

Sustainable production and consumption of food

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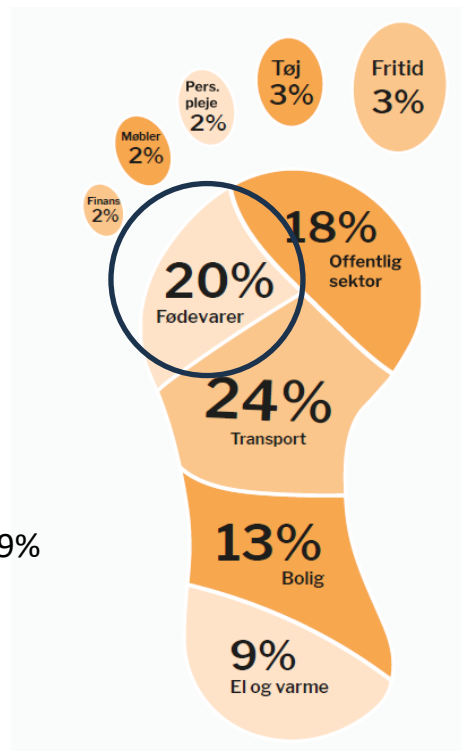


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Consumption-based climate impact (footprint) from consumption areas - climate impact as a consequence of resource consumption

Leisure equipment: 3%
Clothing: 3%
Personal care: 2%
Furniture: 2%

Public sector: 18%
Food: 20%
Transportation: 24%
Housing: 13%
Electricity and heating: 9%



Ref.: Concito: Denmark's global consumption emissions, 2023 (in Danish)

Climate impact from different food groups in the average Danish diet

- combining GHG calculations and diet surveys

- Meat products: 29%
- Dairy products: 22%
- Fruit and vegetables: 17%
- Beverages: 15%
- Grain and bread: 7%
- Fish: 4%
- Fat: 3%
- Sugar and candies: 2%
- Eggs: 1%

Ref.: Jørgensen, 2008

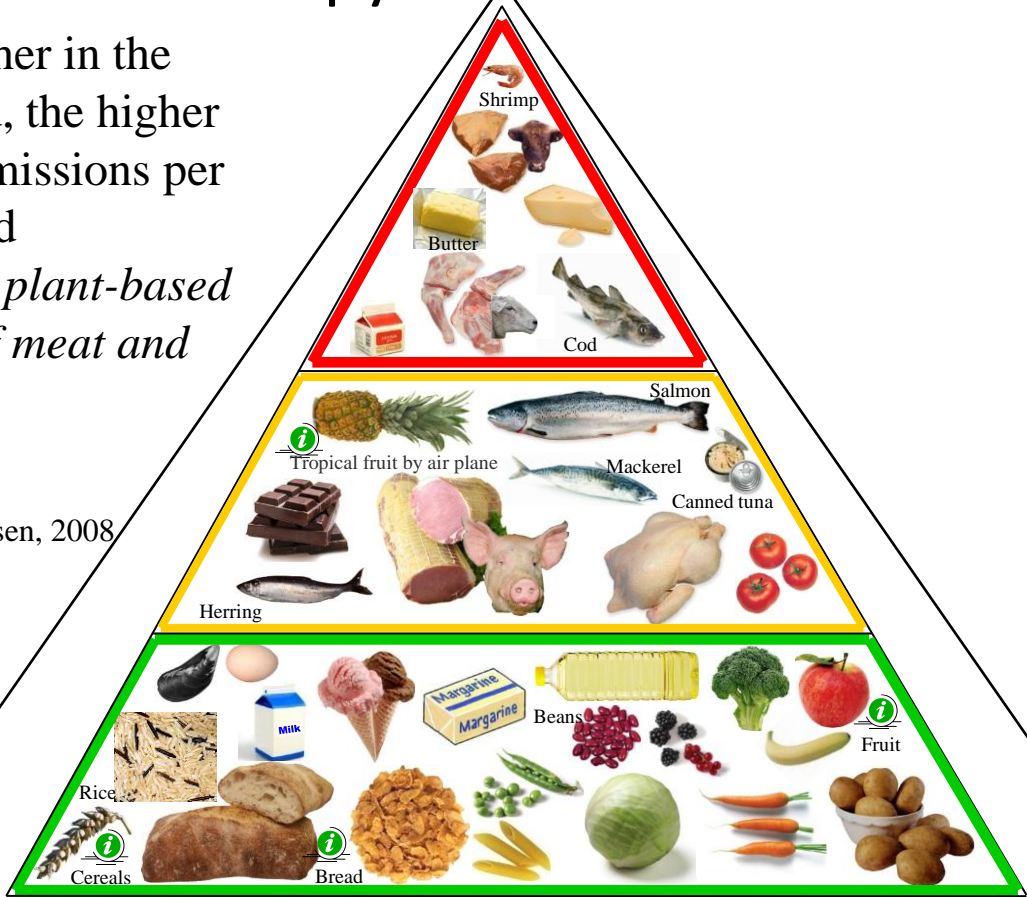
CO2-pyramid for food

The higher in the pyramid, the higher GHG-emissions per kilo food

Meat vs plant-based

Types of meat and plants

Ref:
Lund & Madsen, 2008



Average of food group	0-2 CO ₂ -eq. per kg	2-8 kg CO ₂ -eq. per kg	8-20 kg CO ₂ -eq. Per kg
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Why food as part of climate strategies?

