Innovationsfonden

Project PlantPro – Accelerating an efficient green consumer transition
Project nr 0224-00044B

Benchmark survey answers May 2021 and October 2022

MAPP CENTRE – RESEARCH ON VALUE CREATION
IN THE FOOD SECTOR
DEPARTMENT OF MANAGEMENT
AARHUS UNIVERSITY

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Acknowledgement and transparency on involvement[1]:

No company partner was involved in the design of the repeated benchmark survey or in the analysis or interpretation. The researcher team from AU, KU, and CBS jointly designed the survey, and researchers from AU analysed the data shown in this report. Thanks to Matei-Corneliu Potorac, student research intern at the AU team, for compiling the report.

[1] In line with the AU BSS Principles on responsible scientific conduct, see: https://medarbejdere.au.dk/fileadmin/user_upload/Principles_on_responsible_scientific_conduct_at_Aarhus_BSS_final_160915.pdf

Executive summary

This report provides descriptive insights from the Innovation Fund Denmark funded project PlantPro. In this project, a so-called benchmark survey (called this way because it includes amongst others the 'KPIs' of the project for the sector) is repeatedly conducted among over 1000 respondents from a panel that is representative for Denmark. So far, two rounds of this survey have been done, the first in May 2021 and the second in October 2022; The same survey will be repeated in spring 2024.

Different in-depth analysis are conducted for each survey and will be reported in scientific publications. This report serves to transparently provide the descriptive characteristics (percentages, averages, etc.) of the variables repeated in each benchmark, for use by all stakeholders interested in comparing the different survey findings they find reported in own data, publicly available reports, or other academic findings.

Overall and roughly speaking, we can see that our results are well in line with the picture that other publications or reports (such as e.g. the repeated survey by Coop and Danish Vegetarian Society) paint of consumer shares and tendencies when it comes to the meat-reduction and plant-based trend. We also observe that between May 2021 and October 2022, most variables have not really changed greatly. This does not appear to indicate rapid change. However, given the time span is only 1,5 years, and in light of the recent crisis and price changes, this was also not necessarily expected. We thus mainly point to observations across the two data collections in the following.

With regard to brand awareness, we can see that among the general population in Denmark, circa **50% cannot recall without aid any brand from the field of plant-based product alternatives** to meat and dairy; Circa 20%, however, can name Naturli. **Naturli is the with 60% most recognized brand when aided by a list of brands**, and over 20% each can also recognize Hanegal, Alpro, Oatly, and Halsans Køk. Self-reported trust in these brands and the producers of plant-based product alternatives in general emerges as rather high.

Circa **50% of the general population states to never use plant-based drinks or plant-based meat** products, and further circa 20-25% only do so less than once a month. Notably, circa half of respondents also report to eat legumes only few times a month or less. Circa 75-80% self-ascribe as a 'meat-eater'. **Circa 5% describe their diet as vegan or vegetarian, while circa 15% choose to report a diet type that is low in meat consumption**. Circa 30% of the respondents report that there is not a single lunch/dinner in their week that does *not* contain any meat. However, shortly over **50% report that they eat a vegetarian lunch at least twice a week**, and roughly passing **40% eat vegetarian for dinner at least twice a week**.

Circa 30% state that they already have reduced meat consumption, and circa **30% would like to reduce their meat consumption further**, and either know or do not know yet 'how to start'. Around 11% state that they already eat a predominantly plant-based diet, and circa 18% can imagine changing their diet in this way. From among this survey among the general population, however, we also find that circa **20-24% do not know anyone who has reduced meat consumption** or do not eat much meat.

Answering to a range of statements about the discussion around meat or plants, we observe that **many consumers think there is quite some controversy in society**. There is greater agreement that reducing meat consumption is good for climate / environment, than agreement to that it is good for health to do so; A majority also agrees there are ways to make meat production more environmentally/climate friendly.

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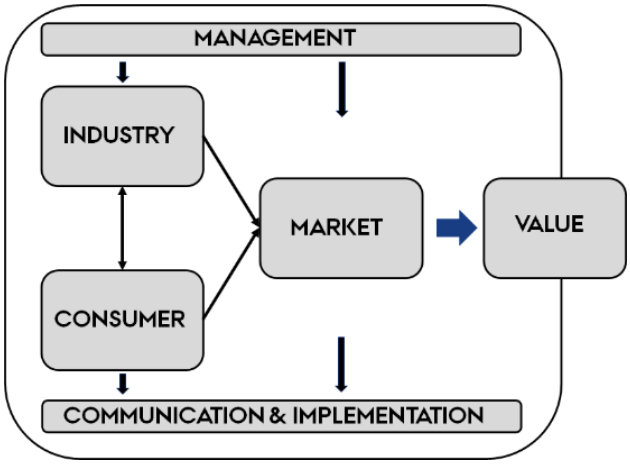
PlantPro project

The project PlantPro contributes to accelerating an efficient green consumer behaviour transition towards more plant-rich diets and reduced food waste. It aims to fill a knowledge gap on factors that drive consumer behaviour change towards more sustainable plant-rich diets and upcycled foods and greater acceptance of sustainable food technologies.

