Innovation and development

Special Consultant, Mette Damborg Hansen
Agriculture and Food Council, SEGES
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Promilleafgiftsfonden for landbrug

SEGES

Agenda

- About the Agricultural & Food Counsil
- Who we work with
- How we work
- **Break**
- A new research and development strategy
- What we do to increase the production of legumes in Denmark

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Activities in the Agriculture & Food Council and SEGES

Agriculture & Food Council

Organisation for farmers and companies in the agriculture- and food sector

Enterprice Policy

SEGES

Professional knowledge and innovation for farmers and companies in the agriculture- and food industry

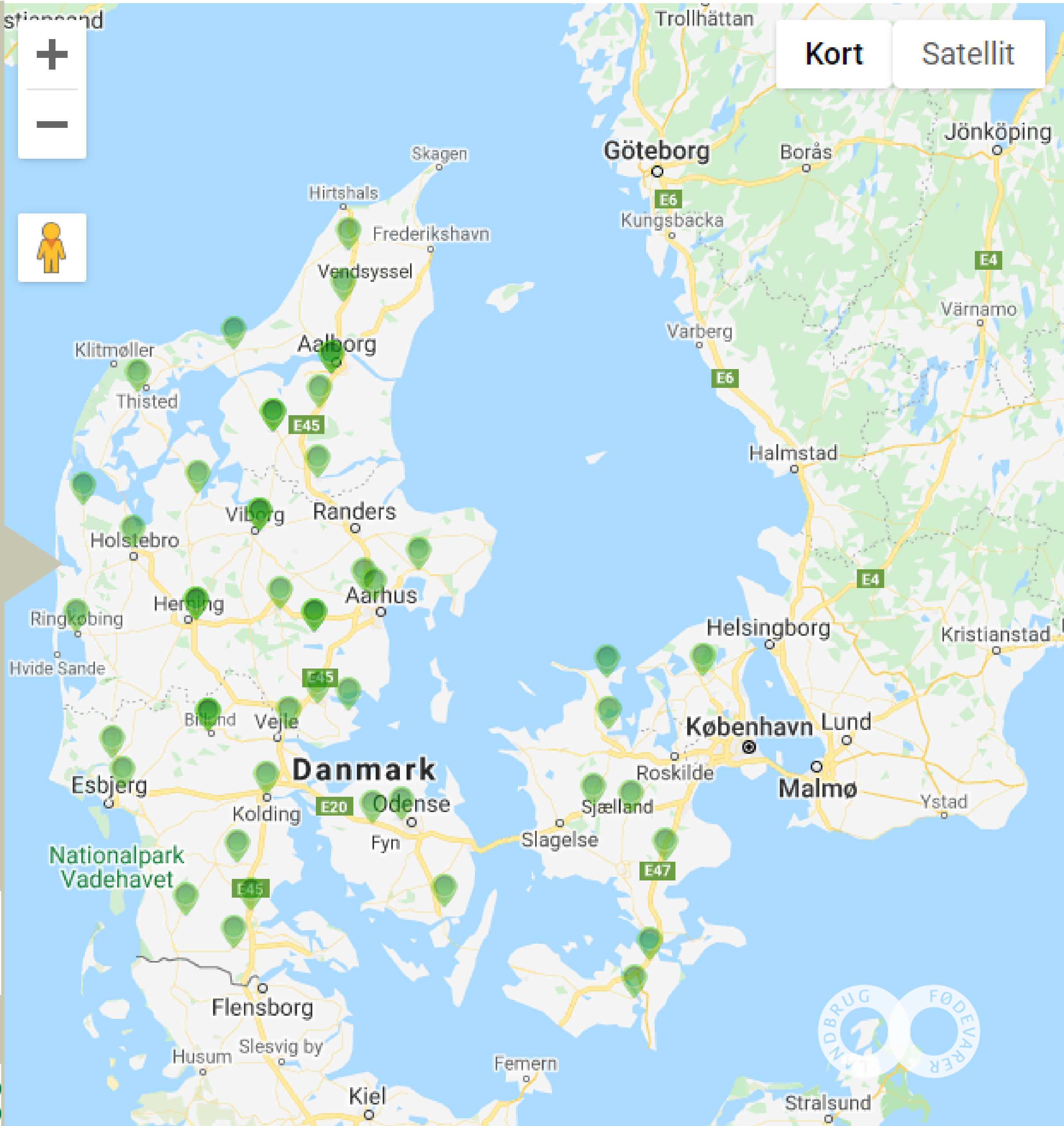
From local experience to the agricultural sector's own powerhouse

Solutions for future farming

- As a farmer in the old days, you drew on your own experience and that of other farmers. In addition, knowledge was passed on to farmers by the priest, the village teacher and farmers associations.
- As agriculture became more specialised, a need for a joint powerhouse emerged and in 1971 local farmer associations joined forces and established a national knowledge centre.
- Today, this national knowledge centre is known as SEGES and remains farmer owned.
We still provide professional knowledge, for the benefit of all farmers and the farming industry.

Agricultural advisors

SEGES collaborates with agricultural advisory companies, that are located throughout Denmark. The Advisory companies are our closest link to the farmers.
Other close collaborators are the Technological Institute, Ministries and other GTS Institutes, Universities, Private Companies, Organic Denmark and interest groups.



The agricultural sector's own innovation and knowledge centre

At SEGES, we are experts in all aspects of agriculture.

We work with everything from optimum crop production, efficient milk production, the perfect pig feed to economic sustainability and the best digital tools for farmers of tomorrow.

We are here to provide the knowledge and tools needed for farmers to develop their business.

The 5 sectors at SEGES

Crops and environment

Ecology Sector

Economy and corporate governance

Pig sector

Cattle sector

SEGES

SEGES is

Value through partnerships

We create value for the agricultural sector through co-operation and new partnerships

Innovation with impact

We improve the agricultural business and earnings by developing new knowledge, new methods and digital solutions

Global view

We co-operate internationally and across the sector and gather new knowledge from abroad for the benefit of farmers

Proud pioneer

SEGES makes a difference for the agricultural sector and society – and we showcase activities and results

SEGES strategic focus areas

Working for a lower carbon foot print

The Danish food industry wants to be climate neutral by 2050, while sustaining or even increasing food production. This will not happen overnight, and only research, innovation and investments will take us there.

Some are climate friendly ways of working and technical solutions we practice already, some are yet to be developed. At SEGES we are leading this front runner work in close collaboration with researchers, universities and the industry.

