EerlijkeBankwijzer

Financing less meat and more plants

A case study on the crucial role Dutch banks can play in the protein transition

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About the Eerlijke Bankwijzer - Fair Bank Guide Netherlands

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The Eerlijke Bankwijzer is part of Fair Finance International (FFI), an international civil society network working in ten countries with over 70 CSOs, that seeks to strengthen the commitment of banks and other financial institutions to social, environmental and human rights standards.

About this report

This report investigates the role that banks can play in the transition towards a food system less dependent on animal protein and more based on plant-based and alternative sources of protein. It draws on the recent literature and expert interviews to identify key possibilities and barriers, as well as the steps that banks could take to advance the protein transition.

Authorship

This report was researched and written by Stefanie Geurts, Lennart van Loenen and Jan Willem van Gelder. Correct citation of this document: Geurts, S., L. van Loenen, and J.W. van Gelder (2021, May), *Financing less meat and more plants - A case study on the crucial role Dutch banks can play in the protein transition,* Amsterdam, The Netherlands: Profundo.

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Summary

A global protein transition is urgently needed, as the present over-production and -consumption of animal protein sources has large negative consequences for biodiversity, the climate, food security, public health, human and labour rights, and animal welfare. The global livestock sector is responsible for most of the deforestation in the Amazone and Cerrado regions in Brazil, for the cruelty to which millions of farm animals are exposed on a daily basis, for depriving local communities in developing countries from their land rights and food security, for emitting enormous amounts of greenhouse gases and nitrogen which disrupt the climate and ruin nature areas, and for outbreaks of zoonotic diseases threatening the global population.

The transition towards a more plant-based is not only indispensable, but also achievable: the number of plant-based and alternative protein sources available on the market is already large and new products are introduced on an almost daily basis. Technological developments in the fields of protein processing, fermentation, and cell-based protein production are progressing rapidly. The market for plant-based protein sources has grown considerably in recent years and is set to expand further. This offers huge opportunities, the plant-based and alternative protein production sector could become an important growth engine for the Dutch economy.

However, considerable barriers to the protein transition remain. Despite the growth in the plant-based and alternative protein sector, the Netherlands continue to be a major producer of animal protein and the Dutch consumption of animal proteins is showing a slight increase. Bottlenecks persist at almost all steps in the supply chain, including difficulties for primary producers to transition to arable or mixed farming; access to capital for start-up and scale-up food companies producing plant-based protein products; vested interests among some large meat, dairy and food companies that limit their willingness or ability to participate in the transition; and supermarket business models heavily dependent on marketing meat at very low costs.

To accelerate the protein transition, banks could be agents of change helping to address these bottlenecks. At present, however, several banks still have a large exposure to traditional animal proteins and are hardly involved in the necessary protein transition. Out of the eight Dutch banks surveyed in this study, only Triodos Bank has a clear commitment to support a food system which is largely based on plants and alternative sources of protein. Banks with a significant exposure to the food sector, such as Rabobank, ABN Amro, ING Bank and the investment arm of Van Lanschot Kempen, have sustainability policies for the food sector in place and/or support initiatives which aim to make the food system more sustainable. But for none of these banks, these policies and initiatives are embedded in a systematic strategy to move away from over-reliance on animal protein sources. Other banks, such as NIBC and De Volksbank, largely avoid to have exposure to the food sector.

For banks to take their catalytic role serious, In their capacity as financiers, banks could mobilize capital towards innovations in the food system, financially and strategically support farmers and primary producers in the transition process, and engage with large clients such as food, dairy and meat companies and supermarkets to encourage them to shift their business models. Through their research capacity, banks could draw attention to both the opportunities of the protein transition, as well as the risks of business-as-usual scenarios. By leveraging their large client networks and central position in the economy, banks could also play a more coordinating role in facilitating dialogue and cooperation between different actors in the food supply chain.

The European Union and the Dutch government are already taking initiatives to stimulate the protein transition. The effectiveness of these policies could be increased if banks are effectively encouraged to play a catalytic role. Targeted measures to let banks take up their responsibility in the transition process could include:

- Defining long-term goals for the protein transition, creating a stable investment climate;
- Introducing specific financial instruments to mobilize much higher private investments;

- Including criteria in financial regulation which are linked to the protein transition; and
- Introducing policies that ensure a fair, somewhat higher price for animal-based protein products, thereby lowering the risks of the financing of, and investments in, plant-based protein products.

Samenvatting

Een mondiale eiwittransitie is noodzakelijk omdat de huidige overproductie en -consumptie van dierlijke eiwitten grote negatieve gevolgen heeft voor de biodiversiteit, het klimaat, voedselzekerheid, de volksgezondheid, mensen- en arbeidsrechten, en dierenwelzijn. De wereldwijde veehouderij is verantwoordelijk voor het grootste deel van de ontbossing in de Amazone en Cerrado regio's in Brazilië, voor de wreedheid waaraan miljoenen boerderijdieren dagelijks worden blootgesteld, voor het ontnemen van hun landrechten en voedselzekerheid aan lokale gemeenschappen in ontwikkelingslanden, voor de uitstoot van enorme hoeveelheden broeikasgassen en stikstof die het klimaat ontwrichten en natuurgebieden vernietigen, en voor het uitbreken van zoönosen die de wereldbevolking bedreigen.

Een transitie naar een meer plantaardig voedselsysteem is noodzakelijk en realiseerbaar: er zijn al veel plantaardige en alternatieve eiwitbronnen op de markt en elke dag worden nieuwe producten geïntroduceerd. De technologieën om meer eiwitten uit plantaardige bronnen te halen, maar ook fermentatie en kweektechnologieën, ontwikkelen zich razendsnel. De markt voor plantaardige eiwitten is in de afgelopen jaren sterk gegroeid en zal in de komende jaren nog verder groeien. Dit biedt enorme kansen, de plantaardige en alternatieve eiwit-sector zou een belangrijke groeimotor voor de Nederlandse economie kunnen worden.

Tegelijk zijn er ook knelpunten. Ondanks de groei in de markt voor plantaardige vlees- en zuivelvervangers blijft Nederland een zeer grote producent van dierlijke eiwitten en blijft de consumptie van vlees en zuivel zelfs licht stijgen. Knelpunten voor de eiwittransitie bestaan bij bijna elke stap in de voedselketen, waaronder de problemen voor boeren om over te stappen van (intensieve) veeteelt naar akkerbouw of gemengde teelt, de toegang tot kapitaal voor beginnende bedrijven die plantaardige eiwitproducten maken, gevestigde belangen bij sommige grote vlees- en zuivelbedrijven, en een businessmodel voor supermarkten dat gebaseerd is op zeer lage vleesprijzen.

Om de eiwittransitie te versnellen, zouden banken veranderingen op gang kunnen brengen en knelpunten aan kunnen pakken. Op dit moment financiert een aantal banken echter nog op grote schaal de producenten van traditionele dierlijke eiwitten en zijn ze nauwelijks betrokken bij de noodzakelijke eiwittransitie. Van de acht Nederlandse banken die in dit rapport zijn onderzocht, doet alleen Triodos Bank een duidelijke toezegging om een voedselsysteem te ondersteunen dat grotendeels is gebaseerd op plantaardige en alternatieve eiwitbronnen. Banken met grote belangen in de landbouw- en voedingssector, zoals Rabobank, ABN Amro, ING Bank en de beleggingstak van Van Lanschot Kempen, hebben wel een duurzaamheidsbeleid voor de voedingssector en/of ondersteunen initiatieven die erop gericht zijn het voedselsysteem duurzamer te maken. Maar voor geen van deze banken zijn dit beleid en deze initiatieven verankerd in een systematische strategie om de grote afhankelijkheid van dierlijke eiwitbronnen structureel af te bouwen. Andere banken, zoals NIBC en De Volksbank, vermijden grotendeels betrokkenheid bij de voedingssector.

Als kapitaalverstrekkers zouden banken geld kunnen mobiliseren richting innovatieve bedrijven in de voedingsindustrie, boeren kunnen ondersteunen in hun transitie naar minder dierlijke en meer plantaardige productie, en grote klanten zoals voedingsbedrijven en supermarkten kunnen bewegen om hun businessmodellen te veranderen. Door gebruik te maken van hun onderzoekscapaciteit kunnen banken daarnaast de aandacht vestigen op zowel de kansen van de eiwittransitie als de risico's van doorgaan op de huidige weg. Door gebruik te maken van hun grote klantennetwerken en centrale plek in de economie kunnen banken bovendien ook een actief faciliterende of zelfs coördinerende rol spelen, door verschillende partijen en belanghebbenden in de voedingssector bij elkaar te brengen.

De Europese Unie en de Nederlandse overheid namen de laatste jaren verschillende initiatieven om de eiwittransitie te stimuleren. De effectiviteit van dit beleid zou vergroot kunnen worden als banken effectief gestimuleerd worden om een katalyserende rol te spelen. Gerichte maatregelen om banken hun verantwoordelijkheid te laten nemen in het transitieproces kunnen zijn:

- Vaststellen van lange-termijn doelen voor de eiwittransitie, waardoor een stabiel investeringsklimaat ontstaat;
- Introductie van specifieke financiële instrumenten om veel meer particuliere investeringen te mobiliseren;
- Opnemen van criteria in de financiële regelgeving die verband houden met de eiwittransitie; en
- Invoering van beleid dat zorgt voor een eerlijke, wat hogere prijs voor dierlijke eiwitproducten, waardoor de risico's van financiering van, en investeringen in, plantaardige eiwitproducten worden verkleind.

Introduction

A transition in the food system is necessary: away from animal protein and towards plant-based and alternative sources of protein. Worldwide production and consumption of animal protein is far too high, with detrimental consequences for animal welfare and human and planetary health. A large coalition of NGOs is therefore striving towards a reduction of animal protein consumption of at least 50% in 2040.[1] This requires far-reaching adaptations in products, technologies and production technologies, which in turn require large investments. Banks and other capital providers could therefore play a crucial and stimulating role in this transition, if they would base their choices on positive ambition and adequate information.

This case study is an explorative survey of the protein transition, to understand the transition from a variety of perspectives: why it is needed, what the main opportunities and barriers are, who the relevant players are, and how Dutch banks could contribute to the transition. The study seeks to put the protein transition on the agenda of banks and create awareness among banks about what they could do to accelerate the protein transition. In addition, it reviews what role governments could play to take away current barriers to the protein transition, and how governments can incentivize banks to take action on the protein transition.

This case study explores these questions through a combination of literature research, policy review and interviews with experts. The interviews aimed to gather inputs from a diverse set of people to incorporate as many different perspectives as possible. In total**,** 16 interviews were held with experts from academia, NGOs, Dutch provincial and national governments, start-ups, a farmers' organization, investors, and banks. Interviewees spoke on personal note, and their opinions do not necessarily reflect the views of the organisations they worked for. Of the banks included in the Dutch Fair Bank Guide, Triodos Bank participated in the interviews. A full list of the experts interviewed can be found in Appendix 1.

Chapter 1 discusses the reasons why a protein transition is necessary, briefly laying out the serious animal welfare, environmental, climate, and social consequences of the current over-reliance on animal protein sources. Chapter 2 lays out the different elements of the protein transition by discussing the current alternatives, and the way that different market parties are involved. Key focus is on the potential bottlenecks in the development of technologies and markets that could present barriers to the protein transition. Chapter 3 surveys the current commitments that banks included in the Dutch Fair Bank Guide have in regard to the protein transition in their policies. Chapter 4 discusses what banks can do to accelerate the protein transition, focussing on how they could help overcome barriers to the protein transition through their financings, their research capacities, and their potential role as facilitator of dialogue and innovation. Chapter 5 discusses possible strategies that Dutch government organisations could pursue to strengthen banks' participation in the protein transition.

1

Why a protein transition is necessary

In this chapter, the necessity of a protein transition is elaborated from the perspectives of animal welfare, biodiversity, climate change, food security, human and labour rights, and public health.

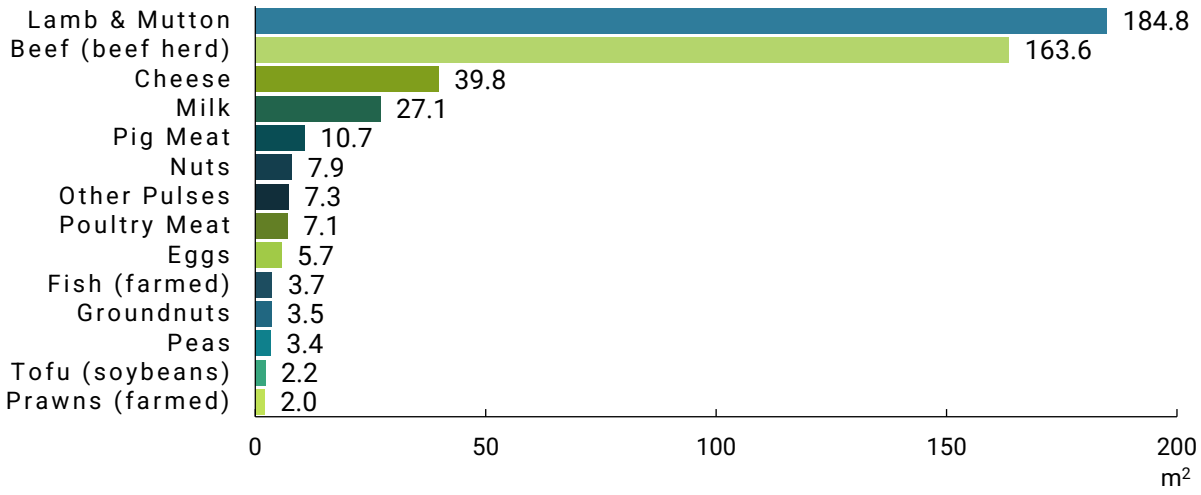
1.1 Biodiversity

The present speed of vertebrate species extinction is up to a hundred times higher than the background extinction rate, and estimates by the International Panel on Biodiversity and Ecosystem Services (IPBES) suggest that around a million animal species are currently threatened with extinction.[2]

The livestock sector is one of the leading causes of land use change, land degradation, and biodiversity loss worldwide.[3] Livestock production – both intensive and extensive – for meat and dairy requires large amounts of land, both for grazing animals and for feed production. The area used globally for grazing livestock and feed production amounts to around 40 million km^2, which is around 77% of global agricultural land and 27% of the total land area on earth.[4] On an aggregate scale, cattle has been the most important driver of deforestation that has occurred in the Brazilian Amazon since the 1970s. Historically, land conversion for creating cattle farms has been responsible for some 70% of deforestation in the Brazilian Amazon.[5]

The intensive livestock industry in the Netherlands and the rest of Europe relies heavily on soy imported from regions with high deforestation risks – most notably the Amazon and Cerrado biomes in Brazil.[6] Figure 1 shows the average land use in square meters per 100g of protein for a range of food products. These figures are based on a global meta-analysis of the impacts of food production, so regional variabilities exist for each food category.