(IDA, 2008; Concito, 2023)

- **Food one of the major contributors to Danish GHG emissions:**
 - Around 25% of the national Danish GHG emissions
 - Around 20% of the consumption-based GHG emissions
- **Energy and non-energy related emissions:**
 - Big differences in emissions between different types of food – high emissions from animal-based products (dairy and meat)
 - Increased global animal food consumption because of increased global (average) wealth
- **Increasing demand (competition) for agricultural land and fibres/nutrients** for use of biomass for materials, like bioplast, and energy

Policy strategies for development of markets for "green products"

<i>Based on Daugbjerg & Sønderskov, 2012</i>	Support production (supply):	
	Low focus	High focus
Support consumption (demand):	Passive market development	Supply-driven development
Low focus		
High focus	Demand-driven development	Market development with ongoing interaction between supply and demand

“Action plan for plant-based food” (Denmark, 2023)

The Minister for Food, Agriculture and Fisheries Jacob Jensen in the preface:

"Plant-based foods are the future. There is no doubt that if we want to reduce the climate footprint from agriculture, we must all – in line with the **Official Dietary Guidelines** – eat more plants."

(Direct translation from Danish)

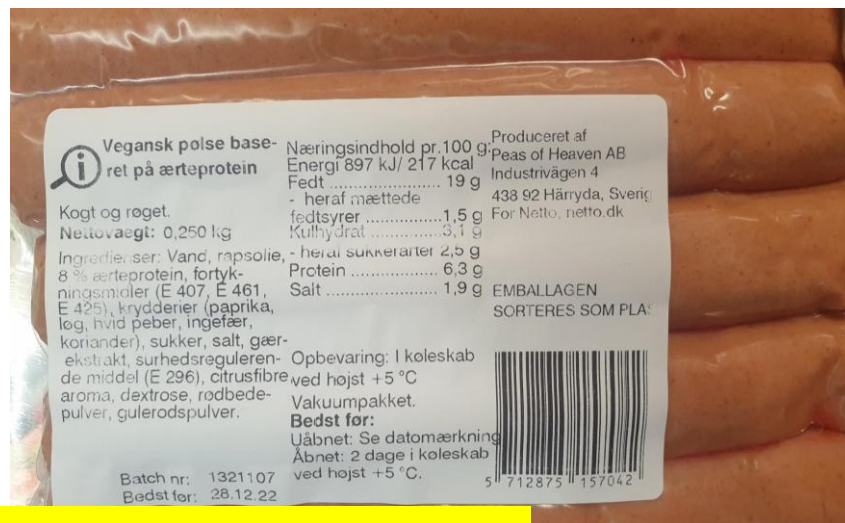


Protein-rich
soup
- *not an
imitation*



Imitation of know product types: Sausages

Processed pea protein from EU as important ingredient



+/- Natural colours: Powders from red beet + carrots

Known product types: Imitation or innovation?

Low-processed, ready-made, known product type:
Vegetable burger patty:
Danish residual + boiled beans from ???

Organic products

Rootly

Økologisk burgerbøf med rødbede, 21% bælgfrugter roget paprika og garam masala.

Ingredienser: 50% rødbedepulp*, kogte hvide bønner* (vand, hvide bønner), kikærtemel*, kogte kikærter* (vand, kikærter), 6% kogt quinoa* (vand, quinoa*), chiliokastevelse*, solsikkeolie, salt, 0,7% roget paprika*, 0,6% garam masala-rydderier*, gurkemeje*, spidskommen*, cayennepeber*.

* = økologisk

Opbevaring: På køl ved maks 5 °C.

Holdbarhed efter åbning: 3 dage. Dog højst til datoen "bedst før".

Produceret for Rootly, i samarbejde med Frankly Juice A/S,
105 ConviFood ApS - Vandtårnsvej 75, DK-2860 Søborg.
Forbrugerkontakt: www.rootly.dk

Nettovægt: 220 g / 2 stk.



Hvad er der i? (ingredienser)

Kogte hvide bønner* (28%), kogte gule flækærter* (16%), løg, blomkål* (12%), rød peberfrugt*, rapsolie*, glutenfrie havregryn*, citronsaft*, kartofler*, chiafrø*, dild* (2%), løppefrøskaller*, salt, kartoffelmel*, peber*.

* = økologisk

Tilberedning:
Spis Dild-delen kold eller varm den på en middelvarm pande i 2-3 minutter på hver side. Lad den hvile i 5 minutter inden servering.

