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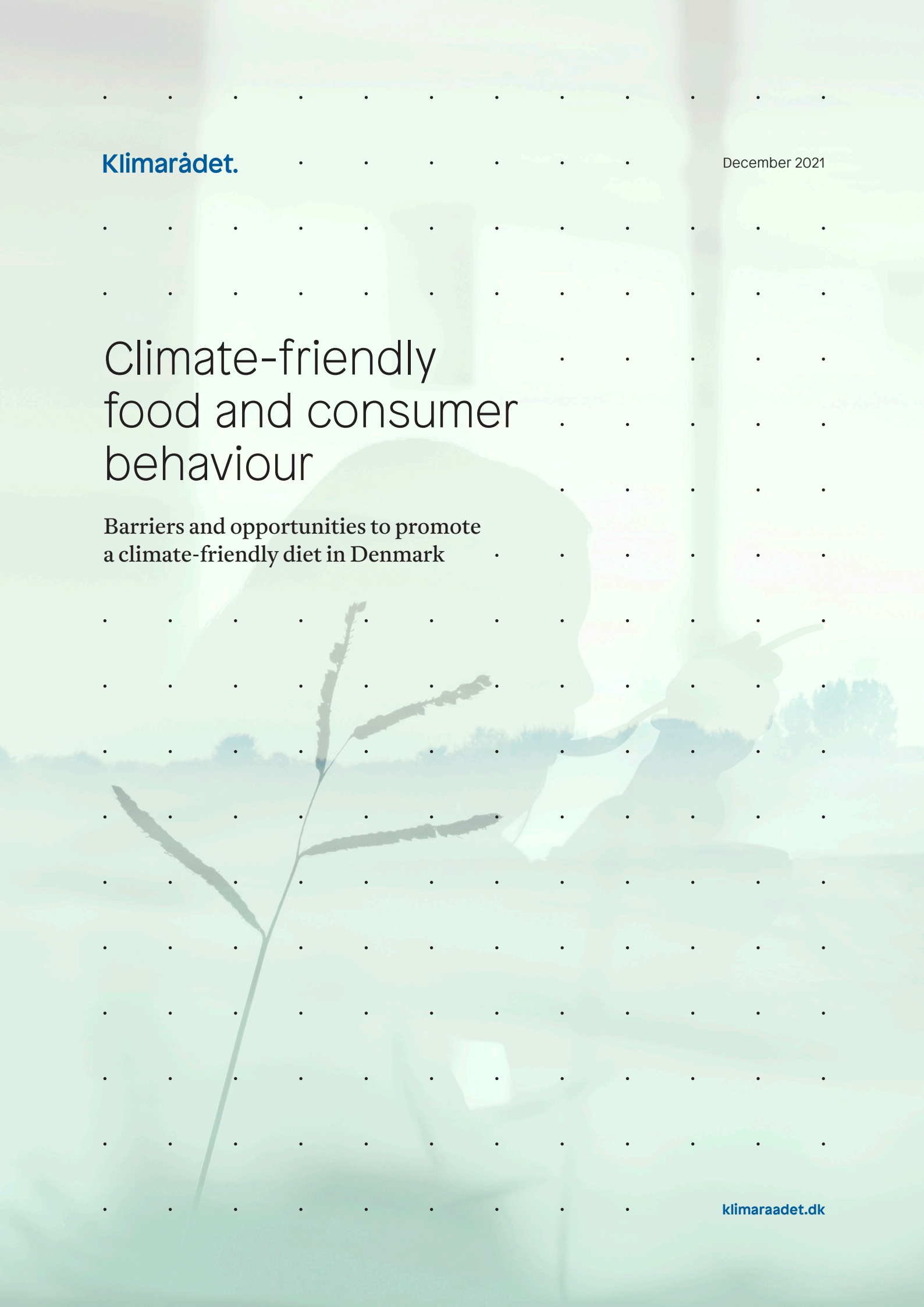
Climate-friendly food and consumer behaviour

Barriers and opportunities to promote a climate-friendly diet in Denmark



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Who is the Danish Council on Climate Change?

The Danish Council on Climate Change provides recommendations on climate initiatives in the transition to a low-carbon society. They are based on independent professional analyses, centered on the overall objective of how we can make a cost-efficient transition. The objective is a future with very low emissions of greenhouse gasses while maintaining social welfare and development.