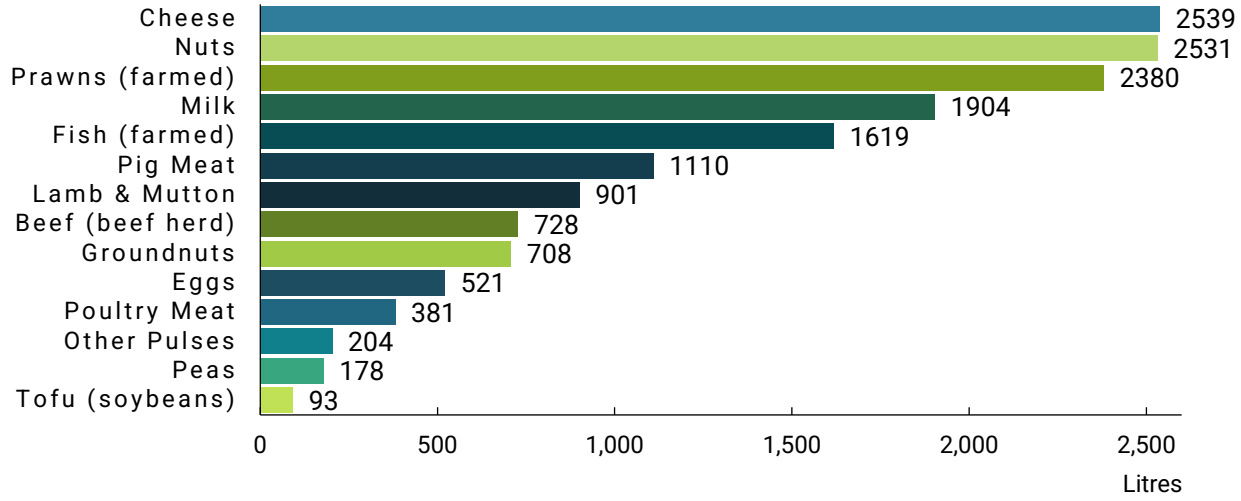
Figure 1 Land use in square metres (m^2) per 100g of protein for different food products



Source: Poore, J. and T. Nemeek (2018, June 1), "Reducing food's environmental impacts through producers and consumers", Science, 360: 987 – 99; Ritchie, H. and M. Roser (n.d.), "Environmental impacts of food production", Our world in data, online: https://ourworldindata.org/environmental-impacts-of-food, viewed in March 2021.

In addition, the livestock industry is one of the largest users of freshwater resources, accounting for almost half of global freshwater withdrawals worldwide.[7] Figure 2 shows the average freshwater withdrawals in litres per 100g of protein for a range of food products. These figures are based on a global meta-analysis of the impacts of food production, so regional variabilities exist for each food category.

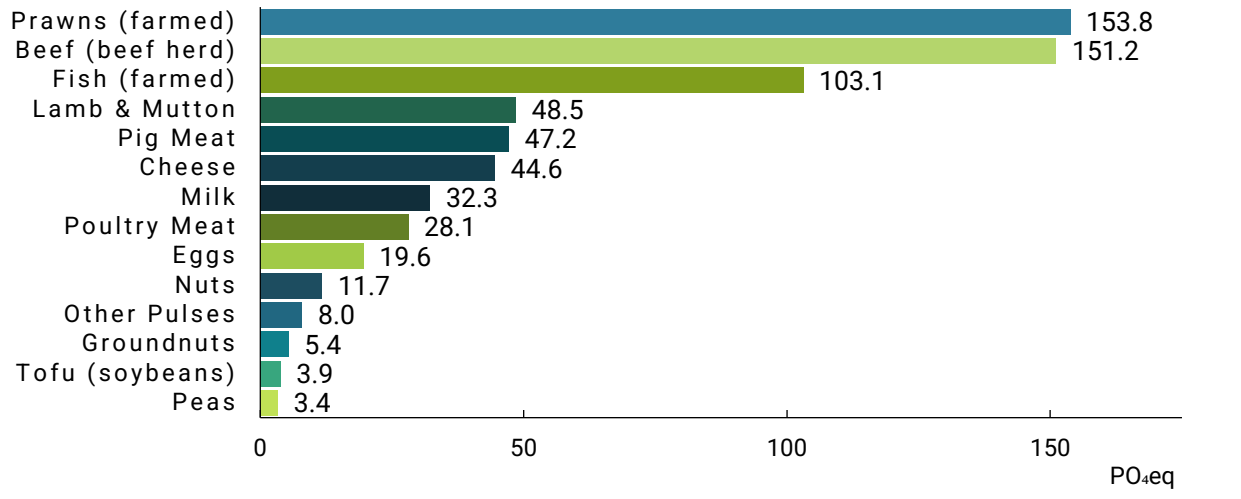
Figure 2 **Freshwater withdrawals in litres (l) per 100g of protein for different food products**



Source: Poore, J. and T. Nemeek (2018, June 1), "Reducing food's environmental impacts through producers and consumers", Science, 360: 987 – 99; Ritchie, H. and M. Roser (n.d.), "Environmental impacts of food production", Our world in data, online: https://ourworldindata.org/environmental-impacts-of-food, viewed in March 2021.

Lastly, the livestock industry is a significant source of water, soil and air pollution.[8] Holding large numbers animals in industrial livestock systems in the Netherlands has created an enormous surplus of manure, which has significantly contributed to the excess nitrogen deposition (particularly ammonia and nitrous oxides) threatening vulnerable ecosystems in the Netherlands.[9] Figure 3 shows the eutrophying emissions in phosphate equivalents (PO_4eq) per 100g of protein for a range of food products. These figures are based on a global meta-analysis of the impacts of food production, so regional variabilities exist for each food category.

Figure 3 **Eutrophying emissions in phosphate equivalents (PO4eq) per 100g of protein for different food products**



Source: Poore, J. and T. Nemeek (2018, June 1), "Reducing food's environmental impacts through producers and consumers", Science, 360: 987 – 99; Ritchie, H. and M. Roser (n.d.), "Environmental impacts of food production", Our world in data, online: https://ourworldindata.org/environmental-impacts-of-food, viewed in March 2021.

These figures do not include the potential toxic environmental effects of pesticides, which are widely used for feed production. On the whole, the production of animal protein sources is one of the most important causes of land degradation, deforestation, freshwater consumption and pollution, and therefore one of the main drivers of biodiversity loss worldwide.

1.2 Climate change

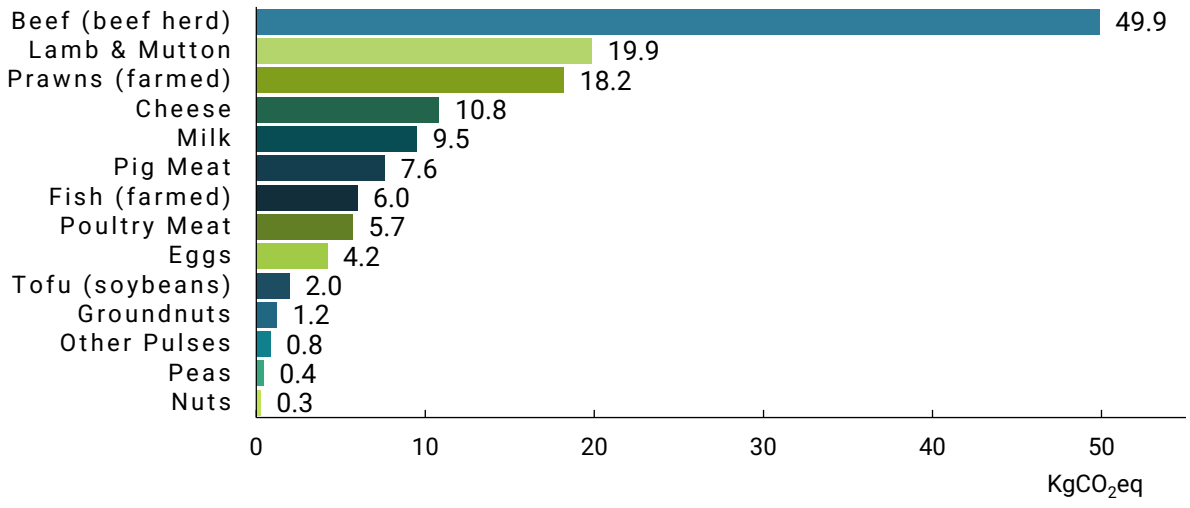
The Intergovernmental Panel on Climate Change (IPCC) forecasts that global temperatures will increase between 0.3°C and 4.8°C in the 21st century, increasing the likelihood of severe and irreversible impacts for people and ecosystems.[10] It is estimated that the livestock sector is on average responsible for around 16.5% of global greenhouse gas emissions globally.[11] A study by GRAIN and IATP estimated that the world's top five meat and dairy corporations together are responsible for more annual greenhouse gas emissions than ExxonMobil, Shell or BP.[12]

Among the main sources of greenhouse gas emissions in the livestock sector are:[13]

- Deforestation and (indirect) land use change for feed production and cattle rearing;
- Emissions of methane from enteric fermentation; and
- Emissions of nitrous oxides and other greenhouse gases from fertilizers for feed crop cultivation.

Meat, dairy, and eggs are responsible for around 83% of the greenhouse gases from the average European diet.[14] Figure 4 shows the estimated greenhouse gas emissions in carbon dioxide equivalents (CO_2eq) per 100g of protein for a range of food products. These figures are based on a global meta-analysis of the impacts of food production, so regional variabilities exist for each food category.

Figure 4 Greenhouse gas emissions in carbon dioxide equivalents (kg CO_2eq) per 100g of protein for different food products



Source: Poore, J. and T. Nemeek (2018, June 1), "Reducing food's environmental impacts through producers and consumers", Science, 360: 987 – 99; Ritchie, H. and M. Roser (n.d.), "Environmental impacts of food production", Our world in data, online: https://ourworldindata.org/environmental-impacts-of-food, viewed in March 2021.

1.3 Food security

Food security is a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".[15] Although the right to food is enshrined in the Universal Declaration of

Human Rights (UDHR)[16] as well as in the International Covenant on Economic, Social and Cultural Rights (ICESCR)[17] and despite global efforts to reduce hunger, a recent report of the FAO highlights that the prevalence of undernourishment in the world has increased between 2014 and 2019.[18] This recent trend of increasing food insecurity can be attributed to various causes, such as the high number of conflicts across the globe, often exacerbated by climate related impacts, but also economic downturns. Since the global population is projected to keep growing and will reach 10 billion by 2050, the FAO forecasts that the number of undernourished people in the world will be more than 840 million by 2030, taking into account food availability as well as the inequality in access to food.

Animal protein production and consumption affects food security both in a direct sense and in a more general, indirect sense. In a direct sense, animal protein production, both through large-scale monocrop cultivation for feed production and large-scale cattle herding for national or export markets in developing countries, may interfere with local communities' ability to meet their own nutritional needs.

In a more general sense, animal protein production is a fundamentally inefficient way of producing food.[19] The production of one kilogram of animal protein on average requires an input of between three and twenty kilograms of plant protein.[20] As a result, animals in intensive systems are often fed on crops that could also be directly eaten by humans, such as maize or soy, and feed is often grown on land that could also be more efficiently used to cultivate crops for human consumption. This feed-food competition, driven largely by the need for inputs for industrial livestock farming, presents a serious threat to global food security, particularly in developing countries. Efforts to promote the adoption of circular farming systems, for instance by feeding animals on waste streams and rest streams, may help to reduce this feed-food competition, but such systems cannot support a further global increase of animal protein consumption to levels common in western Europe and the US. The global adoption of diets with animal protein intakes similar to those in high-income countries would require more land than is available on earth.[21]

1.4 Public health

As the main driver of deforestation worldwide, intensive livestock farming has also been associated with the spread of zoonotic diseases, such as the outbreaks of Ebola and Covid-19. Over the past decades, the incidence of outbreaks of zoonotic diseases has increased. Such diseases emerge from places where people and humans mingle, and as human activity pushes further into the shrinking habitats of wild animals, the risks of diseases crossing over to humans increase as well.[22]

Because of the high stocking densities of animals with very little genetic variation, intensive livestock systems themselves frequently function as vectors of diseases too. In the Netherlands, this is evidenced by recent outbreaks of Covid-19 on mink farms, avian flu on poultry farms, and African swine flu on pig farms.[23]

Another important health aspect is linked to the consumption of animal-based products in high-income countries, which is much higher than what is deemed healthy. Overconsumption of animal protein has been associated with several non-communicable diseases, especially red, processed meat.[24] These diseases include heart disease, type 2 diabetes and several types of cancer, such as stomach, colon, rectum, pancreatic and prostate cancer, which rank among the leading causes of death in many countries. Additionally, cases of foodborne diseases have been linked to the consumption of contaminated animal products. The agriculture and livestock sector is also a large contributor to air pollution, which is a serious threat to global health.[25]

Furthermore, the widespread use of antibiotics in intensive livestock farming has resulted in a growth in antimicrobial resistance, which forms a large risk to global health as drug-resistant bacteria are passed on from animals to humans. It is estimated that this could lead to 10 million deaths a year by 2050.[26]

1.5 Human and labour rights

Since the animal agriculture sector is one of the leading drivers of land use change worldwide, its expansion has been associated with numerous conflicts over land rights, land grabbing and forced evictions are another significant issue concerning food production and food security. Land grabbing occurs when foreign companies, countries, or investors buy or rent land for large-scale industrial and/or commercial agriculture production oriented on the export market at the expense of land rights of the local communities concerned. The lack of consultation and transparency for the allocation of land is a serious problem in developing countries. Evictions and conflicts over land are often paired with a violation of basic human rights and principles. As a result, people are not only deprived of their property and the right to use their land, but also of their familiar habitat, cultural riches and sources of food and income.[27]

The reduced availability of land for local actors also shifts local economies away from traditionally sustainable modes of peasant agriculture towards a dependence on commercial agriculture for global markets in feed, food and biofuels.[28] Traditional livelihoods can be destroyed through land grabs, land contamination and water pollution.[29]

In this respect, indigenous peoples and minorities are especially vulnerable to land-related abuses driven by the expansion of the livestock sector.[30] Some of the most common problems faced by indigenous peoples include forced evictions due to development projects, discrimination, failure to respect and support indigenous modes of production such as pastoralism and subsistence hunting/gathering, dismissal of their customary systems of governing land and other natural resources, or disregard of their sacred sites and the spiritual relationship with their lands. Moreover, indigenous peoples' traditional lands are often located in remote areas that have fragile ecosystems which makes them more vulnerable to natural disasters.[31]

