clear and fair** ensures a true representation of information is collated. Furthermore, ensuring a holistic approach to the discussions taking place with any stakeholder engagement was key to its success.
- Finally, **prioritising goals** on different success factors (e.g. short- and long-term, ease to implement, perceived success). Consider the timeline of these goals (e.g. running concurrently) and how shorter-term goals can impact behaviour change for longer-term goals.

Recommendations for future research: monitoring and evaluation

Establishing a robust framework for monitoring and evaluation is strongly encouraged, as early as possible in the transition process. This is especially important given the evolving nature of the protein transition policy field and lack of empirical evidence currently available, with best practices for accelerating the protein transition (at the city-level) still in development. Hence, there is much to be gained from continually identifying learnings, adapting strategies, and sharing lessons and experiences with other Dutch municipalities and European cities.

Amsterdam already tracks progress through its Protein Monitor (*Eiweetmonitor*), whereby data is presented on the consumption of plant-based and animal proteins, on a national level. As a next step, Amsterdam could encourage local supermarkets or caterers located in Amsterdam to complete the Protein Monitor, to discover how retail in Amsterdam scores on the protein transition, compared to national levels.

Given that a combination of policies is likely to be adopted by Amsterdam, with differing audiences and channels of impact (such as via consumer behaviour, or retail practices), it is recommended that several key performance indicators are used to monitor and evaluate progress in the protein transition. Some examples of monitoring methods are explored in Chapter 5, and are grouped by consumption pattens, environmental impact, economic output, health outcomes; and/or social awareness and behaviours.

References

A Greener Future. (2025). *AGF annual sustainability report 2024*. https://www.agreenerfuture.com/agf-annual-sustainability-report-2024-1

CE Delft. (2020). *Top 10 milieubelasting gemiddelde Nederlandse consument - update versie 2020*. https://ce.nl/publicaties/top-10-milieubelasting-gemiddelde-nederlandse-consument-update/

CE Delft. (2023). *Duurzaam voedsel voor Den Haag*. https://cedelft.eu/wp-content/uploads/sites/2/2023/05/CE_Delft_220266_Duurzaam_voedsel_voor_Den_Haag_Def.pdf

City Deal Voedsel op de Stedelijke Agenda. (2021). *Gemeentelijk instrumentarium voor een gezonde voedselomgeving*.

Gemeente Amsterdam. (2020). *Amsterdam Circulair 2020-2025 Strategie*.

Gemeente Amsterdam. (2021a). *Amsterdamse nota gezondheidsbeleid 2021-2025*.

Gemeente Amsterdam. (2021b). *Implementation Agenda Food Strategy 2023-2026*.

Gemeente Amsterdam. (2021c). *Naar een meer plantaardig voedingspatroon: Actieplan Eiwittransitie 2021-2023*.

Gemeente Amsterdam. (2021d). *Omgevingsvisie Amsterdam 2050: Een menselijke metropool*.

Gemeente Amsterdam. (2023). *Agenda Dieren 2024-2026*.

Gemeente Amsterdam. (2024a). *Monitor Circulaire Economie 2022*.

Gemeente Amsterdam. (2024b). *Monitor voedsel in Amsterdam: Meer plantaardig (oktober 2024)*.

Gemeente Amsterdam. (2024c). *Verduurzaming gemeentelijke organisatie: Verduurzamingsrapportage over 2023 en Herijking van de Uitvoeringsagenda Duurzame Organisatie 2020-2030*.

Gezondheidsraad. (2023). *Gezonde eiwittransitie*. https://www.gezondheidsraad.nl/onderwerpen/voeding/documenten/adviezen/2023/12/13/advies-gezonde-eiwittransitie

GPA, & ProVeg NL. (2025). *Eiweet: Landelijke supermarkt eiwitverhouding 2024*. https://eiweet.nl/wp-content/uploads/2025/04/Eiweet-Landelijke-supermarkt-eiwitverhouding-2024.pdf

Health Council of the Netherlands. (2023). *A healthy protein transition*.