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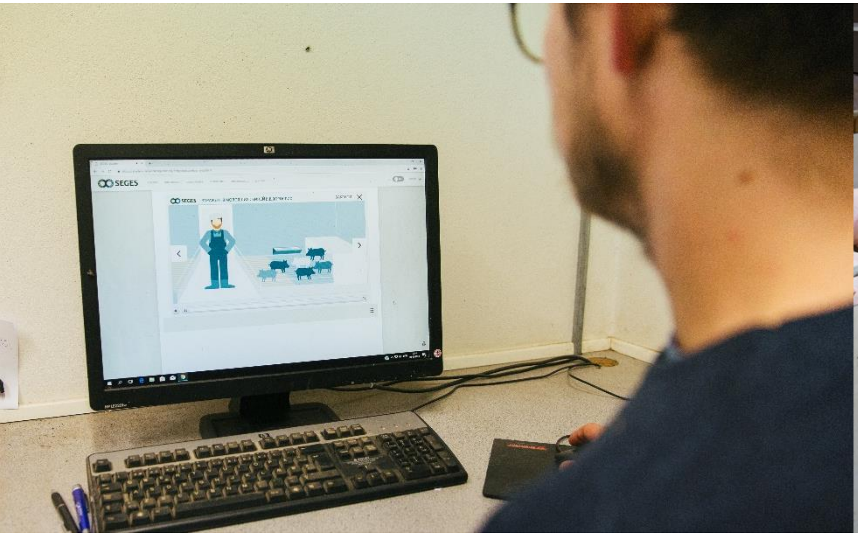
The farmer’s climate tool



A digital tool for the entire agricultural sector.

It can be used by all farmers across agricultural sectors and is intended for both conventional and organic farms.

Showing ways for improvement

The accounts are based on farm-wide data. The tool offers a benchmark, a plan of action, and advice on further avenues of development.

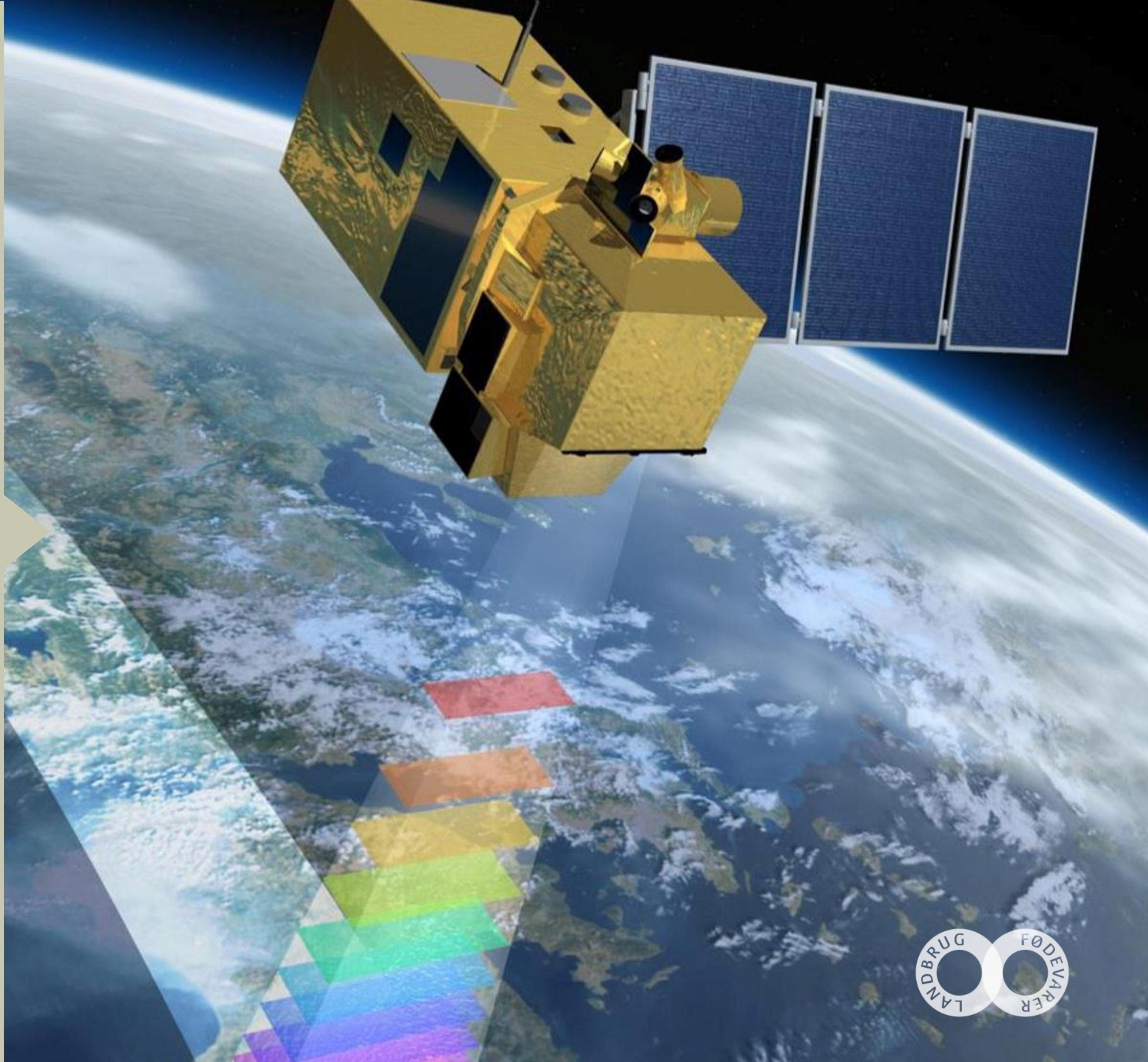
It uses recognised standards

The footprint is calculated both as the farm’s footprint in Denmark and as a life cycle footprint, i.e. including goods purchased for the farm and sold from the farm

Fertilisation with help from space

Using satellite images from SEGES software CropSat and CropManager Danish farmers can obtain allocation cards for fertilisation, so the individual field will be allocated an exact amount of fertilizer, crop protection or growth control. Neither more nor less.

This benefits the bottom line, the field and the environment.



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A sustainable diet

What is a sustainable diet?

- Protects and respects biodiversity and ecosystems
- Cultural acceptable
- Available
- Economically fair and affordable
- Nutritional sufficient
- Safe and healthy

- A healthiere diet is not necessairly a sustainable diet, but there are a majority of common quantities