The killings of land defenders has frequently been linked to the agribusiness sector.[32] In 2018, 321 human rights defenders were killed for peacefully speaking out to defend human rights. 77% of activists killed were working on land-related issues: defending land, environmental or Indigenous peoples' rights.[33] Similarly, the UN Special Rapporteur on the rights of Human Rights Defenders has recognised defenders working on land-related issues as among of the world's most vulnerable of Human Rights Defenders.[34] This establishes land-related human rights abuses as some of the most urgent and dire to address. Forced evictions constitute a gross violation of human rights.[35] In 2016 the International Criminal Court released a statement that land grabs and environmental crime were among the least prosecuted in the world and identified this as a priority area.[36]

Another significant issue is that many agricultural and livestock companies do not comply with internationally recognised labour rights. For instance, according to estimates by the International Labour Organisation (ILO), around 60% of all child labourers work in the agriculture and livestock sector.[37] There are countless examples in the livestock sector of forced labour, for instance on Brazilian cattle farms.[38]

Not paying living wages and insufficient protection of the health and safety of employees are also widespread.[39] Health and safety issues are further exacerbated during the present Covid-19 pandemic. Human Rights Watch for instance reports that many workers at meat and poultry plants across the United States are battling for their health because of uncontrolled outbreaks of the Corona virus.[40]

1.6 Animal welfare

The vast majority of animals that are used for human consumption worldwide are raised on intensive livestock farms. Intensive livestock farming is a landless farming system characterised by the absence of a natural cycle. Animals are typically kept inside, feed is brought in from outside the farm, and manure has to be taken away. Such farming methods are commonly associated with poor animal welfare, since the animals are kept in conditions that interfere with their ability to

express their natural behaviour. Ethical issues related to intensive livestock farming differ per country and per species, but may include: [41]

- High stocking densities;
- Restrictive housing methods, such as cages or crates;
- Inadequate environments with poor air quality, inappropriate floors and a lack of environmental stimulus;
- Un- anaesthetised surgery, such as cutting tails, clipping beaks, teeth filing, or dehorning;
- Selective breeding practices that may be detrimental to the animals' health and wellbeing;
- Poor conditions during animal transport, especially long duration, shortage of food, water and space, and bad handling during loading and offloading procedures; and
- Problematic slaughtering methods, such as CO_2-stunning for pigs, electrical stunning for poultry via the water bath method and un-stunned slaughter.

In short, animals in intensive livestock farming systems live their lives in conditions unsuited to their species, often exposed to varying levels of stress, pain, or suffering. While both regulations by governments and voluntary initiatives such as the Farm Animal Responsible Minimum Standards (FARMS) exist, and have resulted in improvements in some cases, significant animal welfare issues persist throughout intensive systems.[42] Such animal welfare risks are inherent to the system, which is ultimately driven by growing worldwide demand for animal protein and which provides the imperative for intensification.

1.7 The need for a protein transition

Current levels of animal protein consumption and production in high-income countries are unsustainably high and the current global food system will not be able to meet future needs within planetary boundaries. Therefore, a transition in the food system away from the strong reliance on animal protein towards an increased use of plant-based and alternative types of protein, is urgently needed from a health, human rights, climate and environmental perspective. Shifting away dietary patterns towards less consumption of animal protein sources and more plant-based and alternative protein sources, can therefore play a crucial role in meeting the targets of the Paris Agreement and the Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger), SDG 12 (Responsible consumption and production, SDG 13 (Climate action), SDG 14 (Life below water), and SDG 15 (Life on land).[43] This challenge is particularly important in high-income countries already characterized by high levels of animal protein production and consumption, such as the Netherlands, where the current ratio of animal to plant protein consumption is around 61% animal protein to 39% plant protein.[44]

This is acknowledged by different organisations and stakeholders in the Netherlands, including the Dutch government, which have proposed targets and measures to change the ratio. Targets range from reducing the share of animal protein to 50%, to flipping the current ratio around to 40% animal protein and 60% plant protein in the longer term.[45]

Many of the experts interviewed for this research take the perspective that it is eventually up to consumers to steer demand and shift their diets from animal to plant-based and alternative sources. However, research shows that relying on consumers 'voting with their forks' will not be sufficient for shifting the food system away from its over-reliance on animal proteins as consumers ignore unpleasant facts about meat production.[46] This assumption is supported by the fact that, despite increasing awareness of the environmental and animal welfare consequences of the livestock industry and the growing popularity of flexitarian, vegetarian and vegan diets, the actual per capita meat consumption in the Netherlands still shows a slight increased over the past 15 years.[47] Consumers on average seem to eat meat less frequently, but in larger portions per meal.

Recent research commissioned by ProVeg and conducted by Kieskompas shows that there is considerable support among Dutch voters for a more steering and ambitious role of other stakeholders, such as the government and food companies, when it comes to reducing meat and dairy consumption.[48] Chapter 2 will explore which roles different stakeholders could play – and are playing – in this respect.

2

Towards a protein transition

To identify the possible role of (Dutch) banks in the protein transition, this chapter surveys the current state of the protein transition from a technological and market perspective. Section 2.1 discusses the potential of different alternatives to animal proteins that are currently available or under development, and discusses the different barriers faced by each. Section 2.2 discusses the protein transition from a market perspective, surveying the different companies along the supply chain in the food sector and highlighting their potential role in driving the food system towards a more sustainable ratio between animal and plant-based proteins.

2.1 Alternatives for animal protein

The protein transition requires, simultaneously, a reduction in the production and consumption of animal protein sources and an increase in the production and consumption of plant-based and alternative protein sources.

Alternatives to animal proteins need to have an adequate nutritional profile, meet different sustainability criteria in their production process, and be appealing enough to consumers to enable a switch away from animal products. This section discusses three broad groups of plant-based and alternative protein sources, involving varying levels of technological complexity in their production and distinct benefits and drawbacks in terms of health, taste, sustainability, and commercial viability in the short to medium term. All three groups nevertheless share a marked potential to enable and accelerate the protein transition:[i]

- Plant-based protein sources;
- Fermented protein sources; and
- Cell-based protein sources.

2.1.1 Plant-based protein sources

Plant-based protein sources include all foods that derive from plants and can be further divided into two categories:

- **Whole food plant-based protein sources**

  Whole food plant-based protein sources include foods such as mushrooms, nuts, whole grains, and legumes. Such foods have generally been produced and consumed for as long as human agriculture exists.

  Benefits and drawbacks of whole food plant protein sources depend on the type of food, but experts generally agree that consuming foods without processing them is the healthiest way of consuming them, as all the nutrients are retained.

[i] Insects are sometimes considered a viable alternative to the animal protein sources currently widely consumed. For the purposes of this research, however, insects are not taken into account, as the focus of this report is primarily on sources of protein that do not require large-scale farming of live animals, including non-vertebrates.

In particular, legumes – a group of plants including beans, peas, peanuts and soybean – carry a number of significant sustainability and nutritional benefits. As shown in Figure 1, Figure 2, Figure 3, and Figure 4, the negative biodiversity and climate impacts of beans and soy are very low compared to those of meat and dairy. In addition, their cultivation is considered beneficial for biodiversity and soil health because of their ability to fix nitrogen from the air through symbiosis with soil microorganisms, and hence are able to function as a natural nitrogen fertilizer when included in crop rotations.[49] Nutritionally, legumes are excellent sources of plant protein. Peas, for instance, have been found to "*have a nutrient density to environmental footprint ratio approximately five times higher than equivalent amounts of lamb, pork, beef or chicken*".[50]

The main barriers to more widespread use of whole food plant proteins such as legumes lie in consumer perceptions, preferences, and habits. Despite their widespread availability for centuries, they have still not been widely adopted as alternatives for animal protein, since they cannot compete with animal protein sources in terms of taste for most consumers. Experts interviewed in the course of this research generally agreed that while there is significant potential for increased replacement of animal protein sources with whole food plant proteins, they cannot be the only alternative source of protein in a successful protein transition. On the consumer end, legumes and other whole plant foods can be promoted by positioning them clearly as the preferable food compared to other alternative protein sources, as well as by communicating ways to include them into current consumption patterns.

In addition, the genetics of many food crops have over time been selected to amplify specific properties, such as starch content or the ability to handle long transports without being damaged, sometimes sacrificing taste or nutritional quality. Breeding flavours, as well as protein, back into plant crops may therefore be another way of promoting consumption of whole food plant-based protein sources.[51]

- **Plant-based animal protein analogues**

  Plant-based animal protein analogues are food products that deliberately aim to mimic or replace meat, dairy, egg or seafood products, but that derive their ingredients from plant-based sources.

  Plant-based processed protein sources are generally considered the animal protein alternative with the most potential to enable the protein transition in the short and medium term. To consumers, processed plant-based meat, dairy and egg alternatives are preferable to whole food plant protein sources in terms of taste, and more easily integrated into existing food habits. At the same time, plant-based animal protein substitutes are already commercially available and face fewer technological and regulatory hurdles than the types of alternative protein sources discussed in sections 2.1.2 and 2.1.3.

  Since processed plant-based protein sources ultimately use whole-food plant ingredients as inputs, their sustainability benefits compared to animal protein sources are generally similar to whole food plant-based protein sources. However, limitations in technology, production capacity, and commercial viability of growing some protein crops (see section 2.2.4) mean that plant-based alternatives to meat, dairy and eggs are still overwhelmingly based on soy and wheat. Dr. Stacy Pyett, an expert on sustainable proteins at Wageningen University and Research (WUR), explained that the technical properties of these types of protein limit what they can deliver in terms of taste in the short term.[52] In the medium term, however, advances in food technology can result in more types of protein to be used, including from rest streams or from sources that cannot be consumed as whole foods, such as some algae, alfalfa, or the leaves of sugar beet plants.[53] This could result in further improvements in taste, as some of these proteins may better lend themselves to mimicking the functional properties of animal proteins, as well as sustainability benefits, as the extraction of proteins from these sources may enable the utilization of waste and side streams or, in the case of microalgae, not even

require land for growing food at all.

The market for plant-based animal protein substitutes has long been primarily focused on vegetarian and vegan consumers, but in the last decade increased start-up activity, advances in food technology, and growing consumer awareness of sustainability issues related to food, have driven marked improvements in taste as well as significant growth in the market for plant-based meat and dairy alternatives (see section 2.2.1).

2.1.2 Fermented protein sources

Fermentation, which involves the use of single-cell organisms in food production, has been applied traditionally all over the world and in different cultures, as it prevents spoilage and can enhance taste and nutritional value.[54]

New advances in biotechnology have made it possible to use fermentation to produce new proteins or non-animal meat and dairy substitutes, often employing techniques already applied in the pharmaceutical industry. These technologies fall into two categories:[55]

- **Biomass fermentation**

  Biomass fermentation is a form of fermentation in which the produced biomass is itself directly used as an ingredient for food products. In contrast to traditional fermentation, the process is used to produce new foods, rather than to change the taste or nutritional profile of existing plant or animal foods. Some of these products have been around for decades, such as the fungi-based meat substitutes marketed by Quorn.[56] Other, newer companies, such as the Finnish Solar Foods and the US-based Air Protein, attempt to produce proteins "from thin air" by utilizing hydrogen-consuming micro-organisms, which need for their feedstock only water, CO_2, and mineral nutrients.[57]

- **Precision fermentation**

  Precision fermentation involves using single-cell organisms to produce particular types of proteins or other functional ingredients. This can for instance be done by genetic modification of micro-organisms to produce actual dairy proteins such as caseins and whey. Precision fermentation can also be employed to produce particular ingredients to be used in plant-based meat and dairy substitutes, such as the heme analogue that is used in the products of Impossible Foods.[58]

The use of fermentation for food production, particularly biomass fermentation, can be done in a very sustainable way.[59] Fermentation is on average much more efficient in converting feedstock into calories and protein than livestock, and in many cases more efficient than plants as well. In addition, various sources can be used as feedstock, including waste and side streams, or in some cases components taken directly from the air. Precision fermentation also allows producers to more accurately mimic, or even surpass, the taste experience of animal protein products.[60]

Aside from some companies producing fungal protein, such as Quorn, most companies active in fermentation are still in the product development phase. Introducing new fermentation-based products will also likely involve regulatory processes at the EU level, as such new products will require authorization under the EU's Novel Food regulatory framework. This is especially true for precision fermentation technologies involving genetic modification. In addition, consumers may be hesitant, at least at first, towards these foods due to their highly technological nature. Fermented protein will therefore rather play a role in the protein transition in the medium term than in the immediate term.[61]

2.1.3 Cell-based protein sources

Recent advances in cell technology have made it possible to grow real meat in vitro, from cells taken from live animals in a growth medium. Cultured meat does not require the livestock sector, with all the sustainability risks and impacts described in chapter 1, while still creating a food product with the taste and texture of traditional meat. Growing meat in vitro also provides the possibility to improve the nutritional profile, for instance by reducing the saturated fat content of the product. Since it is produced under sterile conditions, there is also minimal risk of contamination with harmful bacteria or traces of antibiotics.

Since the technology relies on replacing the biological mechanisms needed for maintaining, protecting and growing living cells with industrial processes, however, the technology is rather energy-intensive. This means that the sustainability benefits of cell-based meat, particularly its climate impacts, are largely dependent on the type of energy used for its production. The most recent Life Cycle Assessment (LCA) using data from companies currently involved in the cultured meat supply chain shows that cell-based meat using conventional forms of energy will likely be much more sustainable than beef, but in comparison with other types of meat it will only be more sustainable if renewable energy is used in the production process. And even produced with renewable energy, cell-based meat will still have more negative environmental impacts than plant-based protein sources.[62]

When produced sustainably and at scale, cell-based meat can play a role in the protein transition as it will require the smallest adaptation in the dietary patterns of consumers. Similar to fermentation, however, the time horizon for cultured meat's commercial availability in Europe lies more likely in the medium and long term than in the short term. The technology is still in development and is still focused mostly on types of meat that are easier to produce, such as burgers or nuggets rather than steaks. In addition, the regulatory process for approving cell-based meat for consumption is likely to be complex. As of writing, cultivated meat is available on the market in one country (Singapore) already.[63]

2.1.4 Development of the market for alternative proteins

Both globally and regionally, the market for alternative protein sources has grown substantially in the last decade and is expected to grow further in the coming years.[64] A 2019 study by the UBS Chief Investment Office projected an annual global compound growth rate of 30% to USD 85 billion for plant-based meat alternatives in 2030.[65] A 2020 report by ING about the European market for plant-based meat and dairy alternatives projects a growth of 10% per year to EUR 7.5 billion in 2025.[66] Growth in the market for plant-based meat and dairy has largely been driven by younger consumers and people adopting flexitarian diets for animal welfare, environmental and health reasons. Overall, a trend is visible to "mixed food concepts", where part of the animal protein is substituted, which includes "flexitarian" diets, mixed dishes and hybrid protein products.[67]

Among the different types of alternative protein, plant-based meat and dairy alternatives (as discussed in section 2.1.1 are responsible for the largest share of growth in the market for alternative proteins. As mentioned in sections 2.1.2 and 2.1.3, fermentation and cell-based meat production technologies are still mostly in the development stage and are more likely to have an impact in the medium to long term due to potential technological and regulatory hurdles.