Herrero, C. C., Dias, A. C., Gallego, M., Gutiérrez, D., Quinteiro, P., Villanueva-Rey, P., Oliveira, S., Albertí, J., Bala, A., Fullana-i-Palmer, P., Puig, M. F., Melón, L., Sazdovski, I., Rodríguez, E., Roca, M., Xifré, R., Laso Cortabitarte, J., Margallo Blanco, M., & Aldaco García, R. (2025). Tool for Greener Tourism: Evaluating Environmental Impacts. *Sustainability*, *17*(8), 3476. https://doi.org/https://doi.org/10.3390/su17083476

PBL. (2019a). *Dagelijkse kost. Hoe overheden, bedrijven en consumenten kunnen bijdragen aan een duurzaam voedselsysteem*. https://www.pbl.nl/sites/default/files/downloads/PBL-2019-dagelijkse-kost-bijdragen-aan-duurzaam-voedselsysteem-2638.pdf

PBL. (2019b). *Kwantificering van de effecten van verschillende maatregelen op de voetafdruk van de Nederlandse Voedselconsumptie*. https://www.pbl.nl/sites/default/files/downloads/PBL-2019-Kwantificeren-opties-voetafdruk-voedsel-3488.pdf

Ran, Y., Persson, U. M., Lindahl, T., Jonell, M., Brons, A., Macura, B., Candel, J., Abu Hatab, A., & Röös, E. (2025). Are interventions for environmentally sustainable dietary behaviours effective? A review. *Environmental Research: Food Systems*, *2*(3).

RLi. (2020). *Stop bodemdaling in veenweidegebieden*.

Strootman, B., Embregts, L., Peters, L., Lammers, J., & Erisman, J. (2024). Nederland Veganland? *Nederland Veganland?*

Sun, Z., Scherer, L., Zhang, Q., & Behrens, P. (2022). Adoption of plant-based diets across Europe can improve food resilience against the Russia–Ukraine conflict. *Nature Food*, *2022*(11), 905-910. https://doi.org/10.1038/s43016-022-00634-4

UvA. (2020). *Juridisch instrumentarium voor een gezonde voedselomgeving in de stad*.

A Policy landscape

A.1 The protein transition in Amsterdam's policy documents

This section gives an overview of Amsterdam policy documents from multiple policy fields (food and protein transition policy, broader environmental policy and adjacent policy fields such as public health and animal welfare). For each document, we describe what is mentioned on the protein transition.

Table 2 – Protein transition in other policy documents by the City of Amsterdam

Policy document	How does this document address the protein transition?
Food policy	
Protein Transition Action Plan 2021-2023	In 2021, the City of Amsterdam drafted the Protein Transition Action Plan (Gemeente Amsterdam, 2021c). This plan aims to contribute to the national goal for the protein transition: a shift in the consumption of proteins towards 60% plant-based and 40% animal proteins by 2030. The action plan contains measures in four categories: • knowledge, awareness and food skills of Amsterdam's residents and visitors; • stimulating the increase in availability of plant-based food; • plant-based in public space; • the municipal organisation as an example.
Environmental policy	
Strategy on Spatial Planning and the Environment	Amsterdam's Strategy on Spatial Planning and the Environment (Gemeente Amsterdam, 2021d) focuses on six ambitions: 1. An inclusive city. 2. A sustainable city. 3. A vital city. 4. A healthy city. 5. A liveable city. 6. A compact city. Food and urban farming are mentioned in relation to 'a healthy city'. The municipality strives towards a healthy food environment in Amsterdam and therefore wants to restrict fast food and high-calorie snacks in residential areas and specifically near schools. In the Strategy on Spatial Planning and the Environment, the municipality mentions that it wants to use stronger policy instruments for a