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1. Introduction, conclusions and recommendations

Global food consumption has a large climate and environmental impact
It is globally recognised that the food system has a large impact on climate, the environment and global health, and that this impact may be altered by changing the way people compose their diet. The UN Intergovernmental Panel on Climate Change (IPCC) estimates that the global food system constitutes approximately 30 per cent of total global greenhouse gas emissions, and thereby contributes significantly to climate change. Emissions of greenhouse gases from food systems originate from direct emissions from agricultural production and from deforestation caused by agricultural production, among other things. Cattle and pig farming, and other animal agriculture contribute significantly to climate change, as the animals emit greenhouse gases such as methane from cows and methane and nitrous oxide from slurry. Furthermore, global animal agricultural production, including the production of fodder, accounts for more than 80 per cent of global agricultural land. In addition to the climate impact, continuing agricultural production at current or increased levels and continuing the expansion of global agricultural lands will put further pressure on nature and natural resources, including increased deforestation and overconsumption of freshwater.

Changing global food consumption can significantly reduce emissions from global agricultural production and thereby give an important contribution to the temperature target of the Paris Agreement. Scientific research suggests that the climate impact of global agricultural production can be reduced by approximately 45 per cent in 2050 if everyone in the world adopted a sustainable diet. This could also free up 60 per cent of global agricultural lands, which would thereby be available for other purposes. A sustainable diet mainly consists of plant-based foods, and to a lesser degree of animal-based foods. Such a dietary change would also have a positive effect on public health.

Denmark's large consumption of animal-based foods is not sustainable on a global scale
Current Danish food consumption is an obstacle to Denmark's ambition of taking the lead in climate change mitigation, as the Danes have one of the largest climate footprints from food consumption per capita. The average Dane eats more than double the amount of animal-based food compared to the global average, and also eats more meat and dairy products than the European average. This means that the climate impact of Danish food consumption exceeds the sustainable level seen from a global perspective.

The aim of this analysis is to identify the barriers to an increased climate-friendly diet in Denmark and to identify potential instruments to reduce these barriers. The Danish Council on Climate Change (DCCC) proposes various measures that can accelerate the transition to more climate-friendly food consumption in Denmark. In addition, the purpose of the analysis is to estimate the climate effect if all Danes changed to a climate-friendly diet. The analysis focuses on reducing Danish consumption-based emissions, which is another way of accounting for Denmark's climate impact instead of measuring territorial emissions. Binding international obligations and national targets, such as the Danish 70 per cent reduction target in 2030, are based on Denmark's territorial emissions.

A reduction of Denmark's consumption-based emissions from food will also reduce emissions outside Denmark. This supports the objective of the Danish Climate Act: ensuring that Denmark contributes to reducing global emissions. Finally, greater demand for plant-based foods may incentivise Danish food producers to focus more on climate-friendly food products.

There are several ways to reduce the climate impact of Danish food consumption, e.g. by changing diets, by reducing food waste or in some cases by consuming locally produced food instead of imported food. It is relevant to look into these different options. However, this analysis focuses solely on the climate impact of changing eating habits in Denmark, with a specific emphasis on consumption of plant-based foods versus animal-based foods.

Changing the food composition is thought to be one of the main factors to changing the climate impact of food consumption.

Significant climate benefits can be achieved if more people in Denmark were to follow the official Danish dietary guidelines

In 2021, the Danish Government presented Denmark's new official dietary guidelines, which aim to guide the Danes to a healthier and more climate-friendly diet. The dietary guidelines are based on the EAT-Lancet diet, a healthy, climate-friendly and environmentally sustainable diet that can feed ten billion people in 2050. The dietary guidelines have been adjusted to reflect Danish food habits, health and sustainability. However, there is still a high degree of consistency between the new Danish guidelines and the EAT-Lancet diet.

According to Denmark's new dietary guidelines, Danes should considerably reduce their consumption of animal-based foods and increase their consumption of vegetables and legumes. However, there may be reason to update the dietary guidelines in the future if the scientific foundation changes, or if there is a wish to further reduce the climate impact of Danish food consumption.

If all Danes were to follow the new dietary guidelines, the DCCC analysis shows this would result in a direct reduction of global greenhouse gas emissions by 2.6-3.9 million tonnes annually. Without changing their energy-intake, the average Dane between the ages of 6 and 64 could reduce the climate impact of their diet with 31-45 per cent if they followed the dietary guidelines. The reduction potential for younger children and people aged over 65 is slightly lower at 17 per cent and 23-36 per cent, respectively. The reduced climate impact would primarily come from a decrease in the consumption of animal-based products compared to the current diet composition. Changing diets will at the same time improve health conditions in Denmark and reduce the environmental impact of the Danish food consumption.