Despite the growth in consumer interest for plant-based meat and dairy substitutes, alternative proteins have not yet managed to capture significant market shares overall. In fact, total consumption of meat actually increased in the Netherlands in 2018 and 2019, and plant-based meat alternatives are estimated to represent a mere 0.7 percent of total sales of meat plus meat alternatives in the EU and the UK.[68]

The plant-based dairy market is slightly further ahead with a market share in the EU and UK of around three percent. Only plant-based milk substitutes have so far been able to capture significant market shares in European countries, representing on average around ten percent of the EU and UK milk market.[69] According to ING, the "sheer size of the meat and dairy market and the small base for plant-based alternatives mean that, even at the current growth rate, it would take until the mid 2050s before sales of 'plant-based meat and dairy' could surpass sales of meat and dairy".[70]

2.2 The protein transition in the food sector

If a significant shift from animal to plant-based and alternative proteins is to occur, massive changes along the whole food supply chain are required. On the consumer side, consumers have to be persuaded and incentivized to reduce their animal protein intake and systematically integrate the alternatives discussed in section 2.1 into their diets. On the production side, new products and technologies have to be developed and improved, scaled up, and commercialized. At the same time, the production of animal protein needs to be scaled back considerably (see chapter 1). This section discusses the current developments in the food sector, and the roles that different players in the food sector are playing.

2.2.1 Start-ups

Start-ups have so far been the main drivers of innovation in the plant-based and alternative protein sectors by developing and introducing new technologies and products, particularly in food manufacturing. Start-ups are developing all three types of alternative proteins discussed in section 2.1, but predominantly in developing and producing plant-based meat and dairy alternatives as described in section 2.1.1.

Activity in the plant-based meat and dairy sectors has so far mostly focused on food products that are easy to replicate, such as burgers and milk, with some of the more successful start-ups of the last decade now having been acquired by larger food companies (such as the acquisition of the Dutch Vegetarian Butcher by Unilever in 2018), or even publicly traded on the stock exchange, such as the US-based Beyond Meat. These companies gained success by:[71]

- Focusing on traditional meat and dairy consumers, rather than vegetarians or vegans;
- Building a community around the brand; and
- Partnering with established brands, particularly in food service.

The success of these companies is likely to spawn new groups of start-ups seeking to replicate their success, and experts agree that there is still room for new start-ups, particularly in developing more challenging types of products, such as plant-based cheese and seafood.[72]

One potential barrier for new start-ups lies in their access to finance. Entrepreneurs interviewed for this research reported that banks had shown very little interest in providing financing when they were starting out several years ago. Several ended up relying either fully or partly on crowdfunding instead of conventional financing.[73]

Another major barrier for many new start-ups lies in the "valley of death": the step from initial research and product development towards commercialization. Several of the experts interviewed during the course of this research stressed that while there are many companies and organizations actively developing interesting products, many of such products do not make it to market at the end of their initial development phase.[74] This may in some cases depend on personal traits of the people involved: many new products and food technologies are developed as a part of university research, by people who may lack the business skills or knowledge to make the step to securing additional investments, scaling up production, and establishing contacts with retailers and food service companies.

For start-ups involved in fermentation and cell-based meat, this step from product development to commercialization may be further complicated by the regulatory environment in the EU. First, since these products are often completely novel types of foods, it is still unclear what the status of the new food will be, how they should be named and labelled, and under which conditions they can be authorized for sale. Second, start-ups often simply do not know how to correctly apply for authorization under the EU rules, given their lack of legal expertise and experience with EU authorization processes.[75] For this reason, many companies in the cell-based sector are currently focusing their product launching efforts on the Americas and Asia, where the regulatory requirements are less strict. As a result, Singapore is now the first and only country where cell-based meat is commercially available.

2.2.2 Large food companies

Many large food companies as Unilever, Nestlé and Danone, which are also know as Fast-Moving Consumer Goods companies (FMCGs), have moved into the plant-based and alternative proteins market in some form in recent years. The success of new start-ups and the increasing focus on sustainability issues associated with the food sector have made a move into alternative proteins both a commercial opportunity and a strategic fit with food companies' sustainability priorities. Nearly all major food companies have now either set up their own plant-based divisions, invested in start-ups, or acquired plant-based food companies outright, such as the acquisition of the Dutch Vegetarian Butcher by Unilever in 2018.

The main benefits of the involvement of large food companies in the plant-based protein markets are the possibility to scale up production to the levels necessary to meet the latent and growing demand for meat and dairy alternatives, extensive and established knowledge of customer preferences, and established contacts with retailers.[76] Even traditional meat and dairy giants, such as JBS in Brazil, Tyson Foods in the US, and Vion Food Group in the Netherlands, have either introduced new plant-based product lines or invested heavily in alternative protein technologies, and are increasingly branding themselves as "protein companies" rather than meat or dairy producers.[77] In April 2021, JBS acquired the Dutch company Vivera, Europe's third-largest plant-based food producer, for an enterprise value of € 341 million.[78]

However, the increased activity of large food companies in plant-based and alternative proteins is not (yet) significant in comparison with their traditional animal protein-based activities. And it does not imply either that any of these companies are necessarily committed to a protein transition. According to Kezia Smithe, ESG analyst at FAIRR, companies and investors alike are increasingly aware of the long-term risks associated with relying too strong on animal proteins, but the strategic timeframes in which these companies and investors typically work are too short for these risks to materialize.[79] The "tragedy of the horizons", as Mark Carney (the then Governor of the Bank of England) labelled it with regard to the energy transition, also applies to the protein transition.

Although the increased activity of large food companies, including traditional meat and dairy companies, is likely to benefit the more widespread adoption of plant-based protein sources, many companies seem to be jumping on the possibility of benefiting from a growing market without making any plans to also reduce their animal protein production.[80] As research by FAIRR has pointed out, there are large differences in the levels of ambition between different food companies, and most companies are primarily reacting to increasing consumer demand, rather than truly committing to a strategy of protein diversification.[81]

Out of 25 major food companies surveyed by the FAIRR Sustainable Proteins Hub, only Unilever and Tesco had a board-level commitment to a protein transition.[82] A one-sided approach that treats protein diversification merely as a commercial opportunity for plant-based and alternative proteins, without acknowledging the need to also scale down production of animal proteins, could present a significant barrier to the protein transition and could exacerbate related sustainability issues.

Whether food companies actively commit to a protein transition seems to depend at least partly on the extent to which they are currently involved in the animal protein supply chain. During the interviews, several experts noted that it was simply easier for a company such as Unilever, which does not derive a major part of its revenues from animal proteins, to commit to a shift towards plant-based products. For other companies more deeply embedded in the animal protein supply chain, a shift away from animal products represents much more of a threat to their existing business models.

Several interviewees suggested that companies' ownership structures, especially in the Netherlands, may also play a role in determining companies' willingness or ability to engage in the protein transition. For instance, dairy cooperatives are ultimately owned by dairy farmers, who depend on the cooperative to market their products. Such cooperatives have the specific purpose of bringing their members' products to market, and members will have a higher stake in maintaining their levels of animal protein production rather than shifting to a different business model.[83] A loud minority of more conservative members could then put the brakes on any step away from an animal-based production system.

In contrast, shareholders of publicly listed companies do not have a particular interest in whether the company's revenues derive from animal or plant sources, so the downsides of shifting business models away from animal protein are smaller. At the same time, publicly listed companies are often more sensitive to investor and societal pressures to adopt more sustainable business practices. The ownership structure of meat and dairy cooperatives could therefore make cooperatives inherently more conservative than publicly listed companies. Given the important role of meat and dairy cooperatives on the meat and dairy market in the Netherlands, this dynamic may present another barrier to the protein transition.

2.2.3 Retailers and food service

Companies in the retail and food service sectors can play an especially important role in the protein transition for two reasons:

- **Direct contact with consumers**

  Retailers and food service companies are in direct contact with consumers and hence play a crucial role in shaping consumers' food environments.[84] Since most food purchases happen through supermarkets, supermarkets have an especially big influence on consumer behaviour through their product range, the positioning of products in the store, as well as their pricing and promotional offers. Good practices include launching own-brand plant-based product lines, positioning plant-based alternatives in the same aisles as meat and dairy, and including more plant-based meal options in consumer communications such as food magazines and advertisements. Figure 5 shows such advertisements from Dutch supermarket Albert Heijn during the "National week without meat" from 8-14 April 2021.

  While the range of plant-based products on offer in supermarkets has expanded significantly in recent years, interviewees agreed that the extent to which supermarkets are actively promoting a shift away from animal proteins towards plant-based proteins varies widely in practice.[85] For one thing, the price difference between plant-based and animal-based products remains large. This is partly due to the limited economies of scale in current plant-based product manufacturing, as well as product development costs that still need to be earned back.[86]

However, the price gap may also be exacerbated by the way that supermarkets choose to price their products. Supermarkets often advertise a lot with meat and accept very low or even negative margins on sales of meat to lure consumers into the store. These low margins are then compensated by higher margins on other products, such as plant-based meat alternatives. This practice also benefits from the fact that health- and sustainability-conscious consumers are often willing to pay a price premium for plant-based meat and dairy alternatives.[87]

Figure 5 Supermarket advertisements for plant-based products during the "National week without meat"

Source: *Trouw*, 8 April 2021 and 12 April 2021.

This dynamic creates a situation where the high margins on plant-based products compensate for the low margins on animal-based products, hindering further price convergence and a quicker and more widespread adoption of plant-based meat and dairy alternatives.[88]

Food service companies also play a big role in consumers' food environments. Data on food consumption in the Netherlands suggest that consumption of meat has not gone down over the last years, and in fact increased in 2019. At the same time, sales of meat in retail did decrease during the same period. One oft-suggested explanation for the rise in meat consumption is the increase in eating outdoors.[89] The decline in retail sales of meat suggests that consumers are decreasing their meat consumption at home but are more likely to eat meat when they are in restaurants. Moreover, portion sizes of meat tend to be bigger in restaurants. The precise impact of restaurant closures on meat consumption during the pandemic-related lockdowns of 2020 remains unclear as the data is not yet available. Both Jaap Korteweg, founder of the Vegetarian Butcher, and Pablo Moleman, manager food industry and foodservice at ProVeg Nederland, expected supermarket sales to have increased across the board, including sales of meat, but expected meat substitute sales to have increased

disproportionately more over the course of 2020.[90]

There is a difference in the extent to which different types of food service companies are actively accelerating the protein transition. On the one hand, some of the largest fast-food companies such as Burger King and McDonalds have now introduced plant-based products. These steps, like those of other large food companies, are so far more driven by commercial interest in entering a growth market than by a commitment to the protein transition based on the recognition of the sustainability risks of the livestock sector. Nevertheless, they can aid in mainstreaming the acceptance of plant-based alternatives to meat, and add economies of scale.

On the other hand, new restaurants and food chains have sprung up that deliberately aim to contribute to a more plant-based diet. According to dr. Aniek Hebinck, sustainable food systems change researcher at DRIFT, such new initiatives can help consumers "imagine sustainable diets", by changing cultural perceptions of what are healthy, tasty, and sustainable ways of cooking and eating.[91]

- **Influence over supply chain**

  Retailers, especially supermarkets, also have major influence over their supply chains, all the way to the primary producers. Since they have control over what is offered to consumers, and often have their own brands for which they have direct contracts with primary producers, they can significantly influence what is produced and how it is produced. According to Charlotte Linnebank from QuestionMark, supermarkets have an even bigger influence over the food supply chain in the Netherlands than major food companies.[92]

  On the one hand, this powerful position of supermarkets can help to accelerate the protein transition. If they would commit to the protein transition, supermarkets could use their extensive leverage over the food supply chain to encourage or require producers to shift their business models in line with a transition to more plant-based and less animal products. If no such commitment is made, however, the dominant position of supermarkets can also function as a hurdle to the protein transition.

2.2.4 Primary producers

Farmers and other primary producers have a number of opportunities to contribute to the protein transition. As the market for plant-based products is rapidly growing, there are opportunities for producers to move into, or expand, production of the inputs needed for these alternatives. The demand for common inputs such as soy, rapeseed, wheat, rice, oats, peas, beans, lupines or algae is forecasted to rise.[93] Several of these commodities are now used as animal feed. When production of animal proteins would decrease, production of plant-based protein products would create alternative markets.

Several interviewees stressed that farmers are generally much more willing to participate in the protein transition than is often publicly portrayed, and that most protests against change in the food system come from a loud, conservative minority in the livestock farming sector.[94] Nevertheless, farmers do face several constraints in their ability to contribute to the protein transition:

- **Investments**

  Livestock farmers have often made substantial investments in their production facilities and need to earn those investments back before they are able to shift to a different business model. Shifting business models to more plant-based, or at least less intensive animal-based production, also requires additional investments and often involves lower levels of profitability in the first years. Without some type of external support, it is difficult for them to reduce their levels of animal protein production until they have earned back their investments.

- **Regulatory constraints**

  Existing plant-based sources can often be utilized to extract plant proteins, but sometimes the regulatory context is not supportive. Dr. Stacy Pyett, protein expert at WUR, gave the example of the Dutch sugar beet cooperative Cosun, which is currently experimenting with extracting the proteins from sugar beet leaves, which contain a type of protein that can be used to replace animal products in various applications.[95] Sugar beet leaves are traditionally left on the field after harvest to maintain soil quality, but to extract the proteins from the leaves they need to be taken to a processing facility. The rest product can then be transported back to be spread over the fields. However, European safety regulations prohibit depositing materials from outside the farm onto agricultural land, which means that the sugar beet leaves cannot be returned to the field after the extraction of their proteins. Such regulations unintentionally create a barrier for more quick and widespread use of such plant-based proteins.[96]

- **Land availability**

  Many livestock farmers have difficulties to transition towards a more plant-based business model because they hardly own any land. Almost all conventional chicken and pig farming in the Netherlands takes places in intensive, almost landless production systems, where feed is brought to the farm and manure is taken away from it. Farmers operating in these types of systems do not have enough land to switch from livestock to other types of agriculture which require large land areas. For them, there might be options, however, in switching to growing crops (mushrooms) or technologies (fermentation) which also require limited land areas and are largely based on inputs from outside the farm.