Policy document	How does this document address the protein transition?
	healthy food environment. At the moment, however, the municipality's efforts are mainly centered around education, awareness raising and facilitation.
Strategy Circular Amsterdam 2020-2025	Amsterdam's strategy for a circular economy (Gemeente Amsterdam, 2020) defines ambitions for thee value chains: food and organic waste streams, consumer goods and built environment. One of the ambitions in the value chain of food and organic waste streams, is 'healthy and sustainable food for all residents of Amsterdam'.
Implementation Agenda Sustainable Organisation 2020-3030	The City of Amsterdam wants to decarbonise its own municipal organisation. Amsterdam's main objective is to become a climate neutral and circular municipal organisation by 2030. Regarding the protein transition, the Implementation Agenda Sustainable Organisation 2020-2030 (Gemeente Amsterdam, 2024c) mentions that the municipality wants to research whether a protein ratio of 70:30 (plant-based:animal) is feasible for the new catering contract.
Adjacent policy field – Public health	
Health Policy 2021-2025	One of the seven priorities in Amsterdam's Health Policy (Gemeente Amsterdam, 2021a) is 'a healthy city'. One of the main features of a healthy environment, according to the City of Amsterdam, is availability of healthy food. According to the City of Amsterdam, 84% of food providers sells predominantly unhealthy food. This is why the City of Amsterdam formulated the ambition that the living environment is designed in such a way that it protects health and stimulates health behaviour. To contribute to this ambition, the municipality aims for healthy food to be 'logical and abundant' and for a healthy school environment in particular.[51]
Implementation Agenda Food Strategy 2023-2026	One of the actions in the Implementation Agenda Food Strategy 2023-2026 (Gemeente Amsterdam, 2021b), is 'a healthy food environment'. Under this action line, the municipality formulated concrete goals: • By 2028, 80-100% of the food supply from municipal policies (sporting events, canteens, community activities and events, municipal procurement) complies with the Netherlands Nutrition Centre's healthy and sustainable food environment guidelines. • By 2040, the unhealthy food supply in the streets (commercial food environment) will be reduced to no more than 55% (currently it is 80%). In the Implementation Agenda Food Strategy, Amsterdam mentions that a diet with more vegetable protein has a positive impact on health, as it can lead to less cardiovascular disease, reduce the risk of colon cancer and lower the disease burden of chronic conditions. A diet based on nuts, fruits, vegetables and legumes, combined with moderate consumption of meat and dairy, is therefore recommended by the Netherlands Nutrition Centre. This advice is also included in the centre's 'Wheel of Five' dietary guidelines under the recommendation 'more vegetables and less meat'. An update of the dietary recommendations is currently being prepared, and this will likely include a stronger emphasis on protein shift due to the recent recommendations of the Health Council of the Netherlands (2023).

[51] Also see 'De Amsterdamse Gezondheidslogica' with 12 principle for a healthy living environment: De Gezonde Stad - Gemeente Amsterdam

Policy document	How does this document address the protein transition?
Adjacent policy field – Animal welfare	
Animal Agenda 2024-2025	Amsterdam's Animal Agenda 2024-2026 (Gemeente Amsterdam, 2023) describes that the municipality is doing for animal welfare in Amsterdam. Amsterdam wants to be an animal-friendly city and has therefore appointed an alderman on animal wellbeing. One of the four main goals in the Animal Agenda is to reduce the amount of livestock for food production. To achieve this goal, Amsterdam wants to increase consumption of plant-based food and decrease intensive livestock. The Animal Agenda refers to the Food Strategy for activities that contribute to the dietary shift towards more plant-based consumption.

A.2 Multi-level policy landscape

In this paragraph, we present the main policy documents and objectives by other governments regarding the protein transition.