PlantPro is funded by Innovation Fund Denmark. The project runs for three years, from 1 April 2021 to 2024. The project is a collaboration between the MAPP Centre at the Department of Management at Aarhus University, Department of Food Science at University of Copenhagen, Copenhagen Business School, Plantebranchen, Dansk Vegetarisk Forening, Thinktank OneThird, Simple Feast, Beyond Coffee, Circular Food Technology, Møllerup Brands, Food Innovation House, Orkla, Naturli, Planteslagterne, Upfield, Eachthing, Rema1000, Fair Trees and Nemlig.com.

Throughout the project, PlantPro identifies key success factors in industry and societal transitions, maps consumer factors that determine acceptance and behaviour across consumer lifestyle groups, assesses environmental impact, and measures the effect of nudging, information, and motivation on behavioural change in public and private settings under real-life context. It delivers a catalogue of marketing and policy actions.

The commercial value created consists of market growth for innovative plant-based food and food upcycling businesses. The societal value created consists of the achievement of climate targets and sustainable development goals. The overall goal is to contribute to the development that a greater share of the broader population consumes more plant-rich diets in ways that at the same time reduce food waste in the system.



The work package structure focuses on the industry (WP1), the consumer (WP2), and the interplay of both in the market (WP3). WP4 consists of the management of the project, and WP5 entails communication and implementation.

WP1 aims to identify which key success factors shape sustainable industry and societal transitions in the food and other sectors, in Denmark and abroad. WP2 aims to map the consumer factors that determine the acceptance and behaviour across different consumer lifestyle groups, and the respective environmental impact of it. WP3 aims to assess the impact of actions to nudge, inform or motivate behaviour change among consumers in different public and private choice contexts.

See more at https://mgmt.au.dk/plantpro

Work package task 5.4

WP5 is about communication and implementation. As part of this, task 5.4 takes stock of the changes in the key performance indicators (KPI) of the project, during the project period. Task 5.4 'benchmarks' the KPI at project start and project end to measure progress in terms of the objectives of the project. It also explores consumer perceptions and behaviour towards the plant-based food and diets and the discussion around this trend, and how these change over time - as for example studying if there is a perception of conflict with regards to plant-based eating.

The first benchmark survey was conducted in May 2021. The research team conducted an additional benchmark survey midterm, in October 2022. The benchmark survey at the end will be conducted in spring 2024.

Note that in this report, only descriptive numbers are shown, but no tests of statistical significance, given the latter is first in focus when all three surveys have been done.

More information can be found under

https://mgmt.au.dk/plantpro/activities/benchmark-survey

Methodology

Sample description

Data from a representative Danish sample of over 1200 individuals was collected in May 2021 using the representative online panel of the Nordic market research agency Userneeds (now Norstat); After exclusion of outliers in the scope of further analysis, the final sample used was 1121. Responses from 1255 individuals were collected in October 2022, again using the representative online panel of the Nordic market research agency Norstat; For the analysis in this report, this full sample was used.

Only adult respondents who currently reside in Denmark were included and respondents were quota-sampled according to age, gender, and region to ensure a good representation of the Danish population. An overview of the socio-demographic characteristics of the two samples can be found below.

Table 1: Sociodemographic characteristics.