  Only dairy farmers, who often produce at least a part of their own feed, would have sufficient areas of land to be able to make a switch away from animal protein production. This could be an option if the quality of this land is good enough to grow crops which could serve as inputs for plant-based protein products

- **Genetics and productivity of protein crops**

  A large bottleneck also lies in genetics. Even though the market for plant-based meat and dairy alternatives is growing quickly, there is currently still no strong business case for farmers in the Netherlands to engage in more plant-based protein production. Most plant-based meat and dairy alternatives are still largely based on soy, which is not well-suited to grow in the Dutch climate. Other protein crops that could serve as inputs for plant-based protein products, such as legumes, are currently not productive enough to compete with imported soy and do not make for a profitable yield. Some crops, such as peas, potatoes and sugar beet leaves, contain useful forms of protein but the varieties which are grown at present have been optimized for other traits such as starch or sugar content. To make such crops more productive and suitable to the Dutch soil and climate, substantial efforts are needed in seed selection and breeding.[97]

3

Existing bank commitments on the protein transition

This chapter presents a brief survey of the existing commitments and policies of the eight banks included in the Dutch Fair Bank Guide, to assess whether they have any commitments relating to the protein transition. Since the topic of the protein transition is itself rather new for banks and fully developed commitments are not expected, the survey focuses on three broad questions:

- **Does the bank have a sustainability policy taking into account the specific animal welfare, environmental, human rights and health aspects of the food sector?**
- **Does the bank have a commitment to contribute to a transition towards a food system that is less dependent on animal protein and more on plant-based and alternative proteins?**
- **Is the bank an active member or supporter of any international initiatives that recognize the need for a protein transition?**

3.1 ABN Amro

As part of its sustainability risk framework, ABN Amro has cross-sectoral lending and investment policies that address climate change, animal welfare and human rights topics, as well as sector policies for agriculture and animal protein.[98] The latter sets specific requirements for financing companies active in animal protein production, taking into account animal welfare, environmental, human rights, labour rights and health impacts of the sector.[99] The bank benchmarks its clients' performance with international best practices, which includes a criteria for clients to work on innovations to reduce their impacts, such as insect-based feed and plant-based products.

The bank has not formulated a clear commitment in its own public policies to contribute to a protein transition.

ABN Amro's investment arm is a member of FAIRR, an investor engagement initiative aimed at addressing the ESG risks in the food sector, and whose Sustainable Proteins Engagement recognizes the need for a protein transition.

3.2 Bunq

Bunq does not provide loans or asset management services to clients. Its own assets are invested partly in corporate bonds and are outsourced to the external asset manager ASR. ASR itself has not formulated a clear commitment in its own public policies to contribute to a protein transition, but did join the FAIRR initiative in 2019, recognizing the investment risks associated with intensive animal agriculture.[100]

3.3 De Volksbank

De Volksbank avoids investments in primary producers in the livestock and fisheries sectors, due to the sustainability issues associated with these sectors. Investments in agriculture are also avoided due to the large number of sustainability risks, but the bank can invest in agricultural companies that demonstrably apply a circular and sustainable approach. Investments in other companies within the food system are allowed when they apply strict ESG criteria in their supply chains, including animal welfare and biodiversity requirements.[101]

Each year Volksbank's subsidiary ASN Bank organizes the ASN Bank Wereldprijs, through which participating sustainable start-ups can win seed capital for their enterprises, including sustainable food start-ups.[102]

De Volksbank has not formulated a clear commitment in its own public policies to contribute to a protein transition, and is not a member of initiatives that recognize the necessity of a protein transition, such as FAIRR.

3.4 ING Bank

ING Bank has a cross-sectoral policy that addresses environmental, climate change and human rights impacts and determines requirements. In addition, the bank group considers animal welfare issues in specific high-risk sectors, including animal farming activities.[103]

The bank has not formulated a clear commitment to contribute to a protein transition and is not a member of initiatives that recognize the necessity of a protein transition, such as FAIRR.

3.5 NIBC

In its Food, Agribusiness, Food Retail & Food Services policy, NIBC sets out its policy for the food sectors it finances, which is limited to companies that process agricultural products and excludes primary producers or farming.[104] The policy addresses environmental, human rights and animal welfare impacts of these sectors, and acknowledges the need for sustainable agriculture and food supply chains.

The bank has not formulated a clear commitment to contribute to a protein transition and is not a member of initiatives that recognize the necessity of a protein transition, such as FAIRR.

3.6 Rabobank

As part of its sustainability policy framework, Rabobank sets out expectations for companies in all sectors regarding environmental, human rights, labour rights and animal welfare impacts. In addition, the bank has a specific sector policy for the livestock industry, aiming to contribute to a sustainable livestock sector. However, Rabobank has not formulated a public commitment to contribute to a protein transition in its own policies.

On the contrary, Rabobank expects clients "to meet growing demand" for meat and dairy. The bank therefore aims to let its financing of the livestock sector grow further: "Rabobank wants to contribute to a livestock farming sector that is environmentally and economically sustainable and has broad public support. We have significant global commercial interest in a sustainable livestock farming sector and its surrounding value chains. We aim to grow financing of the livestock farming sector to further realize the goal of becoming the leading global food and agribusiness bank".[105]

Rabobank is a partner in the Green Protein Alliance (GPA), a network of companies and organizations advocating for the protein transition.

3.7 Triodos Bank

In its Food and Agriculture Vision Paper, Triodos Bank sets out its vision for the food sector. In it, the bank formulates a clear commitment to the protein transition: *"Triodos Bank supports the transition towards diverse, local and seasonal diets (where possible), that follow the 80 - 20 percentage distribution between plant-based and animal protein"*.[106] This approach to the protein transition is embedded in the bank's broader vision on sustainable agriculture, which takes as its starting point the principles of organic farming and healthy soils. According to Paul Kortekaas, team manager agriculture at Triodos, transitioning to a food system based on organic principles and balanced nutrient cycles implies much less intensive animal production, as in such systems the capacity of the soil determines the amount of animals that can be kept.[107]

Furthermore, the bank argues that governments and the European Union should facilitate the transition through regulation and other measures, and that the financial sector should play a role by setting investment and financing criteria, changing their investment horizons, pricing models and improving reporting. Triodos Bank itself plays a role through impact investment through the Triodos Food Transition Fund Europe and "financing initiatives that contribute to the necessary transition of food and agriculture systems".[108]

Triodos Investment Management, the bank's investment arm, applies the same principles and policies set out in the Food and Agriculture Vision Paper. In addition, Triodos Investment Management is also a member of the FAIRR initiative.

3.8 Van Lanschot Kempen

Van Lanschot Kempen is running down its corporate banking loan portfolio, which was reduced to 2% of its total loan portfolio at year end 2020.[109] The bank stresses that it is not "materially involved" in the agriculture and food sectors through its lending, but that it considers environmental, human rights and labour rights impacts for all companies in all its lending processes.[110]

This does not hold true for Kempen Capital Management, the asset management arm of the bank, however. In case study on the involvement of Dutch financial institutions in deforestation in the Amazon and Cerrado regions published by the Dutch Fair Finance Guide in August 2020, significant investments by Kempen in the soy and beef supply chains were identified.[111]

Kempen Capital Management, is a member of the FAIRR initiative.[112] Van Lanschot Kempen has not formulated a clear commitment in its own public policies to contribute to a protein transition.

3.9 Findings

In August 2020, the Dutch Fair Finance Guide published a case study on the involvement of Dutch financial institutions in deforestation in the Amazon and Cerrado regions. This study concluded that 6 out of 7 Dutch banks have financial relationships with one or more of a sample of 59 important deforestation-risk companies active in the international soy and beef supply chains in Brazil, China and Europe. Four Dutch banks (ABN Amro, ING Bank, NIBC and Rabobank) provided loans totalling USD 12.1 billion to the selected 59 companies in the period 2015-2020 and helped them with share and bond issuances worth USD 2.7 billion.[113]

This chapter assessed in how far the eight banks which are included at present in the Dutch Fair Bank Guide are supporting the protein transition, from animal proteins to plant-base proteins. While most banks take into consideration environmental, animal welfare and human rights impacts of the food sector in their lending and investment policies, only Triodos Bank has yet developed a systematic approach to contribute to the transition towards a food system which is less dependent on animal proteins and more on plant-based and alternative proteins.

ABN Amro, ASR (asset manager of Bunq), Triodos Investment Management and Kempen Capital Management are members of the FAIRR initiative which engages with the food sector, and which has recognized the importance of a protein transition. And Rabobank is a partner in the Green Protein Alliance (GPA), a network of companies and organizations advocating for the protein transition.

Except for Triodos, these memberships are not reflected in a public stance on the protein transition in the policies of the banks. In line with their large exposure to the food sector, ABN Amro and Rabobank do have sector policies addressing the specific sustainability risks of the livestock sector. Other banks indicate they are not, or only to a limited extent, involved in the food sector. NIBC and De Volksbank explicitly exclude financing or investments in primary producers. Van Lanschot Kempen is not materially involved in lending to the food sector, but its asset manager does invest significantly in food companies. Out of the eight banks, Triodos Bank is the only bank with a clear commitment to contribute to the protein transition.[114]

4

How banks can accelerate the protein transition

This chapter discusses the different ways in which banks could play a more active role in the protein transition. Section 4.1 discusses the ways in which banks can use their role as capital providers and their financial leverage to accelerate the protein transition. Section 4.2 discusses the role that banks can play as providers of authoritative research and market insights into the ESG, market, and regulatory risks associated with the livestock industry, as well as the risks and potentials associated with the protein transition. Section 4.3 discusses how banks can use their role as facilitator to involve the whole food supply chain in the protein transition.

4.1 Financing and investment

The most impactful way banks can support the protein transition is through their capacity as providers of capital. Through their lending activities, as well as their investments of own assets and assets of clients, they can support existing companies in the food sector in transitioning their business models away from an over-reliance on animal protein production and consumption. Similarly, they can support new companies that are developing products and technologies that can contribute to the protein transition.

The first step is to integrate the protein transition into policies for lending and investment in the food sector. On the basis of these commitments, banks could then utilize their financial leverage in several ways:

- By incentivizing companies in the food sector to transition towards less animal-based and more plant-based and alternative protein production, through attractive financial products;
- By supporting farmers and primary producers in transitioning to more sustainable, and less animal-based business models;
- By actively supporting new companies that can help accelerate the protein transition; and
- Through direct engagement with clients and investee companies in the food sector.

They can do this in different ways; by lending to companies with a positive impact as part of their regular lending process, as well as through specific sustainability-linked loans and funds. In addition, banks can get involved in impact investing, by investing in impact bonds, either directly or through a dedicated fund, blended finance with multiple stakeholders and chain investing. Furthermore, banks can decide to engage with clients in their portfolio to motivate them to adopt more sustainable practices that support the transition. Finally, they can make the decision not to (re)finance a client that does not want to reduce its involvement in animal-based proteins in favour of more plant-based proteins.

The various approaches and options will be discussed in the following sections.

4.1.1 Lending and investment policies

As revealed by the regular policy assessments of the Dutch Fair Bank Guide, banks in the

Netherlands have already developed extensive policy frameworks to assess and mitigate the sustainability risks associated with their lending and investment practices.[115] But Chapter 3 shows that the topic of the protein transition remains largely absent from both their general commitments and their more concrete sustainability frameworks.

Integrating targets and requirements relating to the protein transition as minimum standards for lending or investment in the food sector can be a way of pressuring companies to shift their business models across the supply chain. This could be especially impactful in relation to larger companies deeply involved in the meat and dairy production chains, where investor initiatives such as FAIRR have repeatedly stressed the importance of adopting protein diversification strategies.[116] Based on the interviews and literature, the following policy commitments relating to the protein transition could be made by banks:

First, banks can define their overall commitment by adopting a measurable, timebound goal of contributing to the protein transition, in particular by bringing lending and investment portfolios in line with at least a 60:40 ratio of plant to animal protein and a reduction of total animal protein production with 50%.

Second, this goal should be operationalized by defining expectations from different companies in the food supply chain:

- Large food companies and large retail companies should adopt a protein diversification strategy, in order to bring their business models in line with the goals of the protein transition;
- Food companies and primary producers should not expand animal protein production capacity;
- Retail companies should not sell animal products at or below cost price;
- Retail companies should place their plant-based alternative protein products in the same aisles as their animal-based counterparts; or
- Companies in food service should let a minimum percentage (e.g. 40%) of their menu consist of plant-based or vegetarian options. Triodos Bank already has adopted such a policy and requires of companies in the restaurant, catering and hotel industries that they provide vegetarian and/or organic options in their menus.[117]

Third, in order to ensure transparency and track progress, banks should measure and disclose the protein composition of their food sector lending and investment portfolios.

In the following sub-sections we will discuss the different activities which banks can undertake to bring these policy commitments into practice.

4.1.2 Exclusion

The interviewees differed in opinion regarding the value of exclusion of companies. An outright or general exclusion of companies involved in the animal protein supply chain was generally viewed unfavourably, with experts agreeing that this would be unfeasible in the short term, especially for banks that are currently heavily involved in the sector.[118] Dr. Stacy Pyett, protein expert at WUR, stressed that animal-based food would likely always remain a part of the global food system, and that it would be more fruitful to focus on improving the livestock sector rather than abandoning it completely.[119]

However, others more favourable to exclusion argued that at least the financing of further expansion of intensive livestock infrastructure, such as new mega stables, should be ceased.[120] Michiel van Deursen, impact investor at Capital V, argued that banks should start divesting from intensive animal agriculture, just like they have started to do for other controversial sectors like the alcohol, gambling, tobacco, and weapons industry.[121]

Comparing the protein transition with the energy transition, Jaap Korteweg (Entrepreneur, Those Vegan Cowboys) emphasizes it is important for banks to acknowledge and act upon the signs that are visible in society, because transitions can rapidly accelerate.[122] What may seem like safe investments now can change quickly into high risks if banks stay behind and keep investing in the "old" economy.

4.1.3 Engagement with clients

Banks that have financial exposure to companies in the food sector through their loans or their investments also have considerable leverage to influence companies through direct engagement. Banks and their asset management subsidiaries can engage in dialogues to raise issues related to ESG risks in the livestock sector, and can use their leverage to encourage a shift in business practices. Since engagement usually takes place with existing clients, this would have the highest impact for large food companies, traditional meat and dairy companies, retailers, and food service companies. The concrete goals of engagement differ per type of company, but could include the specific goals mentioned in section 4.1.1.

Among investors, engagement with companies in the food supply chain is already well-established. FAIRR's Sustainable Proteins Engagement, which asks "*leading food companies to adopt a global, evidence-based approach to diversify protein sources away from an over-reliance on animal proteins*", is the network's most popular engagement with support from 88 investors representing USD 13.2 trillion in assets under management.[123] This popularity is not just driven by concern over the sustainability risks associated with animal protein production, but also by the commercial opportunities of the plant-based sector. Nevertheless, engagement and dialogue with companies in the food sector can be a valuable tool for persuading companies to change their business strategies, and banks with financial exposure to companies in the food supply chain can use a similar approach.