The government should create a national climate database for food

Recent studies have shown that consumers are becoming increasingly aware of the climate impact of their diets, but that it is difficult for them to identify climate-friendly foods. At the same time, both public and private actors have started working on helping consumers better understand the relationship between different foods and their climate impact. However, these actors use different climate databases to assess the climate impact of foods, and there is uncertainty about the ideal choice of data and assessment method.

This situation is unsustainable and, in the worst case, it will lead to conflicting signals about what is actually climate-friendly. This can lead to scepticism, uncertainty and confusion among consumers, which in turn can reduce the population's commitment to consuming a more climate-friendly diet.

Therefore, the DCCC recommends that the government, in close cooperation with industry and scientists, establish a national and publicly available climate database with information about the carbon footprint of different food products. The database should focus on providing consumers, businesses and others with better information, especially because many actors within this field rely on different climate databases. Moreover, it is important that the climate database is based on the best possible information, and is accompanied by transparent communication on assumptions and uncertainties about the data. It is therefore important that the database is updated regularly with the ongoing involvement of experts and stakeholders. Initially, the climate database should include estimates of the climate impact of the main food categories to help consumers navigate between them. In time, the government can strive towards a greater degree of detail to help consumers navigate the most climate-friendly alternatives within a product category. It should be emphasised that the common European method for calculating the climate and environmental impact of different types of products, the Product Environmental Footprint (PEF), is still being developed. PEF strives to establish common EU guidelines for calculating the climate and environmental impact of different types of products and to develop specific guidelines for product categories, as for example milk. The development of the Danish database should take the EU's work on PEF into account.

The climate impact is only expected to be marginally offset by changed consumption abroad

A reduction of Danish meat consumption may result in both increased meat consumption in other countries and a decrease in global meat production, as the price of meat will drop slightly once Danish demand decreases. Hence,

the global climate impact of Danish dietary changes could be eroded if consumers abroad eat the meat that the Danish consumers have stopped eating. This is known as the risk of carbon leakage.

DCCC calculations indicate that if Danish consumers change diets, consumers abroad will only change their food consumption slightly in the long term. The calculations show that only approximately 5 per cent of a total decrease in Danish meat consumption will be offset by increased meat consumption abroad. In other words, if total Danish consumption of animal-based products decreases by 100 kg, consumption of these products will only increase by approximately 5 kg abroad. This means that the net global effect will be a 95 kg reduction in animal-based products and in the long term, the climate effect of altered Danish diets is only marginally offset by changed consumption patterns abroad. The climate effect may, however, be smaller in the short term as it takes time for the production sector to adapt to changed demands.

The DCCC's calculations indicate that there will only be a limited decrease in Danish livestock production as a result of the Danish population consuming fewer animal-based products. The calculations show that total Danish livestock production would only decrease by approx. 0.4 per cent if Danish consumption of animal food products decreases by 8 per cent. In the animal-based food industry, production would decrease by approximately 1 per cent. This limited effect on Danish production can be attributed to the fact that Denmark exports a large part of the animal-based foods produced in Denmark. It is expected that the greater the decrease in Danish consumption of animal-based foods, the greater the reduction of the Danish production of animal-based products.

The calculations indicate that the effect on total Danish territorial greenhouse gas emissions is relatively limited. Therefore, it is also necessary to focus on efforts to reduce emissions from livestock production, if we want Danish agriculture to make a significant contribution to achieving the Danish national climate goals. However, the calculations also indicate that a change in demand may to some extent incentivise Danish food producers to produce food that is more climate-friendly. The extent of this effect must however be taken with some reservation.

There are many barriers to following the dietary guidelines

In recent years, a growing share of the population has become significantly more aware of the climate impact of food consumption. In 2021, almost half of the population believed that meat consumption in Danish diets must be reduced. Young people in particular express a wish to consume less meat. However, other analyses show that it is difficult for people to act on these ambitions. Figures for household purchases show only a relatively limited reduction of beef and lamb consumption since 2015. Poultry consumption has increased, while pork consumption has decreased, both of which are meats with a lower carbon footprint. Danish dinner meals that contain meat has increased even from 2017 to 2019. Therefore, there is no immediate evidence that a significant number of Danes are switching to a more climate-friendly diet, despite the increased awareness.