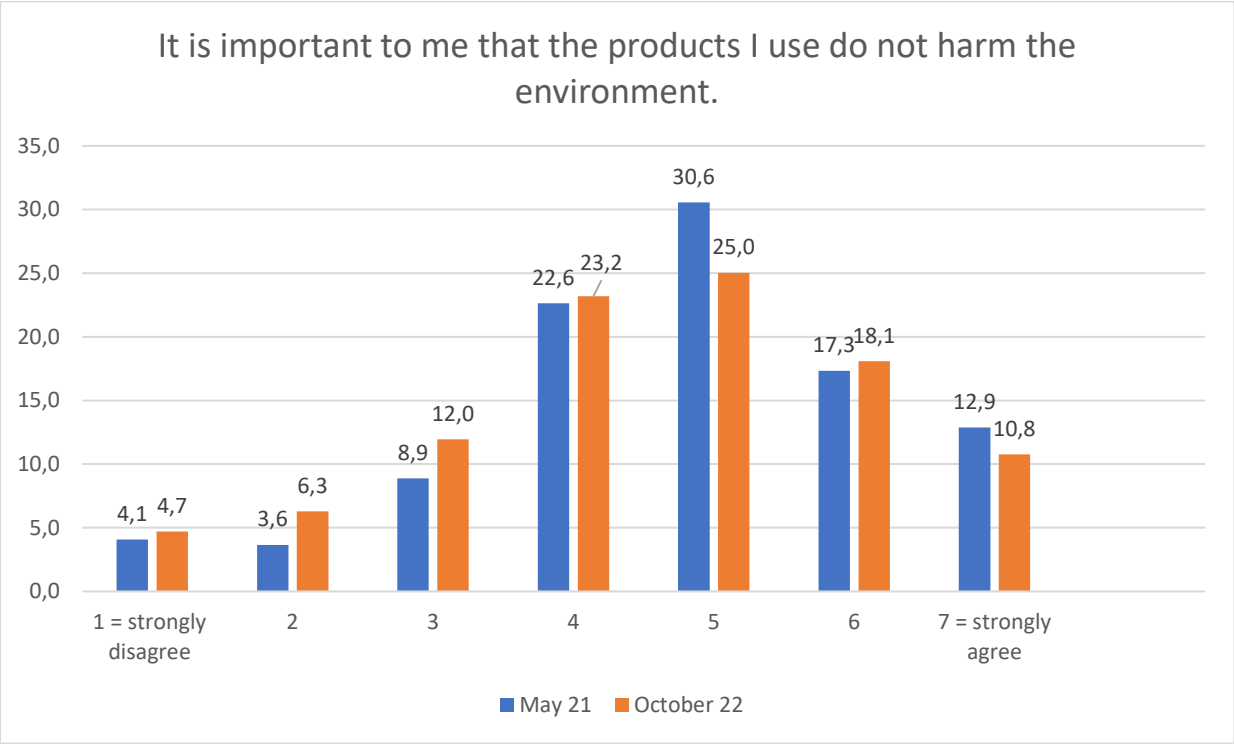
Variable	**May 2021 (1121n)**	**October 2022 (1255n)**
Gender	51.6% females, 48.4% males	49.2% females, 50.8% males
Age	Mean 44.05, SD 13.94 years 18-34 years: 31.8% 35-49 years: 32.7% 50-70 years: 35.6%	Mean 42.9, SD 14.75 years 18-34 years: 36.9% 35-49 years: 29.5% 50-70 years: 33.6%
Education	Higher (2 years and more than 2 years of University) education 56.0%	Higher (2 years and more than 2 years of University) education 52.2%
Region of country	Capital region 36.0%, Sealand 13.3%, South Denmark 18.8%, Mid-Denmark 21.6%, North Jutland 10.3%	Capital region 30.4%, Sealand 16.3%, South Denmark 20.2 %, Mid-Denmark 23%, North Jutland 10%
Degree of urbanisation	Metropol / large city area = 39.6% City = 45.9%, Rural = 14.5%	Metropol / large city area = 34.7% City = 46.3%, Rural = 19%
Economic situation	Difficult: 4.9%, Modest:24.4%, Average: 44%, Quite good: 26.6%	Difficult:6.9%, Modest: 23.7%, Average: 45.9%, Quite good: 26.6%.

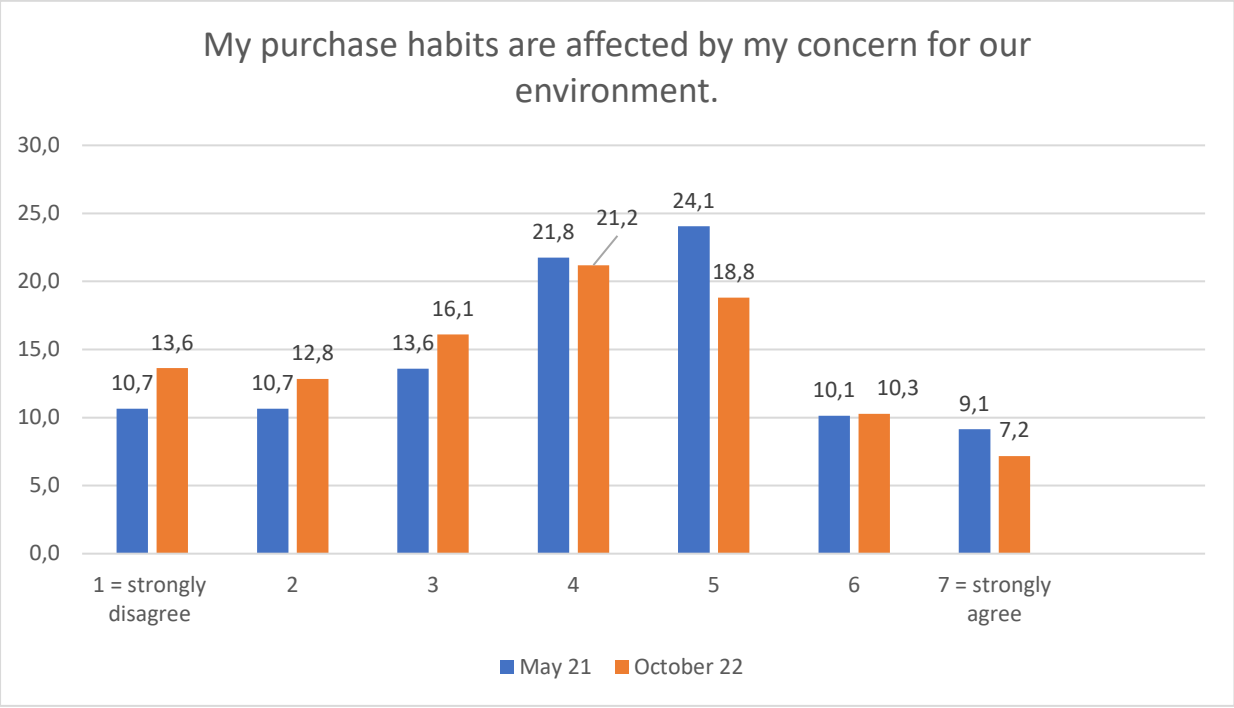
Two psychographic characteristics of the sample are shown in the following.