Engagement needs to be time-bound and clearly aimed at a systematic shift away from animal protein production towards plant-based and alternative sources. According to Kezia Smithe, ESG analyst at FAIRR, the improvements reported by the companies engaged by the Sustainable Proteins Engagement still mostly concern improvements in the existing animal protein supply chains and infrastructure, such as the use of more efficient technologies or better sourcing policies for animal feed, rather than serious efforts to move away from the current food system. Such developments may lead to improvement of the current infrastructure but do not address the more structural need to move away from an over-reliance on animal-based protein production.[124]

The effectiveness of engagement also depends on banks' and investors' willingness to back their engagement up with some kind of sanction if companies fail to follow up on their demands. It is important that investors have a clear process in place that includes the possibility of exclusion of the company in case there is no progress after a certain period of engagement (for example after 2, 3 and 5 years). Otherwise, there are no repercussions for not responding to engagement efforts.[125]

4.1.4 Supporting primary producers in transitioning to sustainable agriculture

Primary producers in the Netherlands are typically highly dependent on banks for their capital. Currently, some 90% of Dutch agricultural companies' liabilities are composed of bank loans. Since agricultural companies tend to have a low return on equity, other types of financiers are generally not so much attracted to the sector.[126]

At the same time, agriculture is considered a high-risk sector to finance. The agricultural sector is characterized by volatile profitability and liquidity, while the value of assets is relatively high. However, banks generally provide financing based on profitability and liquidity of companies, instead of asset value.[127] Furthermore, banks typically consider the financing sustainability innovations and technology in the agricultural sector as high-risk, as there is not sufficient "proof"

that investing in these new or amended fixed assets for more sustainable production will be profitable.

For farmers, the transitioning to more sustainable forms of agriculture often creates a temporary dip in the profitability in the short term. Banks are therefore often reluctant to provide financing. Additionally, market concentration of banks financing the sector in the Netherlands (only Rabobank, ING, ABN Amro are active in the agricultural sector, and Triodos in companies that follow the principles of organic agriculture), could be a reason for the restraint of banks in assessing projects related to the protein transition, with higher financing costs. The result is a considerable financing gap. This gap was found to be largest in the category of long-term loans, as banks prefer short term return on investments.[128]

Different experts (research, entrepreneurs, farmer organisation and government) indicated that primary producers are generally willing to transition their companies, if they would have an economically viable alternative. This makes most sense for farmers in the Netherlands having access to sufficient agricultural land, which could then be transformed to produce protein crops. However, many poultry and pig farmers do not have access to sufficient land, so they do not have this opportunity. Furthermore, it is important to acknowledge that farmers cannot transition from one day to another, because of their investments in fixed assets such as stables and machines. Farmers are only able to transition and make new investments when these assets are written off, usually after a period between 20 to 30 years.[129]

Another challenge is that the supply chains for plant-based proteins in the Netherlands are not yet mature. Thijs Cuijpers, policy director at LTO Nederland, points out that whereas producers of commonly cultivated crops such as potatoes or sugar beet have long-standing contracts and fixed sales channels, such connections do not currently exist for protein crops. When, for instance, a farmer and a plant-based start-up would want to work together, there is still much uncertainty about the division of risks, the right prices, and the continuity of sales. This uncertainty increases the risk perception for all parties involved. Cuijpers therefore proposes that banks could finance a certain supply chain or network altogether, instead of financing each company separately. In this way, banks could play a facilitating role and spread the risks adequately among the different actors.[130]

Furthermore, to make plant protein production economically viable for primary producers, they should receive a higher income for their produce. Therefore, farmers should be supported in improving value creation.[131] At Triodos Bank, this is achieved by supporting producers who want to make the shift to organic agriculture. Such additional capital is needed because the productivity of organic systems is often lower in the initial phases, especially on farms that have previously relied on synthetic inputs. In the longer term these investments can generally be earned back because the productivity of organic farming systems increases over time, and because of the price premium on sustainable produce. When the bank's agricultural team determines that a producer does not have a viable business case yet, and therefore cannot be granted a loan, they encourage the producer to work on certain steps first and come back after he made changes to see whether the business case has improved.[132]

In addition, protein crops need to be improved so that they are more productive and better adapted to the Dutch climate (see section 2.2.4). According to several experts, this has potential, but it generally takes between 10-20 years to fully optimize a crop. Therefore, there is a need to facilitate breeding and make it economically attractive for breeders to do so for the Dutch agricultural sector. Investments in developing appropriate protein crops in the Netherlands have been largely neglected and therefore, banks should take a longer-term perspective (beyond 2 years) if they want to support producers in the protein transition. As dr. Stacy Pyett, protein expert at WUR put it: "*Everybody is looking at the growth market in plant-based alternatives, and everyone is calculating how big it is going to be if it captures 1, 2 or 10% of the global meat market. But, think earlier in the*

supply chain, how big are some of these protein crops going to be if they are going into those products?" [133]

In the medium to longer term, technologies such as fermentation and cell-based agriculture may present an additional transition opportunity for livestock farmers, including livestock farmers that do not own large amounts of land. Although these technologies are currently still in their infancy, experts agree that they would not necessarily require large-scale factories once they are more well-developed.[134] Jaap Korteweg, one of the founders of Those Vegan Cowboys, explained that the technology developed by their company would be able to turn grass into dairy without the need for live cows – hence his description of their technology as a "stainless steel cow".[135] The machinery for this process could be applied at several scales, including simply by repurposing former cowsheds. This could also make mixed farming an attractive transition option for present-day livestock farmers.

Pablo Moleman, manager food industry and foodservice at ProVeg Nederland, suggested that cell-based meat production could potentially be done at a small scale by farmers themselves in enterprises similar to the microbreweries that have sprung up in recent years.[136] Farmers would still have to keep some animals on hand as inputs for their cell tissue, but not in the quantities and under the conditions that they are currently reared. Banks seeking to reduce their financial exposure to conventional animal protein production could actively support farmers, especially those that do not own sufficient land to shift towards plant-based production, in making the investments needed towards those technologies once they mature.

Banks should refrain from funding the further expansion of animal-based protein production facilities and should shift their focus towards positive impact lending in line with supporting the protein transition. In this way, start-ups and primary producers can get access to credits to let the production capacities of plant-based proteins grow and facilitate the protein transition.

4.1.5 Supporting new companies and start-ups

Start-ups have the potential to drive innovation and develop new products and technologies in the food sector, and have been responsible for much of the growth of the plant-based and alternative protein markets in recent years. As discussed in section 2.2.1, however, start-ups face a number of barriers that currently hinder their ability to contribute to the protein transition.

Providing capital to start-ups is generally perceived as higher-risk and therefore experiences issues with the willingness of banks to finance their companies. As a result, many new companies have turned to alternative forms of financing. An example is the construction of a factory for the Vegetarian Butcher in 2015. Because of the unwillingness of banks to finance, the company set up a crowdfunding campaign which turned out to be very successful. With this basis of starting capital, and a clear, positive sign from the market, banks were eventually willing to finance the remaining part against favourable conditions.[137]

Rotterzwam, a company that produces oyster mushrooms from spent coffee grounds, likewise resorted to crowdfunding rather than traditional financing after receiving limited interest from banks, and has now utilized all four types of crowdfunding (donations, reward-based, debt-based, and equity-based).[138] According to Jaap Korteweg, one of the founders of the Vegetarian Butcher, the large growth in crowdfunding platforms can be perceived as a sign that there is a need for this type of financing. At the same time, the popularity of such alternative types of finance also signals a gap in the ability of new companies in the food sector to access attractive financing from banks.

Nevertheless, there has been a marked growth in interest from investors to invest in start-ups active in plant-based alternatives. The growth in sales of plant-based meat and dairy alternatives as well as the considerable investments by venture capital, may function as a signal for banks to become more involved too. Zak Weston, manager food service and supply chain at Good Food Institute (GFI), sees this as desirable and needed, since investments are currently mostly coming

from venture capital, which is suited for early-stage companies that expect high short-term returns, but not appropriate for companies further upstream that are involved in high-risk R&D, commercialization and scaling-up.[139]

Banks are therefore very well-placed to fill the current financing gap between the start-up and scale-up phases of new companies. In particular, they can support the development of much needed new capacity and production infrastructure. Alternatively, banks could support larger food companies with which they already have relationships in transforming or expanding production capacity that is suitable to produce plant-based alternatives. This infrastructure could be used by start-ups through contract manufacturing, for which there is a high demand. This might be more appealing for banks as it would entail lower risks, compared to directly financing the start-ups.

Jeroen Willemsen, from the Green Protein Alliance, indicates that, although change is slow, banks are increasingly considering the long-term impact potential of companies in their financing decisions, in addition to the more traditional financial criteria and indicators they are used to. In this way, their risk profiles are starting to change, which allows younger, smaller companies that do not have a track record yet to access financing options.[140] Willemsen sees a need for the traditional financing criteria to change and adopt criteria that assess the long-term impact potential of a business. Kezia Smithe, ESG analyst at FAIRR, also highlights the importance of treating start-ups and smaller companies in a different way in banks' risk assessments than large companies. As they generally have limited sustainability disclosures, they could be assessed empirically instead and therefore become eligible for financing.[141]

Another option to better assess the risks associated with start-ups can be achieved through collaboration with other stakeholders within networks or partnerships, such as the Green Protein Alliance (GPA), which can be used as due diligence for these business cases that are traditionally considered as riskier. Jeroen Willemsen sees this happening, for example, at Rabobank, which is a partner in the GPA.[142]

Henk Gerbers, strategic advisor chain development at the province of Noord-Brabant, suggests that banks could also participate more actively in agri-food experimental gardens and "living labs" in which the government is involved or has set up, such as the "Green protein excellence centre". This can be a way for start-ups and banks to find and get to know each other, creating trust and mutual learning. He sees a clear gap between how financial actors perceive agri-food start-ups on the one hand and their agricultural suppliers on the other hand: *"Protein is seen as attractive and sexy, agriculture is not*." However, the agri-food sector is also working on technological innovations and data science, but they are more modest about this than high-tech companies. Therefore, banks and other financial players should become more involved in these experimental networks, to get the expertise to make the right financing decisions. [143]

Some examples can be found showing that banks are increasingly focusing on positive impact and supporting a shift towards a sustainable food system. An illustration of investing in plant-based protein alternatives by Rabobank is Oatly: the bank group, together with other investors, took part in an investment of US$ 200 million in the Swedish company that produces oat milk.[144] In 2019, NIBC provided refinancing to Vivera after the sale of its meat processing subsidiary Enko to enable the expansion of its capacity to produce meat substitutes, as part of the bank's efforts to support companies that have a positive ESG impact.[145]

But apart from ESG impacts, banks also have hard financial arguments to invest in plant-based and alternative protein production. In the eastern part of the Netherlands, relatively close to Wageningen University, many plant-based and alternative protein production have been set up in recent years. These companies show strong growth figures and excellent perspectives. According to financial newspaper Het Financieele Dagblad, a "vegan Silicon Valley" is emerging here which is attractive for Dutch and international investors.[146]

4.1.6 Financial products

Banks could encourage companies in the food sector to become more active in the protein transition through the financial products they offer:

- **Sustainability-linked loans**

  Sustainability-linked loans are a relatively new type of financial product in which part of the interest paid on a loan is tied to specific KPIs related to the sustainability performance of a company over the course of the loan period. This enables banks to incentivize clients to adopt more sustainable business practices by providing a financial reward to better sustainability performance, and a sanction for poorer performance.

  Experts see sustainability-linked loans as a potentially impactful tool to support the protein transition. According to Kezia Smithe, ESG Analyst at FAIRR, these loans would be less useful for lending to start-ups, considering the impact they are already having and the lower level of sustainability disclosures they generally have. However, sustainability-linked loans can be particularly useful for lending to bigger, more traditional companies, as they do disclose sustainability risks and financial institutions already understand these risks. The scale and possible impact would moreover be much greater.[147]

  Some of the Dutch banks provide sustainability-linked loans to companies active in the food sector. An example is the loan to agricultural commodity trader COFCO in 2019, in which Rabobank and ING participated (for respectively US$ 2.3 and US$ 2.1 milliard) The KPI's linked to this loan include a general yearly improvement of ESG performance, as well as increased traceability of agricultural commodities, with a focus on Brazilian soy.[148]

  Another sustainability-linked loan was granted in 2020 by ABN Amro and Rabobank to Royal Avebe, which is a Dutch cooperative of potato producers. The loan included performance indicators linked to greenhouse gas and water reduction targets, and the participation of producers in a crop optimization programme.[149]

  To contribute to the protein transition, specific KPI's should be developed linking the sustainability loans to companies' performance in shifting from animal-based to plant-based proteins. This entails both a growth in the availability of plant-based protein and a reduction of animal-based protein. The companies that should be targeted with such loans are the large food companies, traditional meat and dairy companies, retailers and food service companies.

- **Impact investing**

  Aside from directly financing companies or (parts of) the supply chain, banks can support companies in raising capital through issuing impact bonds. Banks can for instance build up a portfolio of cheap, high-risk loans to companies contributing to the protein transition, and package these loans into impact bonds that can attract individual and institutional investor capital, allowing investors to finance a whole portfolio of different loans. In this way, banks can play a crucial role in channelling impact investments towards the protein transition. According to Zak Weston from GFI, banks are well positioned to educate investors on the opportunities and risks in this market, and to create financial vehicles for de-risking such investments.[150]

  Michiel van Deursen, impact investor at Capital V, also mentioned that there is a lack of investment products offered to retail investors that explicitly exclude animal products from their portfolio. Van Deursen mentioned that there are currently only two animal-free exchange traded funds (ETFs), both in the US and not accessible for Dutch investors.[151] Given the large societal interest in the protein transition, banks offering investment services for their clients could potentially profitably develop such products.

Some of the banks have already set up funds through which they invest in companies with differing risk profiles. According to Carlijn Kamp, program officer at Triodos Bank, some forms of money, like investments, can generally bear higher risks than lending, and some of it does not expect high short-term returns. Triodos specifies this as catalytic money.[152] In this way, different categories of financing mechanisms can be designed for a broad range of companies and organisations.