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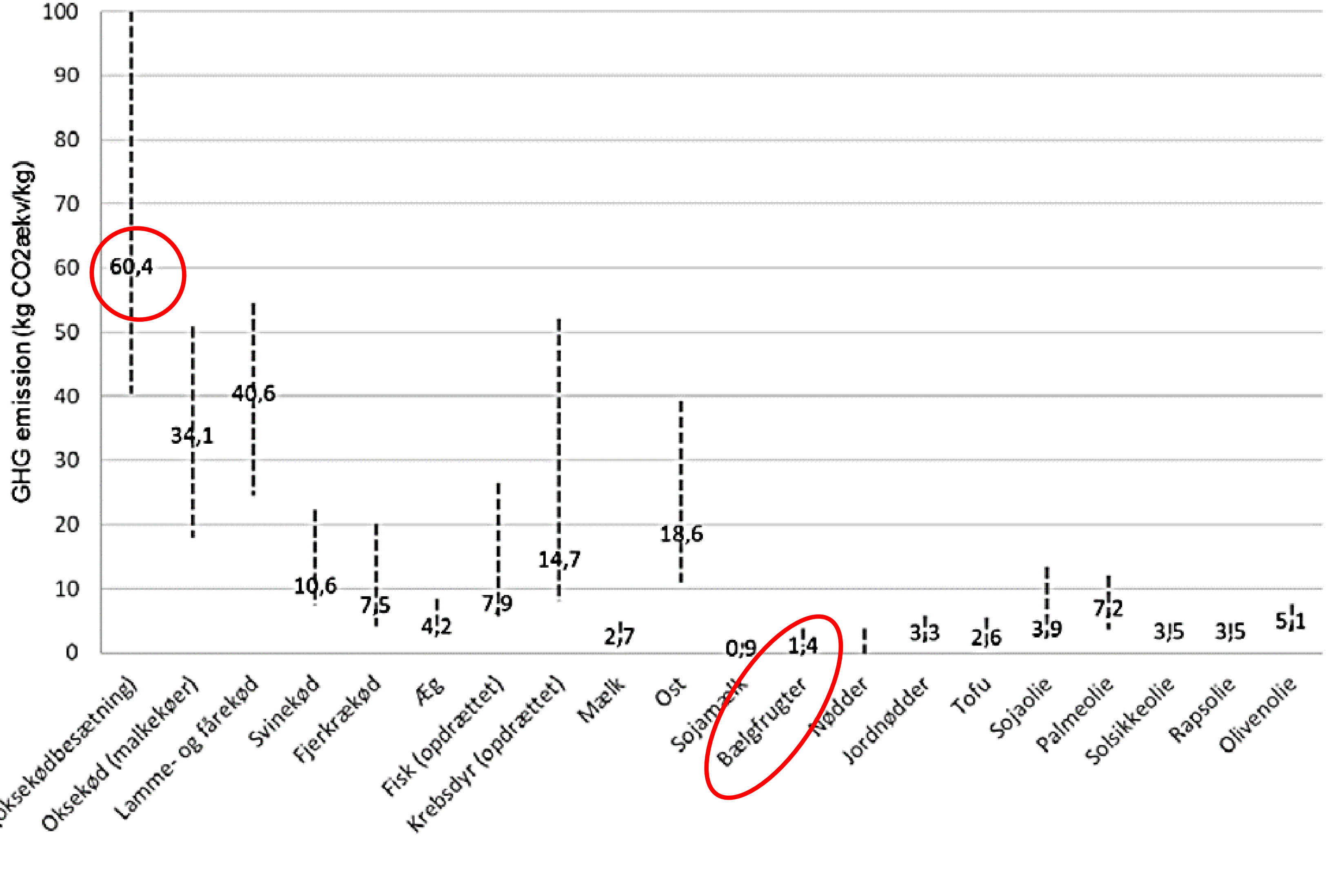
Protein-rich foods and oiles and the climate footprint

Figur 1. Klimaaftryk for proteinrige produkter og fedtstoffer udtrykt som kg CO2-økv. per kg detailvægt (datagrundlag: IPCC 2013). Modificeret fra Poore og Nemecek (2018).



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Comparison of dietary recommendations

Tabel 4.1. EAT-Lancet kosten, De officielle kostråd/NNR og 15-75-åriges gennemsnitlige indtag

	EAT-Lancet kosten per 10,45 MJ [1]	De officielle Kostråd/ NNR per 10 MJ [2]		15-75-åriges gennemsnitlige indtag per 10 MJ [3]
Fuldkorn [4]	232 g (0-60 E%)	Mindst 75 g fuldkorn	45-60 E% kulhydrat	58 g (47 E%)
Kartofler	50 g (0-100 g)		Hører med i en varieret kost	90 g
Grøntsager	300 g (200-600 g) (ekskl. bælgfrugter)	Mindst 600 g (inkl. bælgfrugter)	Ca. halvdelen grøntsager (heraf ca. halvdelen grove)	220 g
Frugt og bær	200 g (100-300 g)			190 g
Mælk	250 g (0-500 g) [5]	250-500 g er passende	Fortrinsvis magre produkter	319 g
Ost		Ved sund kost ca. 15 fuldfed eller 25 g mager		45 g
Okse og lam	7 g (0-14 g) [6]	Højst 71 g i gennemsnit	Fortrinsvis magre produkter	50 g [9]
Gris	7 g (0-14 g) [6]			87 g [9]
Fjerkræ	29 g (0-58 g) [7]			28 g [9]
Æg	13 g (0-25 g)			
Fisk og skaldyr	28 g (0-100 g)	50 genn ca. 28 g		
Bælgfrugter, tørre	50 g (0-100 g) [8]		Indeholdt i grove grøntsager	1 g
Sojaprodukter	25 g (0-50 g) [8]			2 g [10]
Umættede olier	40 g (20-80 g)	Spis mindre mættet fedt	Vælg planteolier, flydende og bløde margariner	11 g
Mælkefedt	0 (inkl. i mælk)			13 g [12]
Grisefedt eller talg	5 g (0-5 g)			<1 g
Sukker	31 g (0-31 g)	Spis mindre sukker	Højst 10 E% (59 g)	51 g (9 E%)

	Model 1 EAT-Lancet kosten med danske råvarer (per 10 MJ)	Model 2 Dansk tilpasset plantebaseret kost (per 10 MJ)
Antal fødevarer	33	414
Brød og kornprodukter (fuldkorn)	Ca. 550 g tilberedt (220 g)	390 g tilberedt (116 g)
Kartofler	47 g	100 g
Grøntsager u/bælgfrugter	285 g	300 g
Mørkegrønne grøntsager	95 g	100 g
Rød/orange grøntsager	95 g	100 g
Andre grøntsager	95 g	100 g
Frugt og bær	189 g	300 g
Mælk	236 g	250 g
Ost	0 g	20 g
Okse, lam og gris	15 g rå, 12 g tilberedt	19 g rå, 15 g tilberedt
Fjerkræ	34 g rå, 27 g tilberedt	38 g rå, 30 g tilberedt
Æg	12 g	15 g
Bælgfrugter	71 g rå, 178 g tilberedt	40 g rå, 100 g tilberedt
	48 g	46 g
	44 g	25 g
	4 g	4 g
	0 g	Cirka 2 liter
Slik, chokolade, kage, chips, sodavand, saft, alkoholiske dv	29 g tilsat sukker	23 g tilsat sukker (157 g fødevarer)

[1] Se tabel 4.1 for sammenligning med De officielle Kostråd og danskernes gennemsnitlige indtag.

Recommended dietary intake of legumes

- 50 gram raw weight/per day ~ 100 g cooked/day (EAT-Lancet Commission, Willett et al.)

- Intake of 50 g/day reduces the LDL-cholesterol and blood pressure in controlled studies (Kushi et al. 1999)

- Intake of legumes is associated with a lower risk of coronary heart diease compared with red meat (Afshin et al. 2014, Bernstein et al. 2010)

Research and development

AIM

To point out what it takes to dev

- and potentially create another

BACKGROUND

The market potential is enormou

in the food value chain that prev

farmers and food companies

SEGES Vegetarisk Forening Frej

Landbrug & Fødevarer, Vegetarisk Forening og Frej med fælles plan: Vi vil gøre plantebaserede fødevarer til en dansk styrkeposition

Landbruget, vegetarisk forening og en grøn tænketank vil sammen bane vejen for flere danske plantebaserede fødevarer. Med den rette infrastruktur tror de på, at Danmark kan blive en stormagt på det plantebaserede fødevaremarked - og dermed tilføje endnu et ben til den danske styrkeposition inden for fødevarer af høj kvalitet.