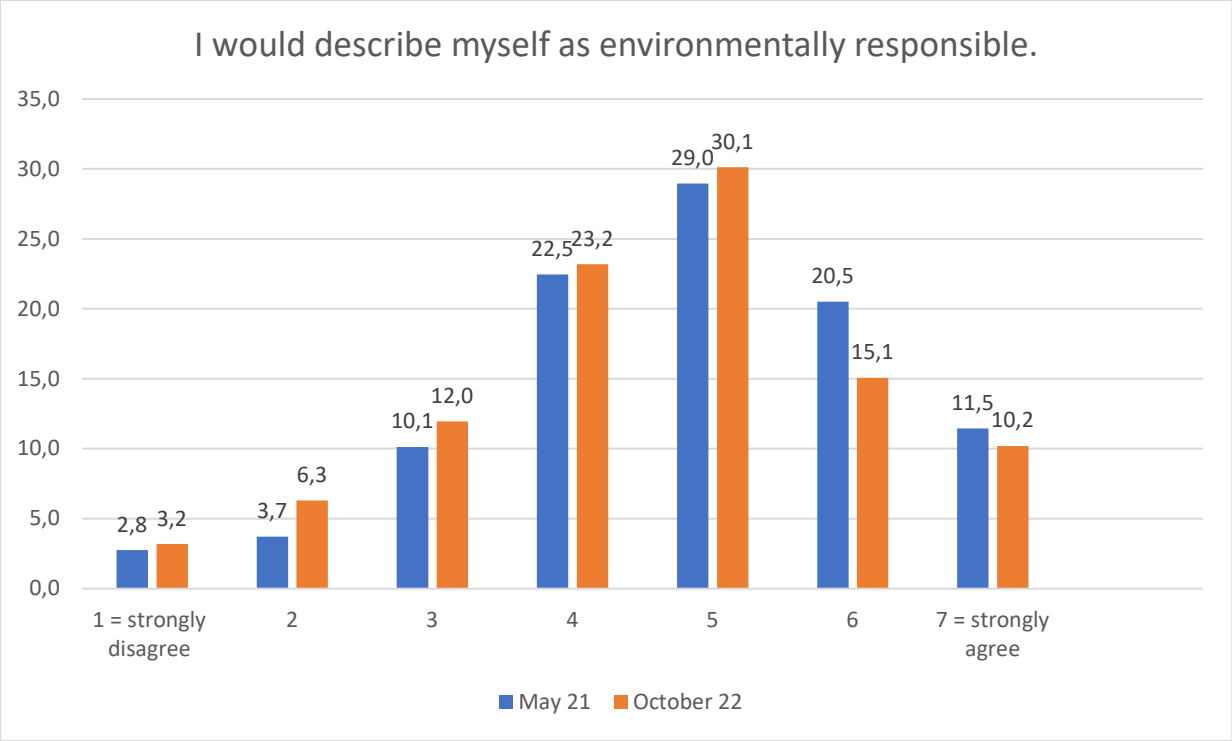
The remainder of the report is in the sequence of which the questions have been asked.