Existing investment funds relating to the protein transition offered by banks include the Rabo Food & Agri Innovation Fund, through which Rabobank invests venture capital in innovative food & agri start-ups.[153] Among others, the fund participated in a capital investment of US$ 18 million in InnovoPro, which is developing technologies to extract high quality protein concentrate from chickpeas.[154] Triodos Investment Management offers the Triodos Food Transition Europe Fund, which invest for example in organic food company Beendhi, which sells vegetarian meals.[155]

- **Blended finance**

  Another form of impact investment in which banks can play a role is blended finance, combining development finance, philanthropic funds and private, commercial investments. Such financial vehicles could have a large potential to mobilise commercial investments towards a societal goal, such as the protein transition.[156]

4.2 Research

Banks usually have large research departments, to support their internal risk assessments and decision making, but also to publish (market research) reports which are relevant for their clients and other stakeholders. Multiple experts suggest that banks can use their research capacity to accelerate the protein transition. This is because they are perceived as objective parties with authority, which makes their research valuable for companies across the food supply chains; for instance information on origins of products, the size of the market and consumer preferences.[157] Since banks have a broad network of clients, companies, and investors with which they have relationships, they also have specific knowledge that can be used to match capital with investment needs.[158]

Banks could for instance use their research capacity to highlight the opportunities of plant-based and alternative proteins. In this way, banks can also create more attention for novel protein sources which are still perceived as risky investments, for which completely new markets need to be set up. According to Sanne van Laar, programme manager at Regio Food Valley, research conducted by banks have the potential to guide actors approaching and creating such new markets, for example for insects and algae.[159] Banks could also use their research capacity to investigate the ESG, animal welfare, and regulatory risks of further investments in intensive animal agriculture. Their research could also highlight how increasing government attention to issues such as climate change and biodiversity could create stranded assets in the industrial livestock sector in the long term.[160] By strengthening the transition narrative with their research and publications, banks can also aid the advocacy and lobbying efforts of the plant-based and alternatives sector, which remains weak in the Netherlands compared to those of the meat and dairy sectors.[161]

Banks are already using their research capacity to provide stakeholders with insights into the protein transition to some extent. ABN Amro recently published its prognosis report for the food sector, including research and forecasts for the meat, dairy and meat-substitute markets, which is an often-used source for news articles reporting on developments in the food sector.[162] ING and Rabobank also regularly publish market research and forecasts related to meat and dairy alternatives.[163] At Triodos, impacts, risks and return are an integral part of their analysis of companies and the market.[164]

In addition, banks can play a valuable role by reporting on research conducted by other parties and highlighting the commercial opportunities that can be derived from it. For example, Henk Gerbers, strategic advisor chain development at the province of Noord-Brabant, suggested that sugar beet, a highly productive crop in the Netherlands, could potentially be used to efficiently produce protein through fermentation, perhaps more efficiently than directly producing protein crops. However, such opportunities are not widely understood yet.[165] Banks have the ability to disseminate this information so that new market opportunities can be seized.

Thus, banks could use their research capacity to conduct and publish market research on the plant-based and animal-based proteins sectors, including analyses of the increasing risk under business-as-usual scenarios, novel trends, and what is needed from different actors in the food sector. The latter can be based on their existing, in-house knowledge on different actors within their network of clients, companies and investors. Additionally, they can work together with research institutions to incorporate and report on their research to make it more comprehensive and disseminate scientific knowledge. Lastly, they should strengthen the transition narrative within these publications.

4.3 Facilitation and involving stakeholders

Since banks occupy a central position in the economy through their extensive client networks, they can also play a role as a facilitator of dialogue and action between different types of market parties and other stakeholders.

4.3.1 Supply chain engagement

Banks committed to the protein transition are well positioned to take a more coordinating role, since they are often involved with companies along the whole food supply chain. In this way, banks can bring parties together and help them establish new contacts, exchange information, and develop new products, supply chains and business models. Such engagement would go beyond merely providing finance in line with the protein transition or engaging with clients and focus more on engaging with the entire supply chains or groups of actors together.

Both Jeroen Willemsen, from the Green Protein Alliance, and Jaap Korteweg, one of the founders of the Vegetarian Butcher and Those Vegan Cowboys, suggest that a bank such as Rabobank would be in the right position to connect the different stakeholders within the food supply chain, from production to consumption. For instance, banks could "*take along*" primary producers by showing them examples of other farmers and companies that are successfully transitioning in line with the protein transition and showing them how they can support primary producers in making the transition.[166] In this way information and good practices can be disseminated among primary producers, who still often have difficulty picturing what the protein transition would mean for them.[167] According to Willemsen, such a positive and practical approach, in which producers are provided with opportunities to contribute to the protein transition, may work better than directly questioning the continuity of their present business models.[168]

Banks are also well-positioned to play a more coordinating or facilitating role in bridging the gap between the research or product development phase and commercialization of alternative protein products. This gap, identified by many interviewees (see section 2.1.1), should be addressed not only through financing but also through facilitating collaboration between research institutions, entrepreneurs, and larger food companies, as well as retail and food service companies. Banks could for instance leverage their network to bring primary producers in contact with start-ups or manufacturers of plant-based meat or dairy alternatives, or support food start-ups in establishing contacts with retailers.[169]

As part of its Banking for Food vision, Rabobank acknowledges the role it can play in bringing stakeholders together within and along supply chains, by providing stakeholders access to its network.[170]

4.3.2 Stakeholder dialogue

Apart from engagement with companies and organisations in the food supply chain, banks can also initiate dialogue within a broader group of stakeholders. Within Triodos Bank, for example, continuous dialogue with different stakeholders is considered crucial in order to accelerate the shift towards a sustainable food system. These stakeholders include the government, but also large food companies that do not fit with the bank's vision of a sustainable food system yet.[171]

Dr. Aniek Hebinck, sustainable food systems change researcher at DRIFT, also sees a role for banks to engage with the government and require them to take the lead in setting a framework within which the protein transition can happen.[172] For example, a first step to bring the transition further would be to implement a meat tax, so that shifts take place which provide new opportunities. The True Animal Protein Price Coalition (TAPP coalition) is a partnership between different organisations that engages with the government and European Union to implement true pricing of animal proteins.[173] The Triodos Foundation is a donor, but other banks could join too.

Similarly, the European Alliance for Plant-based Foods (EAPF) is a coalition of food producers and manufacturers, research academia, NGOs and nutrionists promoting policies at EU and national level that support plant-based foods.[174] Again, financial institutions could join or support this or other initiatives.

Other examples of networks in which banks can participate are those organised by the government at regional levels, such as the Hub for Insect Knowledge of the Regio Food Valley, in which Rabobank is involved. The Hub was created by the government to bring different parties together and facilitate the uptake of insects for feed and food.[175] The bank provides input on the steps that need to be taken and what their clients would need to adopt such innovations. The rationale for participating is based on the large clientele that the bank has in the target group of the hub. In addition, Rabobank is involved in the prevention coalition of the same region, which initiates interventions with retail and food service companies to work on healthier food environments, as well as the agricultural network.

Other banks with a significant exposure to the food sector (ABN Amro, ING Bank and the investment arm of Van Lanschot Kempen) could follow the example of Triodos Bank and Rabobank by participating in dialogues with broader groups of stakeholders working on the protein transition. Initiated by the government, these hubs and coalitions attempt to involve banks to make them more interested to be involved and finance such novel protein sectors, but banks are still reluctant to do so, let alone take the lead in this.

Concluding, banks should actively initiate and participate in dialogues with broad groups of stakeholders, representing wider societal interests. This would help the banks to use the insights and messages of these stakeholders to inform, guide and finance their existing and new clients, to enable them to take up an active role in the required protein transition (see section 4.1). It could also strengthen the research activities of banks in this field, creating more awareness and willingness to act with regard to accelerating the protein transition.

5

What governments can do to involve banks in the protein transition

In this chapter, the role of the Dutch government and European Union will be discussed. Section 4.1 will look at the main existing policies at national and EU level. Subsequently, section 4.2 will elaborate on the steps the government can take to incentivize the banking sector to contribute to the protein transition.

5.1 Existing commitments

5.1.1 National commitments

The protein transition is a topic in two national policy agendas in the Netherlands:

- The 2018 *Transitie-agenda Circulaire Economie - Biomassa en Voedsel* (Transition Agenda for Biomass and Food); and
- The 2020 *Nationale Eiwitstrategie* (National Protein Strategy).

Both agendas have different objectives. The Transition Agenda is indeed with the adverse sustainability impacts of animal protein production and therefore strives for a significant reduction of the animal protein consumption in the Netherlands. The National Protein Strategy has a more geopolitical ambition to reduce Dutch dependency on imports of animal feed for the livestock sector. This agenda does not set reduction goals for animal protein production or consumption. Further details on both policy agendas are provided below:

- **Transition Agenda for Biomass and Food**

  In 2018 an advisory body of the Dutch government, the Council for the Environment and Infrastructure, advised to reverse the current ratio in Dutch consumption of 60% animal protein and 40% plant protein to 40% animal protein and 60% plant protein in 2030.[176] In the 2018 Transition Agenda for Biomass and Food, the government adopts the ambition to strive for a 60:40 plant-animal protein ratio, as well as to decrease the total protein consumption per person with 10-15%. But the timeline is less ambitious and extended until 2050.[177] A similar goal was agreed to in the 2019 National Climate Agreement (*Klimaatakkoord*), although no percentages are mentioned. The agreement refers to a "good balance between animal and plant protein" and expresses the hope that "consumers will make this choice themselves through incentives".[178]

  As one of the main lines of action, the 2018 Transition Agenda states it is important that circular protein propositions are financed, scaled up and commercially implemented. As an example for a possible intervention, the policy proposes that banks, investors, and multinationals involved with start-ups provide capital for such investments and the initiation of pilots for scaling-up and behavioural change. Specific partners and experts that are proposed to be engaged are the Rabobank Innovation Food Fund, Green Protein Fund, Future Food Fund, Triodos Bank and RVO.[179]

It is also relevant to mention that the Netherlands has also committed to Sustainable Development Goal 12.3, which sets a target to reduce food waste per capita by 50% at the retail and consumer level by 2030. In combination with changing the animal-plant protein ratio from 60:40 to 40:60, this would roughly translate in halving animal protein per capita.

- **National Protein Strategy**

  As part of the European Union's strategy to become less dependent on the imports of soy from outside the EU, the Dutch government presented the National Protein Strategy in December 2020.[180] The strategy does not have the same goals as the Transition Agenda for Biomass and Food but rather focuses on import-substitution goals for the coming 5 to 10 years to increase the use of alternative feed sources by the current livestock sector. The goals are:[181]

  - Plant-based inputs for animal feed are to be mainly produced within the EU by 2025; and
  - Animal feed should mainly consist of products not suitable for human consumption and residual flows by 2030.

  In order to reach these goals, the government aims to support the development of (novel) sustainable protein-based animal feed sources, focusing on innovation and circular agriculture.

  As a secondary objective, there is some attention for increasing human plant-protein consumption, starting at the consumer (demand) side. But although the strategy seeks a healthy balance in the ratio of plant-based and animal-based products in our diet, it does not set explicit targets for a reduction in de production and consumption of animal-based proteins. After the resignation of the Rutte-III government in January 2021, the National Protein Strategy was marked as a controversial topic, which means that the political parties joining the present or coming government have different opinions on it. Further policy discussions will likely only be taken up after a new government takes office.[182]

5.1.2 EU-level commitments

At the European level, the EU Farm to Fork strategy, the Common Agricultural Policy and the EU Biodiversity strategy are relevant for the protein transition.

The EU Farm to Fork strategy is central to the European Green Deal and seeks to address the sustainability challenges facing the European food system. It does not formulate a reduction target for the production and consumption of animal-based protein, but it aims to increase the availability of alternative proteins and to foster the production of plant protein within Europe. Furthermore, it states that advertisement of meat at very low prices should be avoided and that shifting to a diet that has a larger share of plant-based food is considered healthier.[183] However, proposed food labelling regulations seem to contradict these ambitions, with European Parliament amendment 171 fully banning the use of dairy-related terms for plant-based alternatives, if implemented.[184]

The Farm to Fork strategy will be supported by the new Common Agricultural Policy (CAP), which the Commission proposed in 2018 and is in the process of being reformed. An important pillar is the increased investment in research and innovation, to foster sustainable farming, as well as incentives for farmers to improve their environmental and climate performance. However, no reference is made to a transition from the production of animal to plant protein. Since the majority of funding under the CAP (between 69%-79% or EUR 28-32 billion) was allocated to livestock or feed producers between 2014 and 2020, it is difficult to assess whether it will contribute to the protein transition or hinder it.[185]

Published in May 2020, the EU Biodiversity strategy addresses the agricultural sector and stresses that it is important to support farmers in the transition towards sustainable agriculture, in line with the Farm to Fork Strategy and the new CAP.[186] Nevertheless, the livestock sector is not addressed.

5.2 Government steps with regard to banks and the protein transition

There is considerable support among the Dutch electorate for an active and steering role by the Dutch government in shifting consumption patterns away from over-reliance on animal protein.[187] For instance, the majority of the Dutch voters would be in favour of measures to reduce the production and consumption of animal-based protein, including downsizing of the livestock industry and abolition of intensive livestock farming.[188]

This section discusses some policy options to be considered by the government to accelerate the protein transition. The discussion is not comprehensive, as its scope is limited to the direct and indirect steps that the government could take to let banks contribute more actively to the protein transition along the lines discussed in chapter 4.

5.2.1 A long-term strategy on the protein transition

Many of the experts interviewed agree that if the Dutch government would set clear, long-term objectives for a protein transition, this would create a perspective for banks and other actors in the food supply chain on the direction and pace of the transition. What is needed are clear goals on reducing animal protein production and consumption, stimulating plant-based proteins, bringing down the nitrogen and greenhouse gas emissions of the livestock and agriculture sectors, as well as addressing other sustainability issues. Such a clearly defined policy strategy would enable companies to adapt their business models to the new reality better and faster.[189]

As primary producers need to make large investments to switch, requiring sufficient time to pay back debts and become profitable, they are in particular need of a clear, long-term policy framework. Thijs Cuijpers, policy director at LTO Nederland, points out that farmers are well-aware of the long-term trends towards a reduction of animal protein consumption in Europe, and of government policies in that direction. However, according to Cuijpers, the policies such as outlined in the National Protein Strategy do not yet provide farmers with a clear perspective that they can translate into actions.[190]

A long-term government strategy on the protein transition would also enable banks to accelerate the protein transition through their financing. After all, a clear long-term policy framework would not only help companies and farmers understand what they need to do in the long term, but would also help banks to assess risks and opportunities and make better decisions on what they should and should not finance.[191] With an active and clearly defined government policy on substantial and long-term reductions in animal protein production and consumption, banks and other financial institutions will likely see continued investments in large-scale industrial livestock farming as increasingly risky.[192] Conversely such a policy would enable entrepreneurs and financiers to see the long-term perspective and viability of animal-based protein technology and products, which would help to cross the “valley of death” and make available long-term financing and investments for corporate strategies contributing to the protein transition.