Table 3 – Food and protein transition objectives of regional and (inter)national governments

Level	Document	Objectives and activities regarding the protein transition
Province of North Holland	Vision on Food: Voedselvisie - Provincie Noord-Holland	• By 2030, we have carried out five projects on cultivation of protein-rich crops, new sources of protein (seaweed, algae, aquaculture) and recovering protein from waste streams. • Increase consumption of plant-based proteins, amongst others in collaboration with 'Voedsel Verbindt' and the Green Protein cluster.
The Netherlands	National Protein Strategy: Nationale Eiwitstrategie | Kamerstuk | Rijksoverheid.nl and its BeanDeal	• Primary overarching goal: Scale-up of NL cultivation of (mainly leguminous) protein crops, primarily for human consumption. • In 2030 100,000 ha of protein-rich leguminous crops are cultivated (both for animal feed and human consumption). • Farmers are rewarderd for sustainable protein production and there is increased collaboration in local protein value chains. • The Netherlands are front runners in protein innovation and technology. In 2025 increased offering of tasty, sustainable and healthy plant-based food. • A 'healthy balance' between animal and plant-based protein: 50/50. • In 2030 50% less food waste. • The 'food choice environment' stimulates the purchase of NL-grown plant-based proteins. • A range of specific actions for different stakeholders, targeting increased collaboration, procurement, knowledge development, streamlining regulations, pilot programs and scaling.

Level	Document	Objectives and activities regarding the protein transition
	National transition agenda biomass & food: Transitieagenda biomassa en voedsel | Transitieagenda's per sector | Nederland circulair in 2050	• Protein split 50/50 and 10-15% lower overall protein consumption. • In 2050 50% reduced GHG emissions of protein production. • Broadly defined actions aimed at collaboration, monitoring, efficiency improvement and circularity.
	Circular Agriculture Vision: Visie Landbouw, Natuur en Voedsel: Waardevol en Verbonden | Beleidsnota | Rijksoverheid.nl and Realisation Plan Realisatieplan Visie LNV: Op weg met nieuw perspectief | Publicatie | Rijksoverheid.nl	• Broadly defined actions aimed at circularity, protein independence (from an EU perspective), diversification. Rarely specific regarding the protein transition for human food.
EU	Common Agricultural Policy (CAP) 2023-2027 Framework	• Broadly defined aims, mostly related to supply of protein foods. • Aim to reduce reliance on imported protein sources by boosting domestic production of proteins such as soybeans and legumes. 20 Member States have income support schemes for protein crops. • Promotion of cultivating protein crops which contribute to environmental benefits, e.g. legumes, through agri-eco-schemes/environmental commitments. • Promote use of by-products from protein crops for feed, bioenergy and fertilisers. • Funding for research projects under Horizon 2020 and Horizon Europe to develop competitive and sustainable farming systems for protein crops. • CAP Network focus groups facilitate knowledge exchange and strategy development for increasing plant protein self-sufficiency.

	Farm to Fork (F2F) Strategy and legislative Framework for Sustainable Food Systems (FSFS)	• *F2F Strategy*
		  • Does not use the term 'protein transition', but has aligned objectives and actions, including aims to:
		  - encourage diets with more plant-based foods;
		  - reduce GHG emissions and biodiversity loss associated with food;
		  - encourage cultivation of protein-rich crops and reduce need for synthetic fertilisers e.g. planting legumes;
		  - improve food security and nutrition through diversifying protein sources.
		• *FSFS*
		  • Proposed under F2F, aims to establish approach to sustainable food systems. Specific measures are still in development, but the framework aims to:
		  - establish sustainability principles for food

Level	Document	Objectives and activities regarding the protein transition
		systems; - promote food policy coherence (to be aligned with sustainability objectives); - encourage sustainable diets - to include increased consumption of plant-based proteins; - promote circular economy practices in food production and processing.
	Vision for agriculture and food	• No explicit mention of protein transition. Key relevance is within aims to reduce dependency on imported protein sources (for improved food security), and promoting sustainable, local alternatives (for economic growth and societal benefits).

Private sector in the Netherlands

- Protein split targets set by the major Dutch supermarkets (non-binding) and a standardised monitoring tool created by and for the supermarkets to monitor progress of the protein target (The Protein Tracker).
- Voluntary agreements between private institutions to accelerate the protein transition (e.g. Dutch Cuisine who strive for a community of professionals who adhere to 80% plant-based and 20% animal-based foods on restaurant menus).