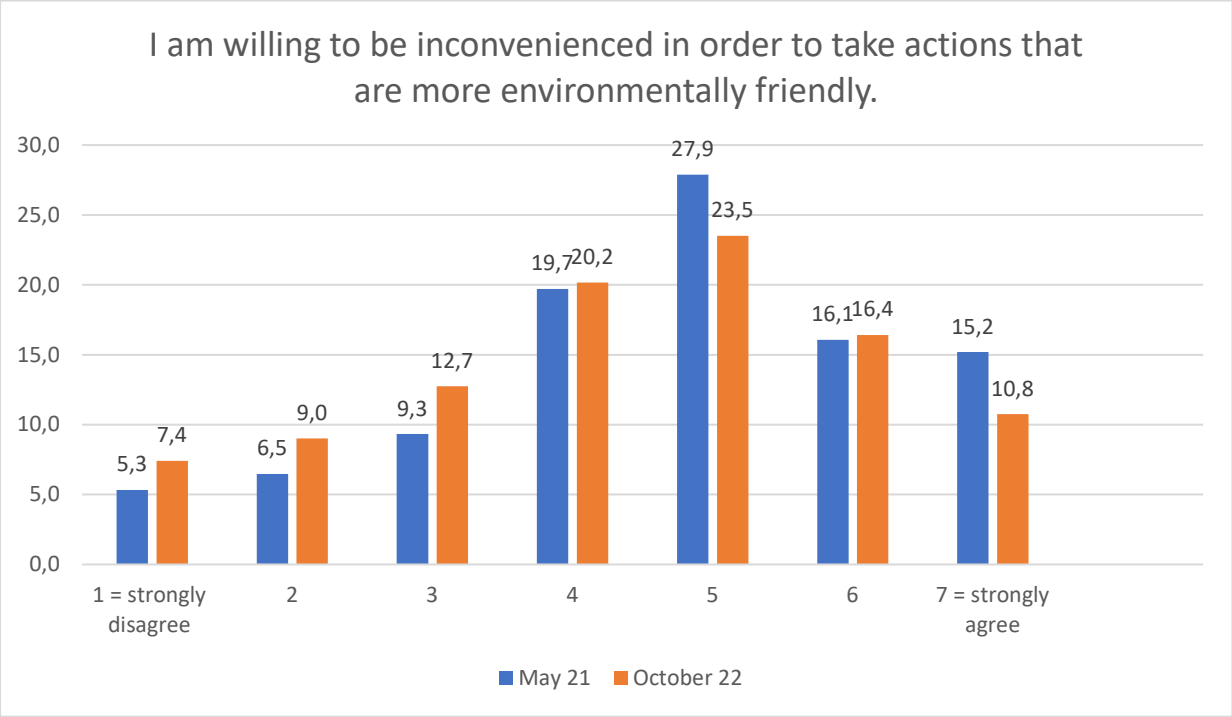
Environmental concern

Four statements measuring environmental concern have been asked and measured on a 7-point disagree-agree Likert scale. Below they are shown separately with the percentages of respondents for each point on the agree-disagree scale.



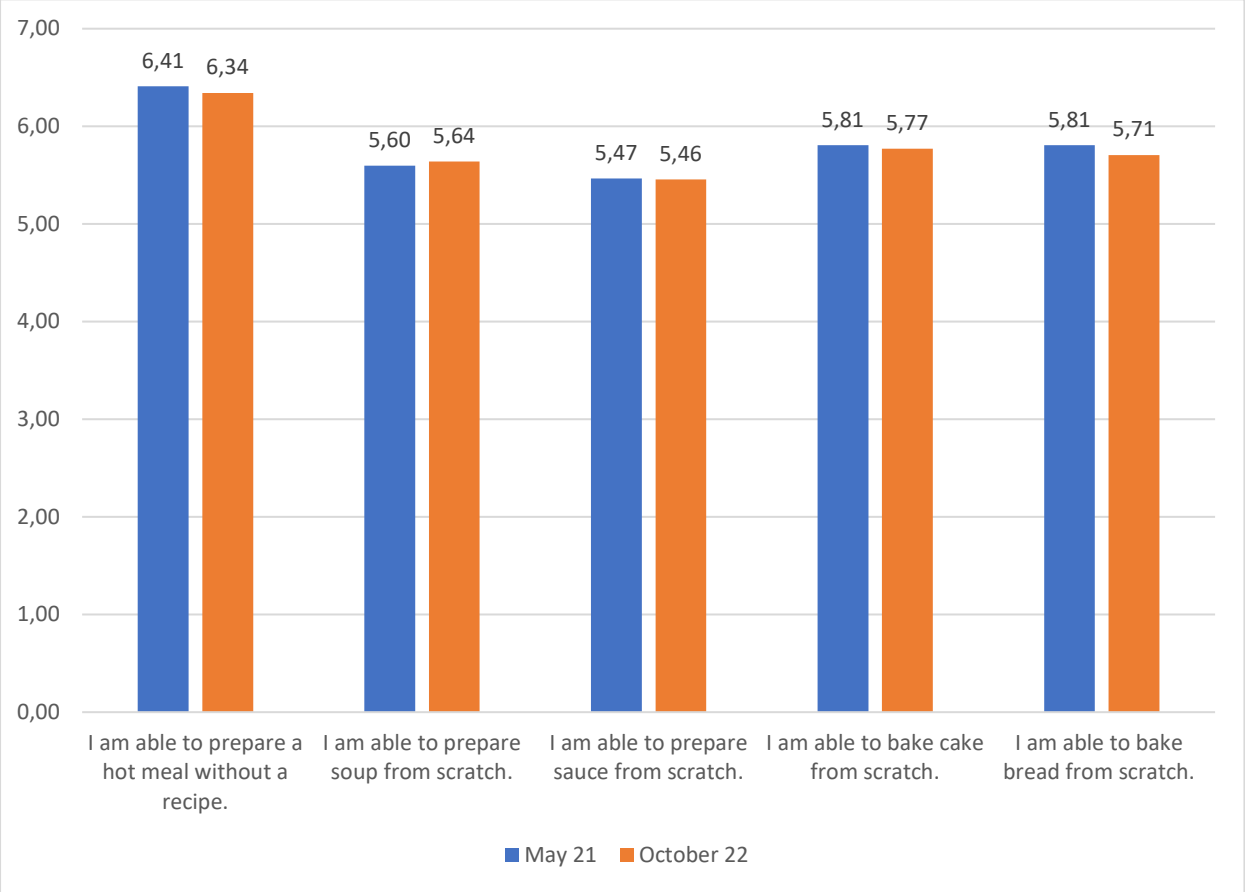



I would describe myself as environmentally responsible.
35,0
30,0
25,0
20,0
15,0
10,0
5,0
0,0
2,8
3,2
3,7
6,3
10,1
12,0
22,5
23,2
29,0
30,1
20,5
15,1
11,5
10,2
1 = strongly disagree
2
3
4
5
6
7 = strongly agree
May 21
October 22


I am willing to be inconvenienced in order to take actions that are more environmentally friendly.
30,0
25,0
20,0
15,0
10,0
5,0
0,0
5,3
7,4
6,5
9,0
9,3
12,7
19,7
20,2
27,9
23,5
16,1
16,4
15,2
10,8
1 = strongly disagree
2
3
4
5
6
7 = strongly agree
May 21
October 22