There are several explanations to why Danes, despite good intentions, are not eating more climate-friendly. Shopping, cooking and eating are all routine based habits that have to fit into the daily life. There are practical and logistical considerations, and consumers have to divide their attention between what they eat and other daily concerns like work, school, cleaning, leisure activities etc. This may explain why there is no evidence that consumers have significantly changed their food habits, despite the considerable focus among the population on the climate impact of food consumption in recent years.

The DCCC has identified the most crucial barriers to changing dietary habits, and the analysis shows that several of these barriers are related to mealtime customs and habits. Price is an important factor in food choice, but consumer habits are also a big barrier when it comes to changing dietary composition. Many people are used to cooking certain types of food and feel they lack the competences to make tasty climate-friendly food. Therefore, climate-friendly food can be perceived as a compromise with taste. Many consumers are used to shopping in a certain way as part of their busy lives while they are also part of a social environment. In this environment, new eating habits can conflict with the habits of others and a general wish to fit in. Furthermore, consumers associate some diets with certain personality traits and are reluctant to identify with the group of people who eat climate-friendly food. Finally, many are unsure what foods are actually climate-friendly.

Normalising climate-friendly eating habits will encourage behavioural change

Today, very few people eat a climate-friendly diet. Evidently, this is a barrier to changing eating habits as eating a

climate-friendly diet is not the norm. When climate-friendly food is rarely eaten, it is easier to assume that a climate-friendly diet is reserved for a particularly idealistic group of consumers, that it is difficult to prepare, that it is not filling and that it tastes bad.

There is a clear need to normalize climate-friendly diets if a climate-friendly Danish diet is to be promoted. Studies point to the fact that climate-friendly foods will be considered increasingly normal the more frequent Danes are exposed to it and as such uncovering new eating habits. This will also change the perception that only certain sub-cultures consume climate-friendly diets. Normalizing a climate-friendly diet in the private sphere will also influence the way Danes act in their respective social networks, which can encourage behavioural changes in society as a whole. Normalizing climate-friendly eating habits will help change society's perception of climate-friendly diets from being a marginal behaviour to being the norm. Research suggests that once this happens, new behaviour can spread quite quickly through common social dynamics.

Effective efforts to normalise a more climate-friendly diet could be by explicitly encouraging a change in eating habits through communication and framing, particularly by public authorities. This can help alleviate the perception that following the dietary guidelines is difficult or socially atypical, and that it is, in fact, a behaviour that everyone can adopt.

Normalising a climate-friendly diet requires a variety of measures. Decision-makers in the government, regions and municipalities can implement some of these measures, while other measures should be implemented by private actors.

Taxes are effective, but not sufficient

The price of products should reflect the climate impact of their production. This is a general and recognised principle of effective climate action. This means that the higher the climate impact a product has, the more expensive it should be. In that way, consumers would be better incentivised to choose the products that are cheapest and least harmful for society, and to choose a mix of products that reflect the cost of consumption for society as a whole. The DCCC has proposed a tax system that, in addition to taxing Danish emissions, also accounts for emissions outside of Denmark. This was done in the analysis *Known paths and new tracks to 70 per cent reductions* published in 2020. The tax system should ideally consist of a tax on Danish emissions from agriculture and land use etc. combined with a consumption tax on food, which includes both products produced in Denmark and imported products. However, consumption and production taxes should be balanced to avoid that emissions from food production are more heavily taxed than other emissions. A tax on foods based on their climate impact would encourage consumers to switch from foods with large climate impacts to more climate-friendly alternatives.

There may however be various practical challenges to introducing a consumption tax that reflects the climate impact of foods. Ideally, the tax system needs to be detailed enough to reflect the precise climate impact of each food item. However, it could be costly to administer such a complex system. In practice, it will be a trade-off between the two considerations. During the course of 2022, the government's expert group working on a green tax reform will submit its final report, where emphasis, among other things, is expected to be on how to impose taxes on emissions from agriculture. The DCCC calls for the government to expand the mandate of the expert group to include a model for consumption taxes on foods. This would provide the government with a solid, scientific and holistic basis to build on.

However, as mentioned, there are many barriers beyond cost that are preventing Danes from adopting a climate-friendly diet. Therefore, economic regulation should be accompanied by initiatives that address the other barriers and contribute to normalizing a climate-friendly diet. These other behavioural measures are the main focus of the DCCC's recommended instruments in this analysis. The instruments could suitably be the focus of the Danish Government's initiative on climate friendly behaviour that is expected in 2022.