An example from a development project

Title: Competitive and market-based production of crops for food (2020-2021)

Examination of existing barrierers in the food value chain

- A quantitative representative studie on the market potential for plant based food and drinks on the basis of danish crops (Markedsanalyse grønne proteiner (lf.dk))


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God smag og højt kendskab er afgørende parametre for planteproteiner

- *Knap halvdelen af danskerne i alderen 18-70 år ønsker i fremtiden at spise mere mad og drikke, der er lavet af planter. Den samme tendens ses blandt børn og unge i alderen 12-17 år*
- *Viden om bæredygtighed, sundhed og proteinindhold i de plantebaserede proteinkilder er generelt begrænset*
- *Danskerne ønsker især at spise mere af de proteinkilder, som de kender i forvejen, mens de mere ukendte proteinkilder ikke har samme umiddelbare vækstpotentiale. Danskerne er dog nysgerrige på flere af de mere ukendte proteinkilder*

Stigende efterspørgsel efter plantebaserede proteiner

Vi bliver flere og flere mennesker på jorden. FN forudsiger, at verdens befolkning vil stige med 2 milliarder mennesker over de næste 30 år, hvilket potentielt skaber et pres på den nuværende fødevareproduktion og skaber flere muligheder for de plantebaserede proteiner. I en ny analyse stiller Landbrug & Fødevarer skarpt på danskernes kendskab til og viden om grønne proteiner, og afdækker fremtidens mulige proteinafgrøder i Danmark.

Både voksne og børn vil spise mere plantebaseret mad

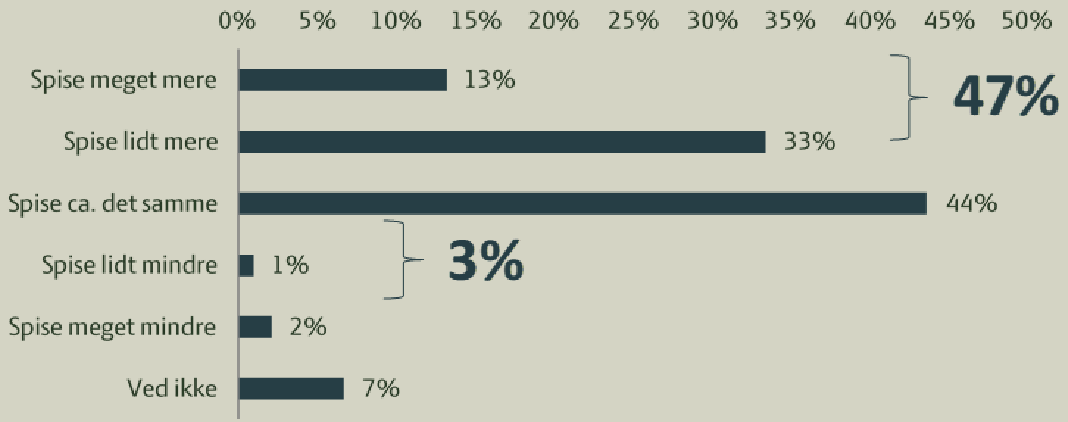
Knap halvdelen af befolkningen i alderen 18-70 år angiver, at de gerne vil spise mere plantebaseret mad og drikke i fremtiden, hvorimod kun 3 pct. vil spise mindre.

Figur 1: Spørgsmål: Tror du, at du i fremtiden vil spise mere eller mindre mad og drikke, der er lavet af planter/kommer fra planter?

- 6 Innovation Workshops
- Questionnaire survey aimed at food professionals
- Telephone interview of farmers

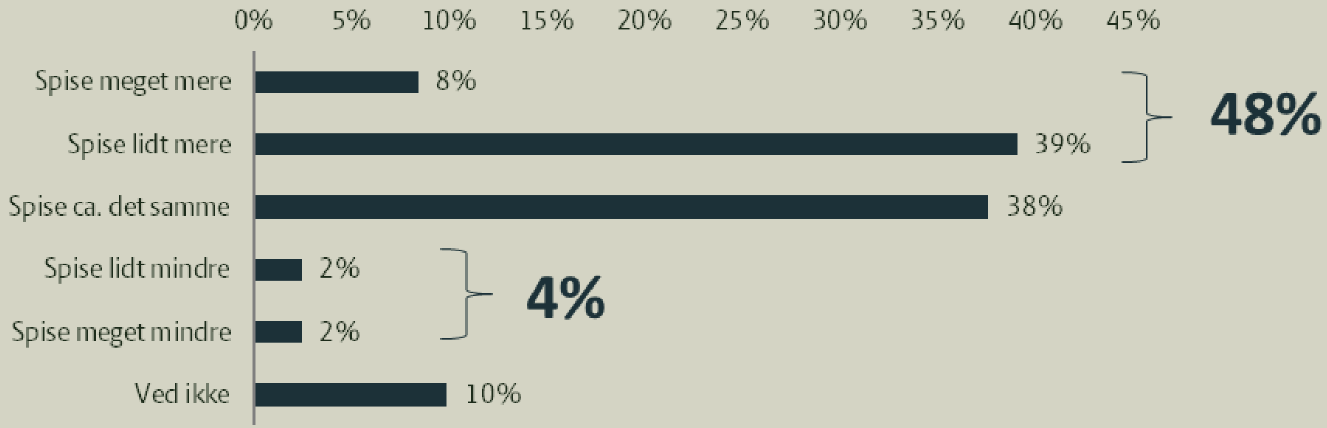
Adults and children wants to eat more plantbased foods in the future

Figure 1: Question **(adults:18-70 years)**: *Do you think, that you in the future is going to eat more or less of foods and drinks, that made of/or come from plants?*



Kilde: Kantar Gallup for Landbrug & Fødevarer, base: alle n=2018

Figure 2: Question **(children: 12-17 years)**: Do you think, that you in the future is going to eat more or less of foods and drinks, that are made of/or come from plants?