Cooking skills

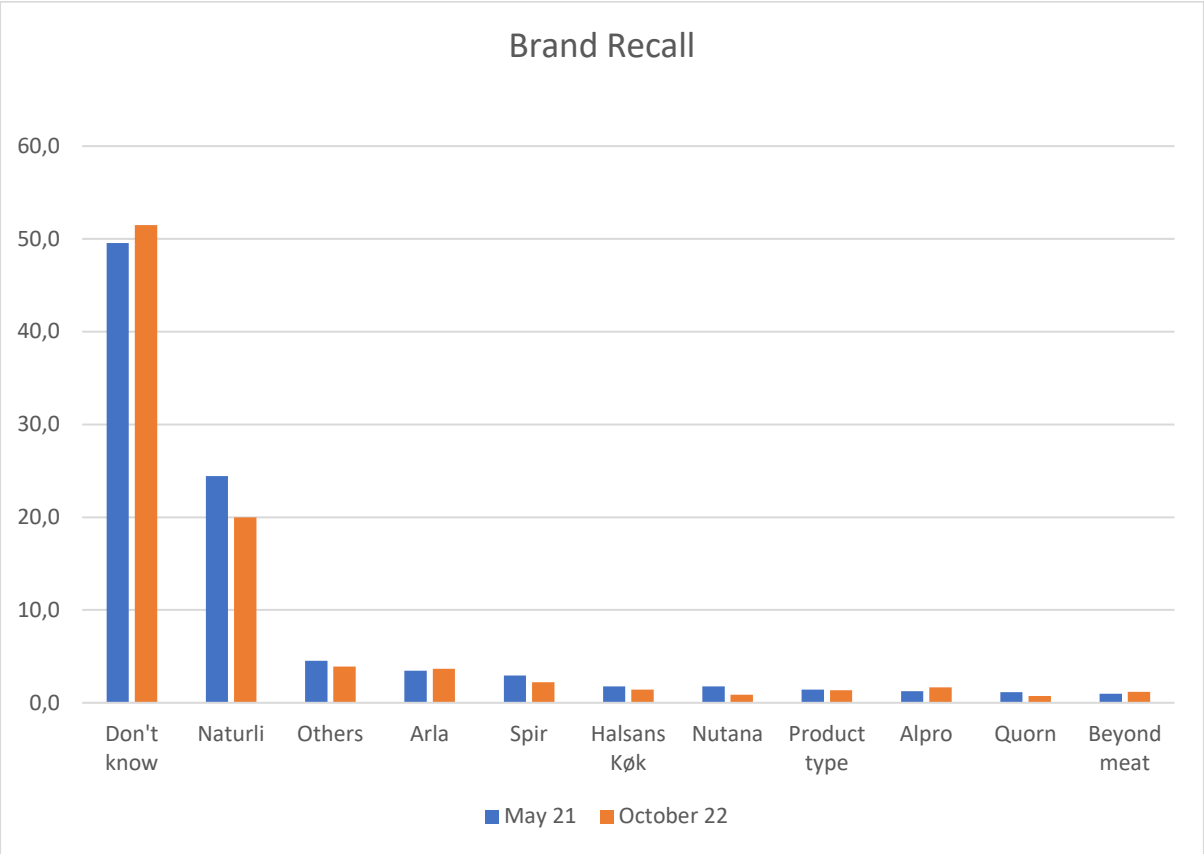
For this set of variables an average has been done in order to evaluate the cooking competences of the respondents. One can see that all the averages are above 5 (out of 7) which suggests that the respondents report themselves to be relatively skilled in cooking.



Brand Awareness

The first graph that can be seen below is about *unaided* brand recall in percentage. Circa half of the study respondents could not recall from the top of their mind any brands which are dealing with plant-based foods. The brand recalled most often (by 20-25%) was Naturli.