From an economic perspective, introducing taxes that nudge consumers to eat differently or pay more for the foods they want to continue eating will be a welfare loss for individuals. This also applies to other behavioural taxes. However, other behavioural measures can contribute to the normalization of climate-friendly diets, and can thereby reduce the welfare loss by influencing preferences and in turn reduce the socio-economic costs of implementing dietary change in Denmark. How we choose what we eat is not a choice made in isolation and free

from the influence of others, and it is therefore possible to minimize the individual's perceived loss by introducing measures that change the behaviour of consumers as a whole.

Public kitchens should serve climate-friendly food

Public kitchens can introduce many people to climate-friendly food as the kitchens serve approximately 650,000 meals a day throughout Denmark. Making these meals climate friendly will in itself contribute to mitigating climate change and will contribute to normalising a climate-friendly diet in the Danish population as more people are provided with and exposed to climate-friendly food.

The DCCC recommends that public kitchens at the national, regional and municipal level set targets for providing climate-friendly food. There are already a number of public initiatives aimed at reducing the carbon footprint of public procurement and some municipalities have set targets for reducing the carbon footprint of their kitchens. It is good that the transition is already happening in some places, and the more people affected by the transition, the more it can contribute to the normalisation of a climate-friendly diet.

The DCCC recommends that Danish dietary guidelines form the basis for the objective to serve climate-friendly food in public kitchens, since they are a good benchmark for climate-friendly foods towards 2030. It will also make things easier for kitchen staff as it also ensures the health benefits of a dietary change. In order for the dietary guidelines to continue to be climate-friendly, the climate impact of the diet needs to be monitored so the guidelines continue to reflect a healthy and climate-friendly dietary composition.

Experience from previous dietary guidelines shows that public kitchens do not automatically follow the official dietary guidelines in Denmark. Therefore, the objective of following the new dietary guidelines in public kitchens needs to be supported by additional initiatives and cooperation with private actors. It is important that kitchen staff have the necessary professional knowledge to adapt to the guidelines. A number of additional efforts may be necessary to ensure that people eat the climate-friendly food served by the kitchens. For example, people are more willing to eat plant-based food if it is not called a vegetarian dish, and is just presented with a list of ingredients. Public kitchens could also collaborate with private kitchens and share their experiences. The aim of this would be to encourage private kitchens to follow the new dietary guidelines.

Two climate labels can guide the consumers

One of the barriers consumers face when shopping is that they simply do not know enough to make a climate-friendly choice. A climate-labelling scheme for food is an effective guide to more climate-friendly eating habits. It will help make the climate impact of food more visible and contribute to the normalisation of climate-friendly foods. According to a consumer survey, labels are very important to consumers and as many as 86 per cent use labels to guide them when shopping. There is currently no official climate label for foods in Denmark, but there are many other food labels that, among other things, help consumers make healthy or environmentally friendly choices while shopping. A labelling scheme also gives companies and retailers the opportunity to show that they and their products are socially responsible.

For a labelling scheme to be successful, consumers need to feel that they can trust the label. Credibility can be achieved through a number of factors: The label should be issued by a government body (e.g. the Danish Veterinary and Food Administration), the label should be official and there should be a broad consensus on criteria among stakeholders, criteria underlying the label should be established by law, and compliance should be verified by a credible party. Both in Denmark and internationally, the retail industry and food industry have started to advertise or test labelling schemes to satisfy consumer wishes to make more climate-friendly choices. However, if more than one climate label is developed by private actors, there is a risk of creating label fatigue or consumer confusion. Furthermore, some producers promote products as carbon-neutral or as having a percentage carbon reduction for parts of the product or similar. Producers may calculate these emissions using very different methods, which is not good for consumer trust.

The DCCC recommends that the government lays down the foundation for a labelling scheme consisting of two government-controlled climate labels:

- A climate label for food products in shops to help the climate friendly consumer choose what to buy

- A climate label for kitchens that makes it easier for consumers to identify kitchens that have become more climate friendly. The label should cover all public kitchens and allow for voluntary compliance by private kitchens (e.g. private canteens, restaurants).

The DCCC has not committed to a precise design of the climate labels, but suggests that the labels ought to be developed by a broad public-private partnership. The labels should be developed to meet the consumers' current need for guidance, to meet the objective of normalising climate-friendly diets and to ensure the optimal behavioural change by consumers and public procurement officers. To ensure consensus about the foundation of the label, the scheme could be based on the dietary guidelines, or it could be based on a government-controlled database on the climate impact of foods. In this regard, it is essential to monitor and take into account the development of a common climate or sustainability label in the EU.