Kilde: Kantar Gallup for Landbrug & Fødevarer, base: alle børn n=202

Adults and children wants to eat more plantbased foods in the future

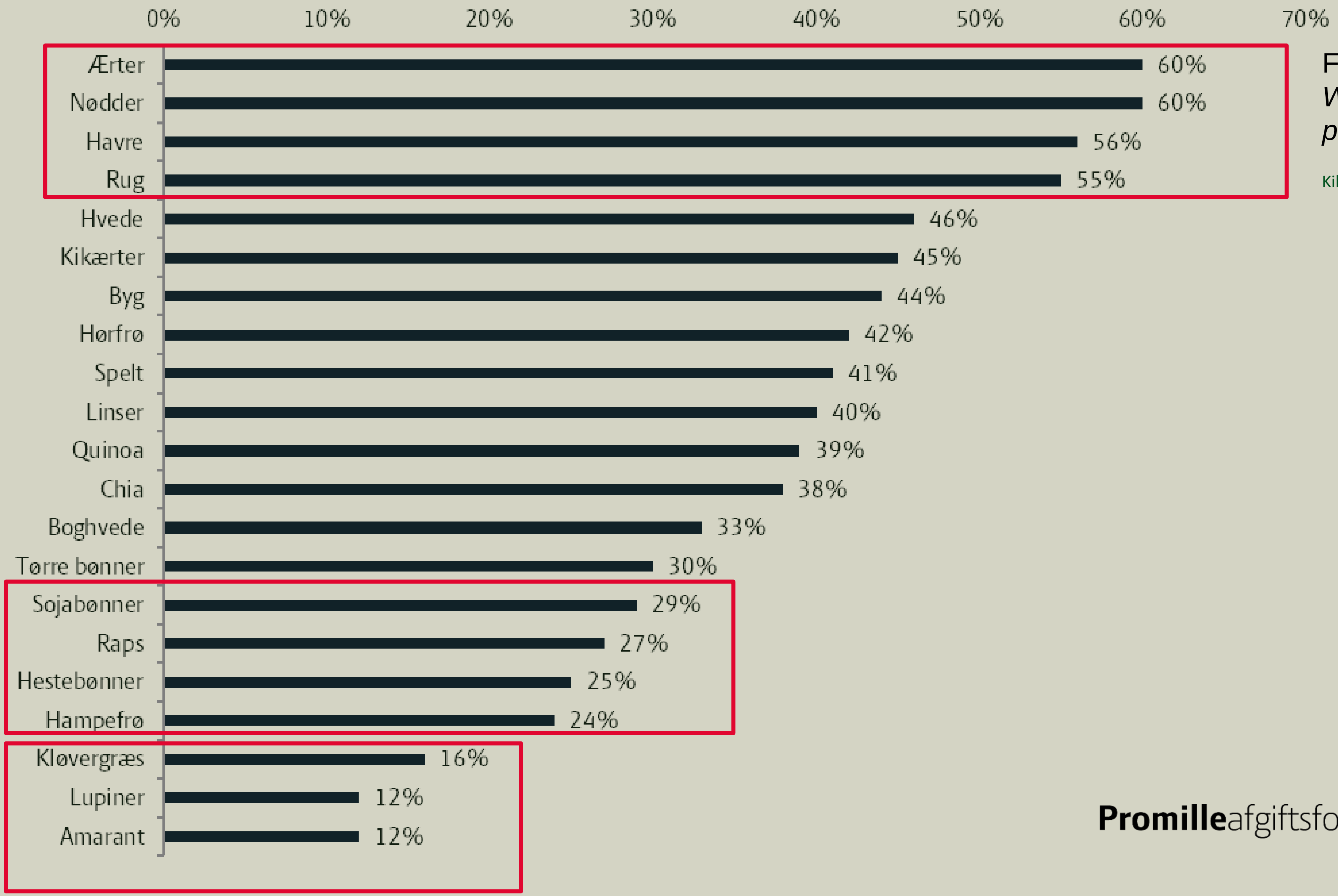


Figure 3: *Growth potential defined as: Will in the future eat more or start to eat the product.*

Kilde: Kantar Gallup for Landbrug & Fødevarer, base: alle=2018

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Adults and children wants to eat more plantbased foods in the future