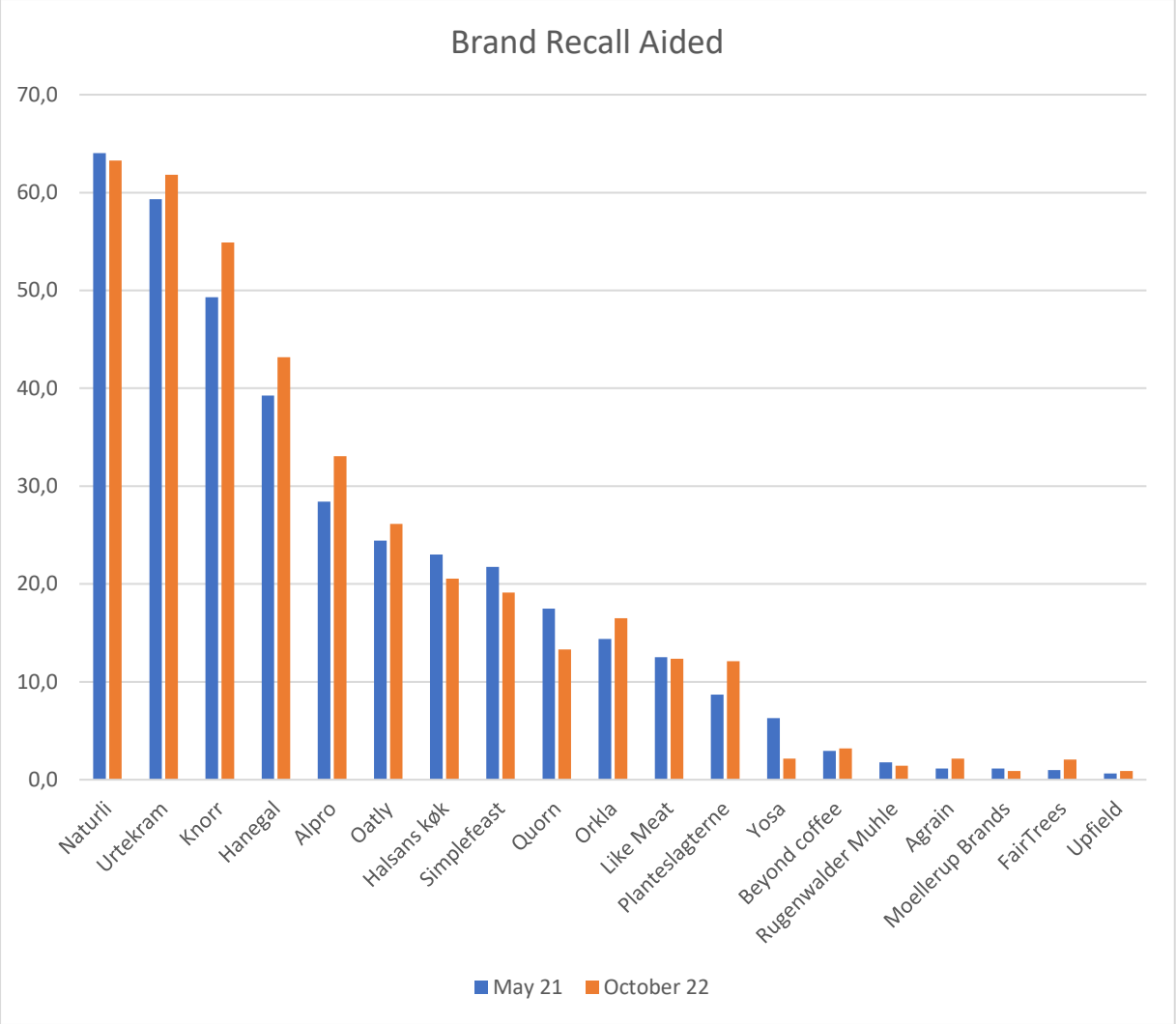
Question: Which brands do you know that sell plant-based product alternatives to meat or dairy products? Please name as many as you can think of!



The second graph on the next page shows the *aided* brand recall. Corporate or line brands from PlantPro partners and a selection of other brands - with plant-based products as well as plant-based alternatives to meat and dairy - were offered to respondents.

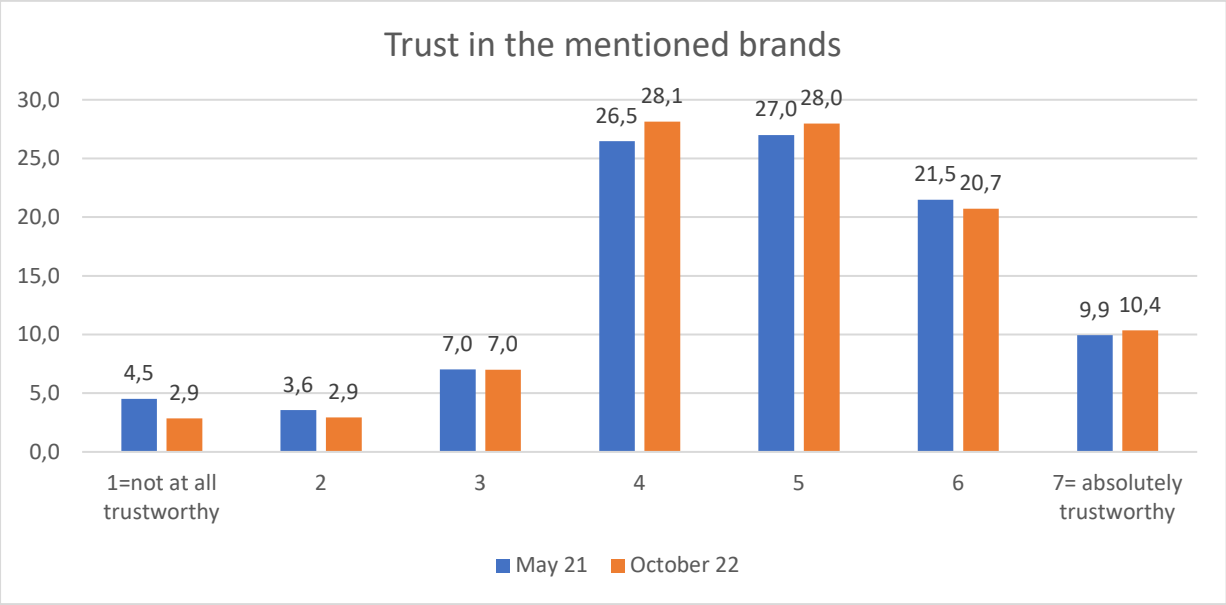
Naturli is the most recognized brands, closely followed by a range of other brands. It appears that for many of these, aided awareness has slightly increased.