In the absence of a clear government policy on the protein transition, companies and other organizations are increasingly taking their own steps. This raises issues of effectiveness, as companies’ actions are not embedded in a broader strategy. According to dr. Aniek Hebinck, sustainable food systems change researcher at DRIFT, It also raises issues of fairness and legitimacy, as it leaves much room for powerful players in the food industry to either hinder the transition or to frame it in a way that benefits their interests.[193] It also reinforces a short-term assessment of the risks and opportunities for protein transition-related activities and investments, which excludes promising developments and transition processes which require time and patience.

To overcome the "tragedy of the horizons", a long-term perspective is required. When the Dutch government, along with important stakeholders such as the Dutch banks, are able to create the right conditions, the plant-based and alternative protein production sector could become an important growth engine for the Dutch economy. "The Netherlands has a good perspective to play in leading role in the fast-growing global market for meat- and dairy-alternatives", according to Kees Kruythoff, the CEO of plant-based protein producer LiveKindly Collective.[194]

5.2.2 Financial instruments

The government can implement various financial instruments to encourage banks to support a protein transition, such as investment funds and vehicles, subsidies and guarantees. In particular, the government can address the two current major financing gaps identified by the experts:

- **Financing innovation**

  As discussed throughout this report, there are many innovations that could help drive the protein transition, for instance in the utilization of plant proteins from crop residues or the improvement of protein crop seeds for cultivation in the Netherlands. However, such technologies are often not yet fully developed and still require additional funding at various stages to improve their efficiency and scalability. Further societal debate is needed to set priorities in this respect.

  According to the interviewees, the financing gap in food innovation is currently most pressing in the stage between research and commercialization (see section 2.2.1 and 4.1.5), where a promising product has been developed but further financing is still seen as too risky by banks. While private investors, crowdfunding, and investments by large food companies have to some extent filled this gap in recent years, it is unlikely that this is sufficient. By funding the further development of these innovations, either through subsidies, guarantees, investments or through co-financing agreements, the government can act as a catalyst for the protein transition. By providing such funding, the government takes on part of the risk, which also lowers the risk perception for other financiers. In this way, banks can be incentivized to take a more active role in financing start-ups and innovative new companies as well.

  Stimulating innovation can also be done through setting up and funding collaborative initiatives between researchers, primary producers, companies, and potential financiers. Several of such initiatives already exist at the regional and local level. The province of Noord-Brabant, where many different food system actors are based, has attempted to bring these actors together through various thematic learning networks and innovation hubs. Henk Gerbers sees it as a clear role of the provincial government to encourage actors to participate and inspire them to set up such collaborations themselves.[195]

  Another example is the programme of the Regio Food Valley, in which eight municipalities in Gelderland work together with local partners in the food supply chain, from primary producers to local retailers, to make the local food system more sustainable. While some banks, particularly Rabobank, are already involved in these initiatives to some extent, their participation is overall still limited. More actively integrating banks in such initiatives could benefit both the impact of such programmes on, and banks' own understanding of the opportunities of, the protein transition.

- **Supporting farmers in the protein transition**

  In addition to facilitating innovation, the Dutch government could provide support to those in the food system for whom the protein transition presents the largest challenge. As discussed in this report, farmers face difficulty in attracting finance for efforts to transition to less intensive or more plant-based business models since such transitions are seen as too high-risk by banks. The Dutch government could provide financial support to farmers by taking on some

of the risk burden while farmers transition. Similar to the financing of innovation, by carrying some of the risk involved, farmers would have more ease in attracting financing from banks.

To some extent, the government already support banks in providing financing to producers to invest in more sustainable agriculture, through, for example, the National Green Fund ("Nationaal Groenfonds") which grants subordinated loans to the producers, so that banks can provide additional loans.[196] In response to the immediate need to reduce nitrogen emissions from livestock operations, the Dutch Minister of Agriculture announced in November 2020 the implementation of a EUR 175 million transition programme ("Omschakelprogramma Duurzame Landbouw"), including an investment fund and subsidies for producers who want to transition to extensive and/or circular agriculture.[197]

Through the investment fund, producers can receive a subordinated loan, based on their approved business plans. In addition, two types of subsidies are available for farmers to support the effectiveness and success of the investment fund. The first is a EUR 1.9 million annual subsidy to support the creation of solid business plans, and the second is a EUR 1.7 million annual subsidy one for so-called "demonstration farms", in order to enable farmers to learn from each other and disseminate information. Lastly, the government aims to provide guarantees on loans that provide farmers with extra working capital during the transition dip, the temporary shortage of liquidity during the transition.

While such financial measures will support individual farmers in transitioning to more sustainable business models, the amounts pledged will not of themselves be enough to drive the protein transition. In addition, since these policies are focused primarily on supporting farmers in adopting circular and extensive business models, the necessity of the protein transition is only acknowledged implicitly. These measures may be more impactful if they are embedded in an explicit strategy to move away from over-reliance on animal-based proteins, and if they are implemented at a scale that meets the challenge.

Another way that the government could ease the transition for farmers would be by improving the business case for alternatives to intensive livestock farming. Thijs Cuijpers, policy director at LTO Nederland, suggests that, if the government is serious about its plans to increase protein crop cultivation in the Netherlands, such crops will have to be subsidized as part of the European CAP.[198] At the same time, stimulating innovations that would increase the yield of protein crops, such as through seed selection, would also improve the business case for transitioning to a more plant-based farming system.

For farmers that are not able to transition to a more plant-based farming system, the government could also consider offering support in reorientation and training for a career outside of farming, as part of the transition programme for sustainable agriculture. In such cases, the government will have to ensure that the production capacity left by the farmers is not taken over by others. This will likely also mean that the banks that have financed these operations will have to take on some of the losses.

5.2.3 Financial regulation

A less-explored option specifically targeted at banks could be to include measures related to the protein transition in financial regulation. Michiel van Deursen, impact investor at Capital V, suggested that governments could set minimum ESG-requirements for banks, including requirements regarding the financing of intensive agriculture.[199] Another option would be to require banks to disclose information about the protein composition of their food sector portfolio and their efforts towards the protein transition. This is much in line with the current trend in the financial sector towards calculating and disclosing the "carbon footprint" of their portfolios.

At the EU level, the Farm to Fork strategy should more explicitly involve banks in facilitating and accelerating the protein transition. This approach could be aligned with the Taxonomy Regulation, by which the EU is defining the conditions under which economic activities can be considered economically sustainable. As argued by the Eurogroup for Animals, clearly labelling intensive livestock farming as an unsustainable activity in the Taxonomy could have a major impact on both the position of the sector in public debates on climate and biodiversity, and provide a signal to financial institutions about the risks involved in that sector.[200]

5.2.4 Price measures

Most experts agree that government measures directly affecting food prices could have a major impact on the consumption of animal and plant-based protein. Higher prices for animal-based products and lower prices for plant-based products would move consumption away from meat and dairy towards plant-based alternatives, and the price gap with plant-based meat and dairy alternatives would be closed sooner. For banks this would mean that the financing of, and investments in, plant-based protein products becomes more attractive and lower risk.

The implementation of such price measures could take various forms, for instance:[201]

- VAT exemptions for fruit, vegetables and/or organic products;
- A general carbon tax that would price the carbon emissions of food products; or
- A fair pricing system, such as advocated for by the True Animal Protein Price Coalition (TAPP) for animal products that would incorporate the negative externalities of their production into the product price and would support the transfer towards sustainability and low producer incomes in the food sectors.

Thijs Cuijpers, policy director at LTO Nederland, pointed to the mixed record of similar price interventions, such as the fat tax in Denmark, to caution that a price measure such as a meat tax may not be effective.[202] Kezia Smithe, ESG analyst at FAIRR and dr. Aniek Hebinck, researcher at DRIFT, mentioned that governments should consider the unintended consequences carefully, to prevent penalizing lower income groups.[203]

Support for such a meat tax has increased in recent years, with more than half of Dutch voters supporting higher prices for meat.[204] In December 2020, almost all political parties in the Dutch Parliament voted in favour of a motion calling for a long-term future perspective for the agricultural sector, which also mentioned: “the introduction of taxes on products of which the proceeds are used for sustainability”. As a result, the Dutch Ministry of Agriculture, Nature and Food Quality is working on a levy on food to finance a future earnings model for sustainable agriculture.[205]

Government support for fair pricing of farmers’ produce is also one of the main recommendations of the Dutch banking association’s (“NVB”) working group on agricultural matters (ABN Amro, ING, Rabobank and Triodos Bank), provided to the Minister of LNV.[206] In order to enable the transition towards sustainable agriculture, they see a role for all actors in the food system to stimulate this, including financial institutions and the government. The latter can do this through adjustment of the VAT, other taxation schemes, quality standards and regulation on competition.[207]

6

Conclusions and recommendations

6.1 The protein transition: arguments, opportunities and barriers

The overconsumption of animal protein sources has large negative consequences for animal welfare, biodiversity, the climate, food security, human and labour rights, and public health. The global livestock sector is responsible for most of the deforestation in the Amazone and Cerrado regions in Brazil, for the cruelty to which millions of farm animals are exposed on a daily basis, for depriving local communities in developing countries from their land rights and food security, for emitting enormous amounts of greenhouse gases and nitrogen which threaten the climate and nature, and for outbreaks of zoonotic diseases affecting the global population. A shift away from the global over-reliance on animal sources of protein towards more plant-based and alternative protein sources is therefore necessary and can help address some of the most important sustainability issues of our time.

This protein transition is not only indispensable, but also achievable: the number of plant-based and alternative protein sources available on the market is already large and new products are introduced on an almost daily basis. Technological developments in the fields of protein processing, fermentation, and cell-based protein production are progressing rapidly. The market for plant-based protein sources has grown considerably in recent years and is set to expand further. This offers huge opportunities, the plant-based and alternative protein production sector could become an important growth engine for the Dutch economy.

However, considerable barriers to the protein transition remain. Despite the growth in the plant-based and alternative protein sector, the Netherlands continue to be a major producer of animal protein and the Dutch. Bottlenecks persist at almost all steps in the supply chain, including difficulties for primary producers to transition to arable or mixed farming; access to capital for start-up and scale-up food companies producing plant-based protein products; vested interests among some large meat, dairy and food companies that limit their willingness or ability to participate in the transition; and supermarket business models heavily dependent on marketing meat at very low costs.

6.2 The role of banks in the protein transition

To accelerate the protein transition, banks could be agents of change helping to address these bottlenecks. At present, however, several banks still have a large exposure to traditional animal proteins and are hardly involved in the necessary protein transition. Out of the eight Dutch banks surveyed in this study, only Triodos Bank has a clear commitment to support a food system which is largely based on plants and alternative sources of protein. Banks with a significant exposure to the food sector, such as Rabobank, ABN Amro, ING Bank and the investment arm of Van Lanschot Kempen, have sustainability policies for the food sector in place and/or support initiatives which aim to make the food system more sustainable. But for none of these banks, these policies and initiatives are embedded in a systematic strategy to move away from over-reliance on animal protein sources. Other banks, such as NIBC and De Volksbank, largely avoid to have exposure to the food sector.

If banks would make a clear commitment to contribute to the protein transition, they could play an important role in addressing several of the main bottlenecks that are currently slowing the protein transition down. In their role as capital providers, banks could:

1. Commit to bringing their food sector portfolios in line with at least a 60:40 ratio of plant to animal protein sources in 2030 as proposed by the Council for the Environment and Infrastructure. This medium-term commitment can be complemented by a further rebalance on the longer term, reducing animal protein production and consumption by 50% by 2040;
2. Integrate criteria in support of the protein transition into their policies for lending and investment in the food sector, in particular by defining clear expectations for different companies in the food supply chain;
3. Measure and disclose the protein composition of their food sector lending and investment portfolios, including companies producing animal feedstocks;
4. Phase out investments in the expansion of intensive livestock infrastructure;
5. Engage with clients and investee companies in the food sector, to encourage them to shift their business models away from over-reliance on animal proteins;
6. Support farmers and primary producers in transitioning to arable or mixed farming and more sustainable business models;
7. Actively support new companies that can help accelerate the protein transition; and
8. Incentivize companies in the food sector to transition towards more plant-based and alternative protein production through attractive financial products.

Banks could also help to accelerate the protein transition through other means, such as:

9. Using their research capacity to point out the opportunities of the protein transition, as well as the ESG, animal welfare, regulatory, and stranded asset risks of continued investments in the industrial livestock sector;
10. Playing a more coordinating role in the protein transition by involving different parties along the whole supply chain, leveraging their extensive knowledge and networks; and
11. Participate actively in dialogues with broad groups of stakeholders, and use their insights and messages to inform, guide and finance existing and new clients.

6.3 Public policies to involve banks in the protein transition

Studies also show that there is considerable public support for a more active role by the government in stimulating the protein transition. Both at the EU level and in the Netherlands, policies are being developed and implemented to stimulate a protein transition. In the implementation of such plans, governments should build on the catalytic role that banks can play and should develop targeted measures to involve banks in the transition process. The European Union and the Dutch governments could get banks on board of the protein transition process by:

1. Adopting a clear, coherent and long-term strategy to reduce the production and consumption of animal proteins and increase the production and consumption of plant-based and alternative proteins, thereby creating a stable investment climate;
2. Developing financial instruments and interventions to fill some of the major financing gaps and lower the risk perception of banks to become involved in the protein transition, particularly with regards to new, innovative companies and primary producers that want to transition away from industrial livestock farming;
3. Including targets or requirements related to the protein transition in financial regulations; and
4. Introducing policies that ensure a fair, somewhat higher price of animal-based protein products such as meat and dairy, thereby lowering the risks and increasing the attractiveness of financing of, and investments in, plant-based protein products.

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Appendix 1 List of interviewed experts

Name	Organisation
Dr. Aniek Hebinck	Drift for Transition
Arielle de Jong	Rijksdienst voor Ondernemend Nederland (RVO)
Carlijn Kamp	Triodos Bank
Charlotte Linnebank	QuestionMark
Henk Gerbers	Provincie Noord-Brabant
Jaap Korteweg	Vegetarische Slager (former), Those Vegan Cowboys
Jeroen Willemsen	Green Protein Alliance (GPA)
Kezia Smithe	FAIRR
Michiel van Deursen	Capital V
Ngoc Berris	Ministerie van Landbouw, Natuur en Voedselveiligheid (LNV)
Pablo Moleman	ProVeg Nederland
Paul Kortekaas	Triodos Bank Nederland
Sanne van Laar	Regio Food Valley
Siemen Cox	RotterZwam
Dr. Stacy Pyett	Wageningen University and Research (WUR)
Stefan Breukel	Ministerie van Landbouw, Natuur en Voedselveiligheid (LNV)
Thijs Cuijpers	Land- en tuinbouworganisatie Nederland (LTO)
Zak Weston	Good Food Institute (GFI)

The Eerlijke Bankwijzer (Fair Bank Guide Netherlands) is a coalition of the following organisations:

Amnesty International

Milieudefensie (Friends of the Earth Netherlands)

Oxfam Novib

PAX

World Animal Protection