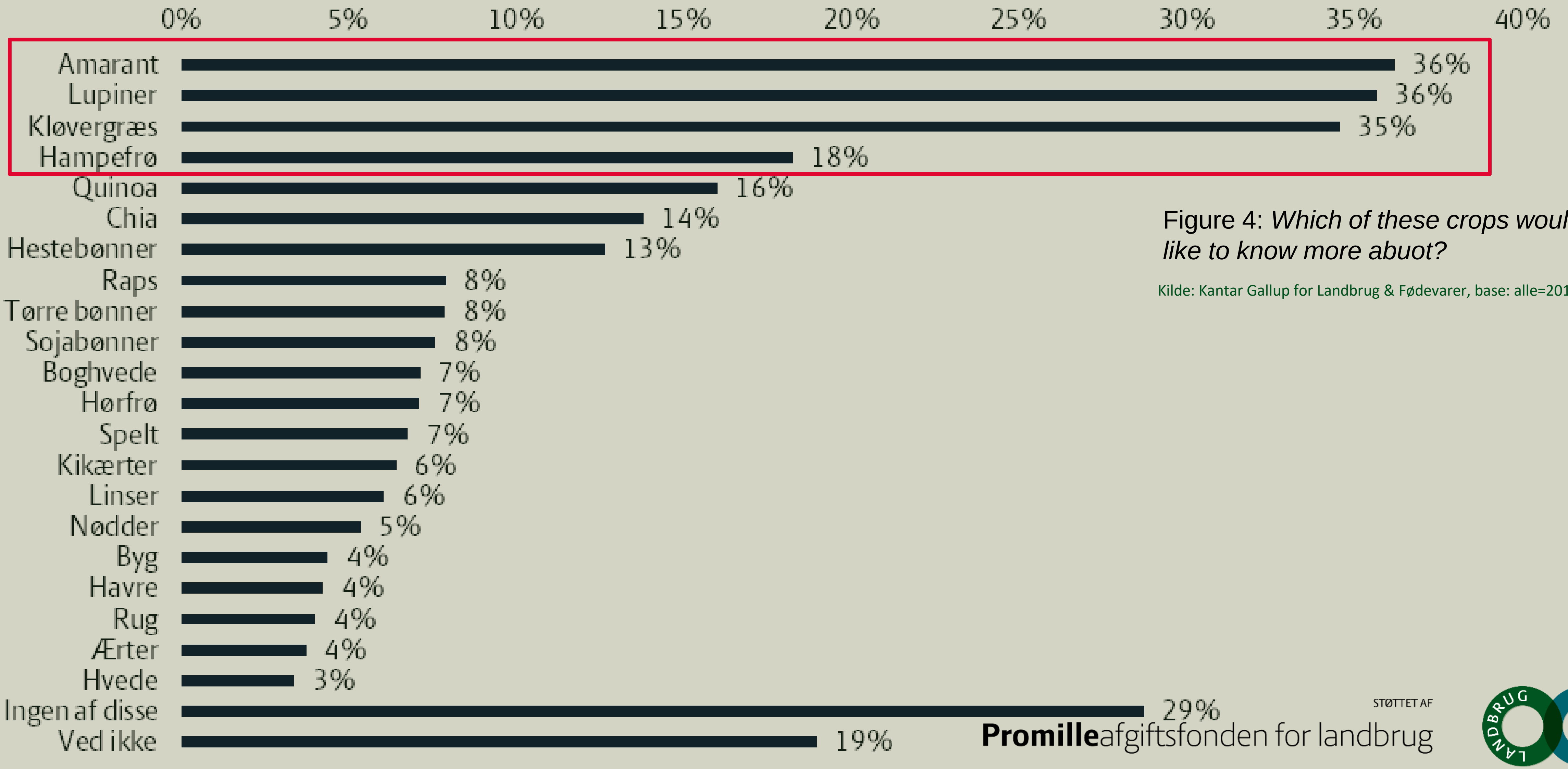

Figure 4: *Which of these crops would you like to know more abuot?*

Kilde: Kantar Gallup for Landbrug & Fødevarer, base: alle=2018

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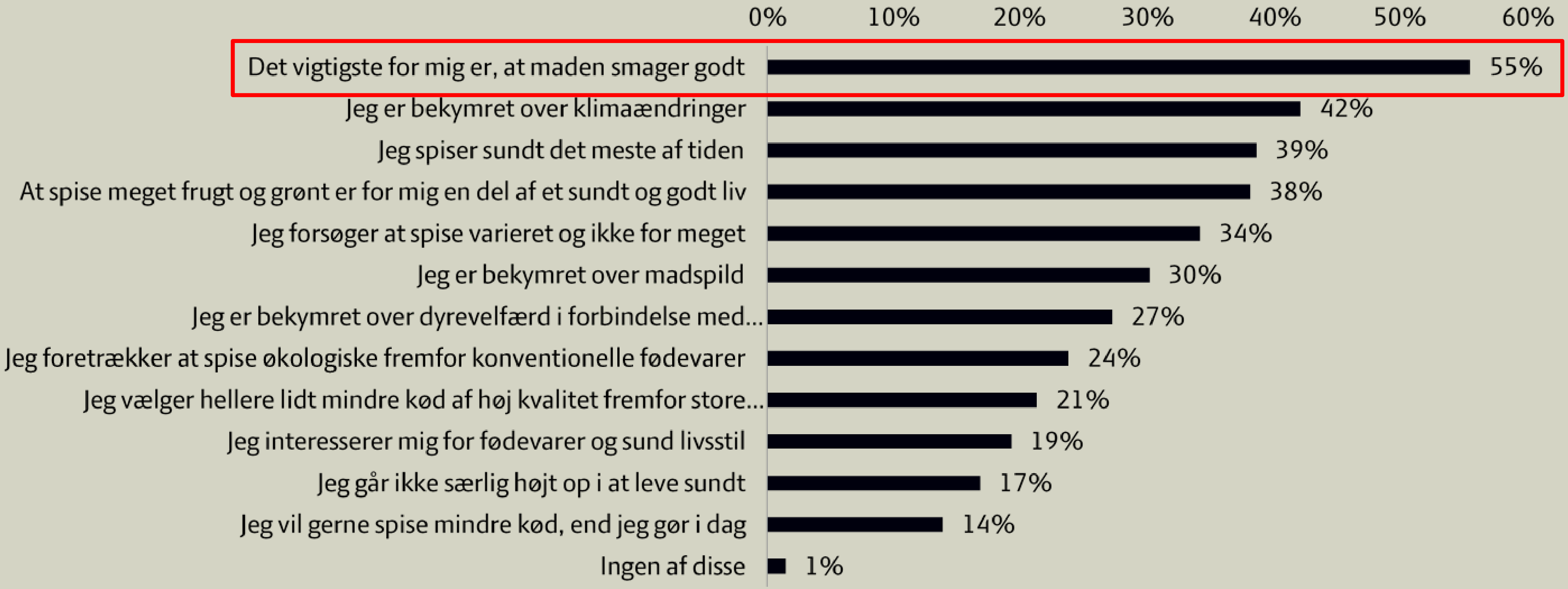
Good taste are the most important factor among children and teens

Figure 5: *Which of the statements describe you the best/ or do you agree upon the most?*



Kilde: Kantar Gallup for Landbrug & Fødevarer, base alle børn n=202 interview fordelt ud over alderen 12-17 år. Da basen er mindre, må der på beregnes mere usikkerhed i tallene.

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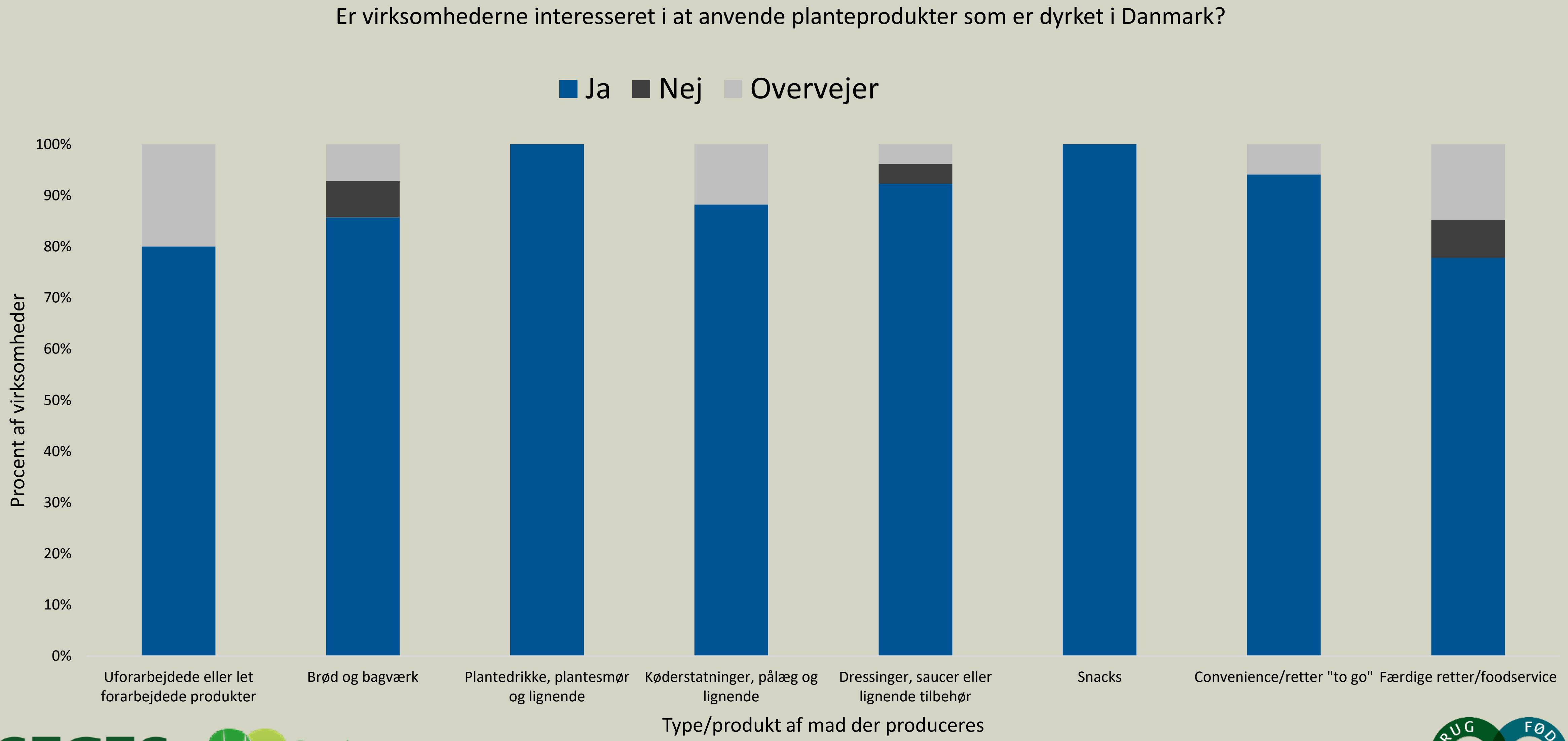
The request for danish produced crops?