The creation of the climate labels should be communicated broadly and supported by information campaigns and education programmes for relevant professionals. Climate labels will contribute to the normalisation of a climate-friendly diet by increasing the information available and by making it easy for individual consumers to make climate-friendly choices. Climate labels should be developed and marketed in cooperation with industry, as this would ensure three things: The design is made relevant to the consumer, there will be a broad consensus on methodology and the scientific basis, and marketing can be linked to existing industry communication channels.

Publicly supported campaigns seek to promote marketing of animal-based products in Denmark

In Denmark, a significant amount of public funding is allocated each year to various projects aimed at promoting animal-based products both in Denmark and internationally. The projects are funded by the Danish agricultural funds. In 2021, three times as much funding was allocated to the promotion of animal-based foods than to plant-based foods in Denmark. The EU also funds campaigns aimed at promoting food products. An analysis shows that 70 per cent of the EU funds that Denmark received for campaigns from 2016 to 2019 was spent on promoting animal-based foods, while only 12 per cent was spent on promoting fruits and vegetables.

Campaigns that are counterproductive to the new dietary guidelines make it harder to normalise climate-friendly diets. Campaigns that communicate the positive qualities of meat and other animal-based products promote the perception that a high intake of animal-based products is normal and that only a small minority eat a more plant-based and therefore climate-friendly diet. The DCCC notes that consumers may become more confused when animal-based products are promoted to the Danish population with public funds, while they are simultaneously being encouraged to eat more plant-based products.

Conclusions and recommendations from the Danish Council on Climate Change

Based on the report's analyses of Danish food consumption, the DCCC has the following main conclusions:

- Current Danish food consumption challenges Denmark's ambition of taking the lead in climate change mitigation, as the Danes have one of the largest climate footprints from food consumption in the world, primarily due to a very high consumption of animal-based products.
- Reducing consumption-based emissions from food in Denmark will support the Climate Act's objective that Denmark contribute to reducing global emissions.
- The official Danish dietary guidelines are sufficiently climate-friendly up until 2030. The dietary guidelines should be updated regularly up until 2050 to ensure that they always reflect a healthy and climate-friendly diet. This would ensure that Denmark's efforts regarding food consumption are in line with Denmark's ambition to take the lead in climate mitigation and support the global perspective of the Climate Act.
- Following the Danish dietary guidelines will have a significant positive impact on the climate. The impact will primarily be achieved by eating less animal-based foods.
- If all Danes were to follow the dietary guidelines, this would result in a global greenhouse gas emission reduction of 2.6-3.9 million tonnes per year. The long-term climate impact of Danes changing their diet is estimated to only be slightly offset by increased animal consumption abroad.
- There are a number of barriers that prevent Danes from eating a more climate-friendly diet. These barriers can explain why there are no signs that consumers have significantly changed their food habits, despite considerable public focus on the climate impact of food consumption in recent years.
- Normalising a climate-friendly diet can reduce the barriers to changing diets in Denmark. It can make it easier for consumers to switch to a more climate-friendly diet. Normalisation requires a wide range of initiatives that address the different barriers.

The DCCC has the following recommendations for ensuring the increase of a climate-friendly diet in Denmark:

- The DCCC recommends that the state, regions and municipalities set targets for public kitchens to serve climate-friendly food. If more people become familiar with climate-friendly food, this will contribute to normalising a climate-friendly diet among the Danish population. The DCCC recommends that the target for climate-friendly food in public kitchens should be based on the official Danish dietary guidelines, as the dietary guidelines are a good benchmark for climate-friendly diets up until 2030.
- The DCCC recommends that the government, in close cooperation with industry and researchers, establish a publicly accessible, government-controlled climate database on the climate impact of food products. The database should consist of information for consumers, because especially in this area many actors use different climate databases. The climate database should be government-controlled and should be developed and continuously updated in cooperation with relevant actors to ensure common ownership and that developments in the EU in this area are taken into account.
- The DCCC recommends that the government establishes the foundation for a labelling scheme consisting of two government-controlled climate labels: a climate label for food products and a climate label for professional kitchens. The DCCC has not taken a position on the precise design of the labelling scheme, but stresses that the labels should be developed in cooperation with private and public actors.
- The DCCC recommends that the Danish government begin developing a model that makes it possible to place consumption taxes on certain foods with a high carbon footprint, so the price reflects the products climate impact. A tax on foods based on their climate footprint would send a clear signal to consumers to not choose foods with large climate footprints but rather choose more climate-friendly alternatives.