Opbevaring:
Skal opbevares ved højst -18° C. Pakket i beskyttende atmosfære. Færdigt tilberedt.

Næringsindhold pr. 100 g:
Energi: 803kJ / 192kcal.
Fedt: 9,9g - heraf mættede fedtsyrer: 0,7g. Kulhydrat: 17,9g - heraf sukkerarter: 2,4g. Kostfibre: 6,3g. Protein: 6,8g. Salt: 1,2g

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Vores CO₂ aftryk



CO₂ SPARET: 87%

Scan for at læse mere:



@plantelagterne
www.plantelagterne.dk
Plantelagterne ApS,
Slagtehusgade 44, 1.th.,
1715 KBH V
220g

Low-processed, ready-made, known product type:
Vegetable patty with boiled beans and peas
1/8 of the climate impact from a similar product

Convenient meals: Imitation or innovation?



Imitation of Bolognese:

Highlighted as a protein source

High degree of processing to remove bitter substances from peas

Similar ingredient as substitute in the meat industry



Known product with boiled beans:

Organic ready-made pasta salad

Low degree of processing

Measures for development of markets for "greener" products

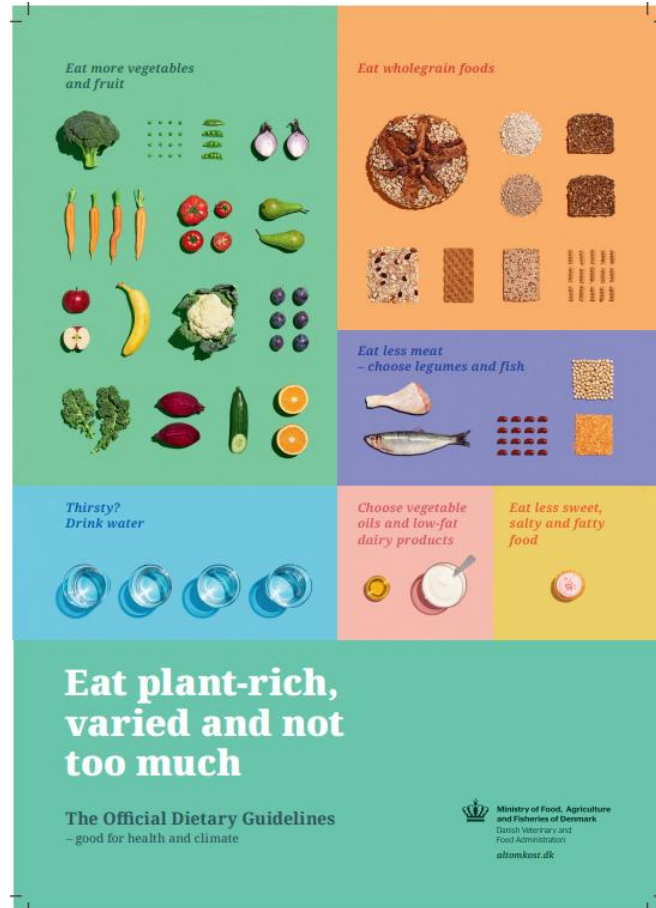
Support production (supply)	Support consumption (demand)
<p>Information: Dissemination of knowledge to companies about production methods and products. <i>Professional kitchens need new knowledge</i></p>	<p>Information: Dissemination of knowledge to consumers about products. <i>Many consumers need new skills: Cooking. Planning</i></p>
<p>Public regulation: Restrictions on production and rules and standards for sustainable production and products. <i>Support for sustainable transition of agriculture</i> <i>Approval of some new foods slowly: Seaweed and algae products</i></p>	<p>Public regulation: Promotion of public procurement as part of market development. <i>Price having too high priority in public tenders</i> <i>Demands to climate and plant-based food in public tenders</i></p>
<p>Economic incentives: Positive or negative incentives in relation to production or products. <i>Funding for change of crops in agriculture: From fodder to food. Funding for food innovation</i></p>	<p>Economic incentives: Positive incentives for consumers in the form of reduced taxes etc. for products. <i>Only public subsidies for school milk</i></p>
<p>Organisation and infrastructure: New knowledge infrastructure for research, consultancy etc. <i>New networks with existing food actors</i></p>	<p>Organisation and infrastructure: Organisation of labeling scheme. <i>Climate-label for food!?</i></p>

Ref.: Jørgensen et al (2022)
 (Inspired by Daugbjerg & Sønderkov, 2012)

New Danish dietary guidelines

- Are such guidelines helpful?
- Are such guidelines applied by public catering?
- Are such guidelines applied by retailers and private catering?
- Is it difficult to plan the daily diet based on such guidelines?
 - Availability
 - Prices
 - Competence

Ref: [The official Dietary Guidelines - \(poster\) - Fødevarestyrelsen](#)



Transition of Danish agricultural land – but without a systematic link to the need for dietary changes

Ref:

[20474-Indstik_Producing-more-with-less_WEB_FINAL_compressed.pdf](#)