SEGES Dansk Vegetarisk Forening

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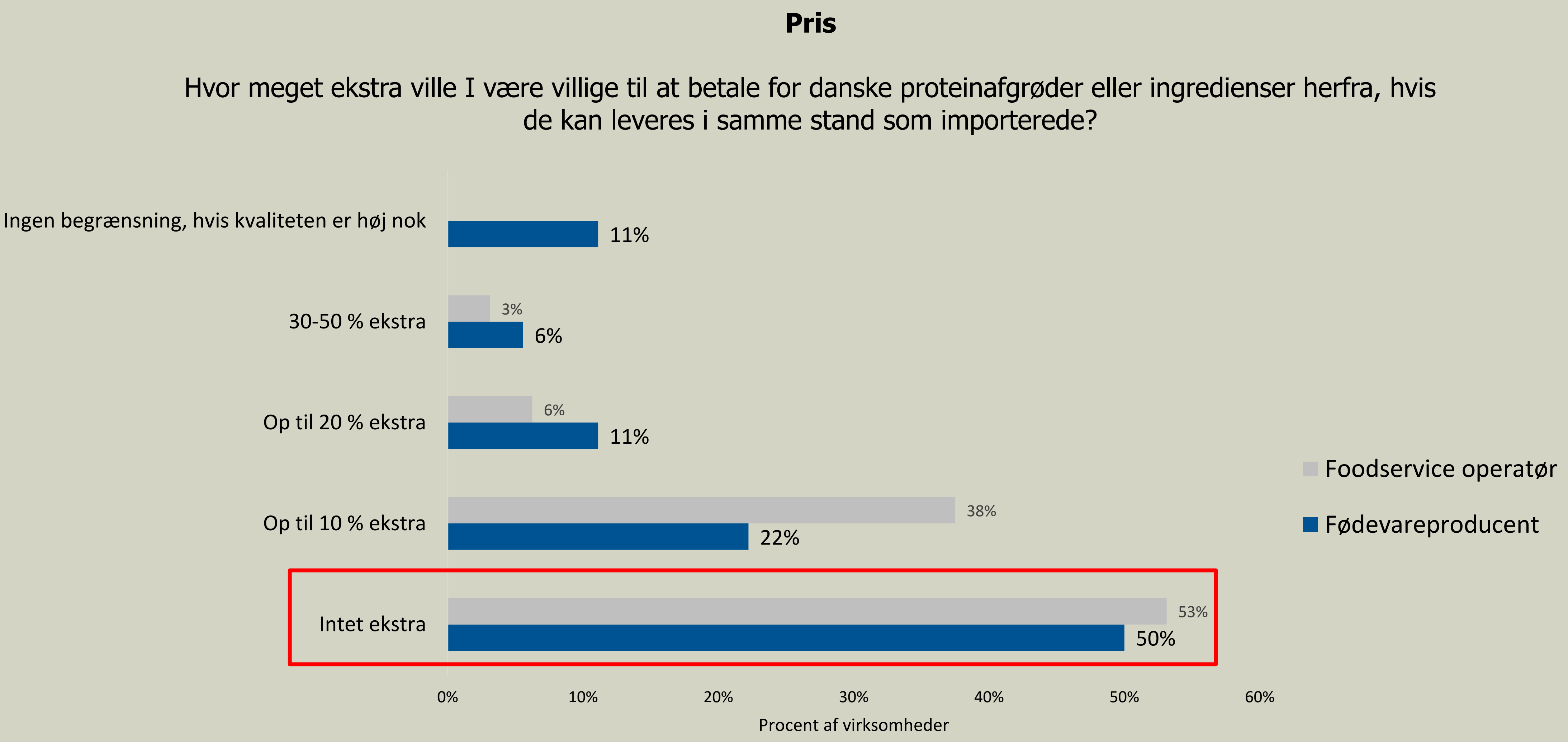
Are they wililing to pay an extra price?



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Dansk Vegetarisk Forening

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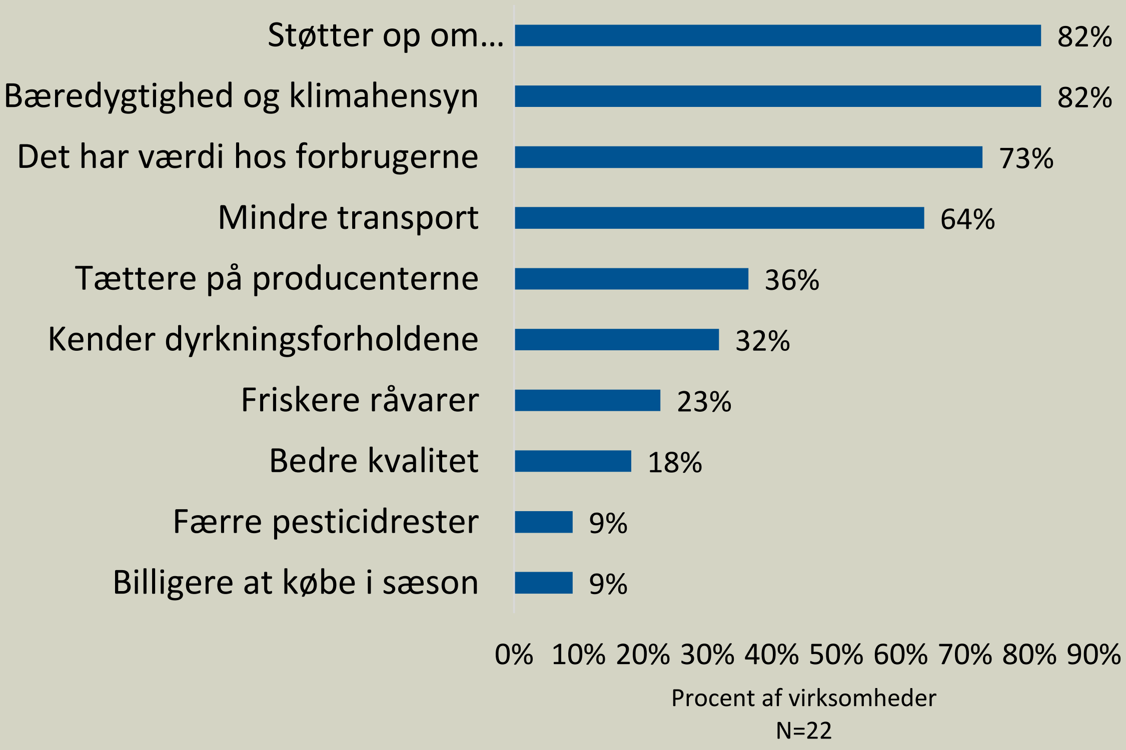
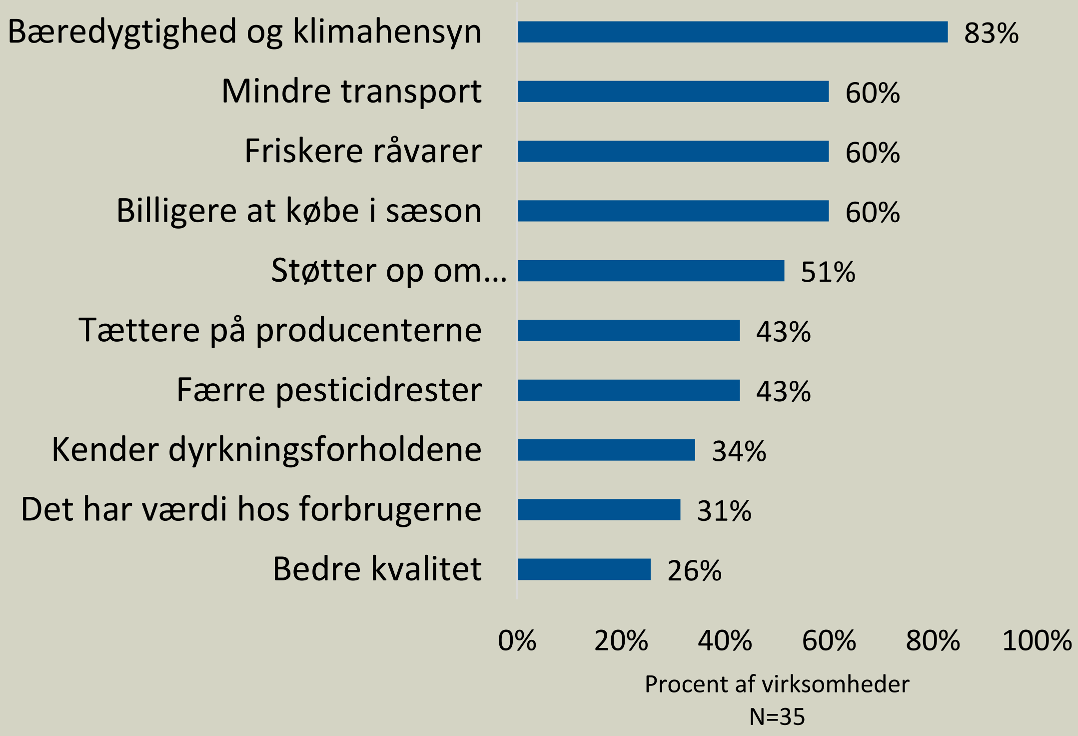
Advantages of Danish produced protein crops

Hvilke fordele ser Fødevareproducenter ved at købe danskproducerede planteråvarer eller ingredienser herfra?



Hvilke fordele ser Foodservice operatører ved at købe danskproducerede planteråvarer eller ingredienser herfra?



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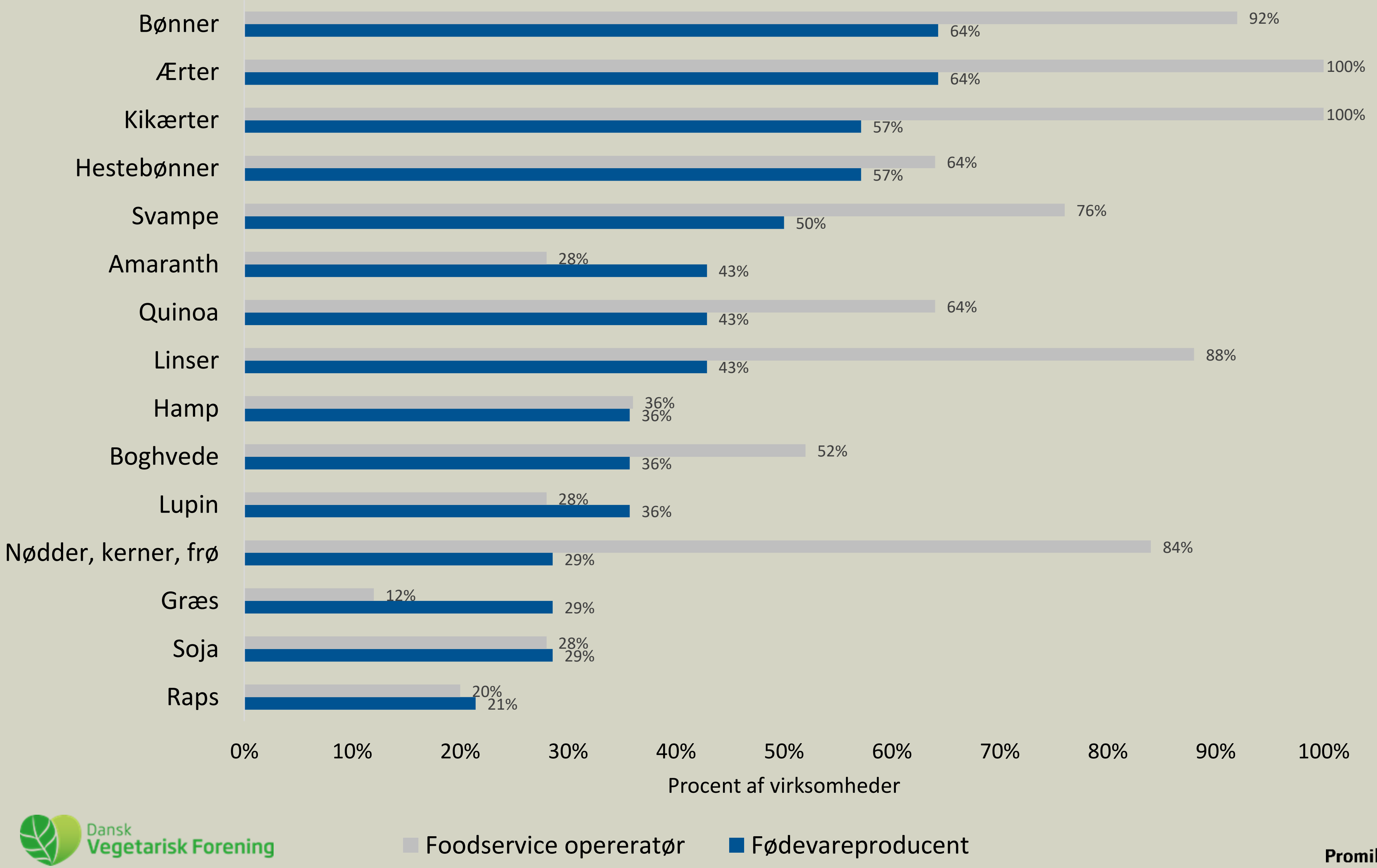
Protein crops suitable for cultivation in Denmark

Er der nogle af disse proteinafgrøder eller ingredienser fra dem, som I er interesseret i at anvende? (vælg gerne flere)



Dansk Vegetarisk Forening

LANDBRUG FØDEVARER

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WHY has the farmers not started the production of legumes to foods and drinks?

Telephone interviews of farmers

AIM: to identify barrierers and potentials among farmers

Results

- Most farmers grow peas and faba beans for animal feed
- They want to grow crops for food - high value crops
- Missing link – distributor/purchaser/customer
- Crops with the highest nutritional and functional qualities – *what does the food companies and the consumers request?*

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LANDBRUG FØDEVARER

Innovation as a condition - pros and cons

PROS

- Work is never boring
- You are allowed to get crazy ideas
- You collaborate with the best experts in Europe

CONS

- New ideas on demand
- You are continuously writing applications
- You can only do activities that was described in the application – low agility
- Busy busy busy..