Question: Which of the following brands and producers that sell plant-based product alternatives to meat or dairy products do you recognize having seen or heard of? Please tick as many as you recognize!

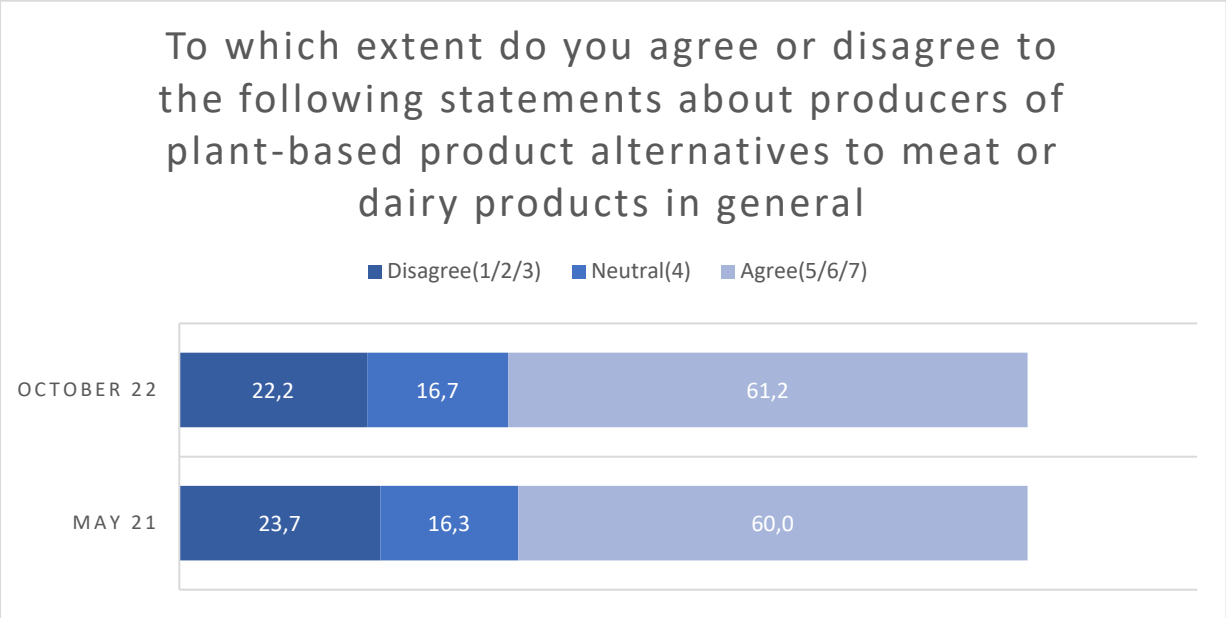

Brand Recall Aided
70,0
60,0
50,0
40,0
30,0
20,0
10,0
0,0
Naturli
Urtekram
Knorr
Hanegal
Alpro
Oatly
Halsans køk
Simplefeast
Quorn
Orkla
Like Meat
Planteslagterne
Yosa
Beyond coffee
Rugenwalder Muhle
Agrain
Moellerup Brands
FairTrees
Upfield
May 21
October 22

Trust in brands/industry

The survey respondents have been asked if they trust the brands mentioned in the brand recall question. Most respondents chose an answer on the middle and the upper side of the scale which indicates high trust in these brands.

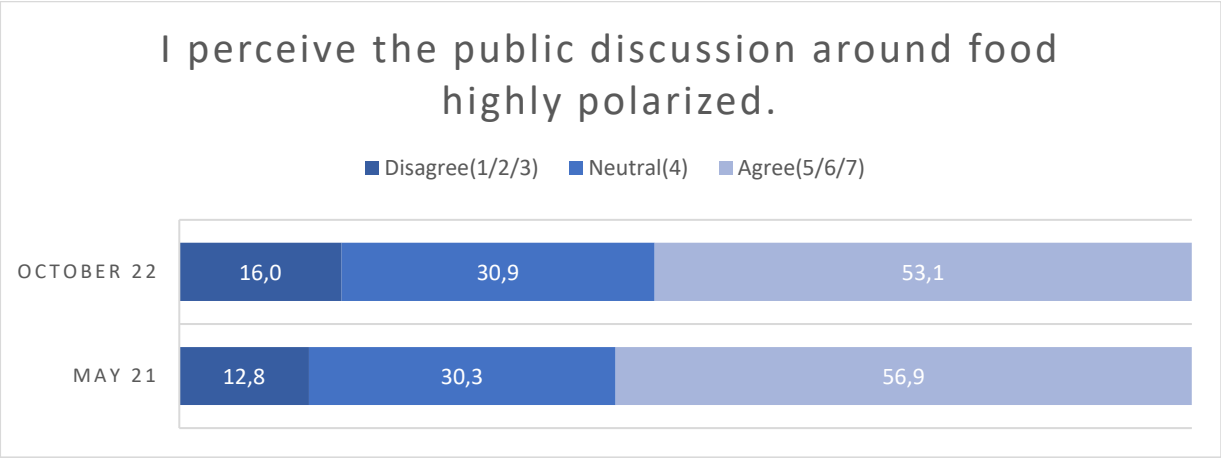


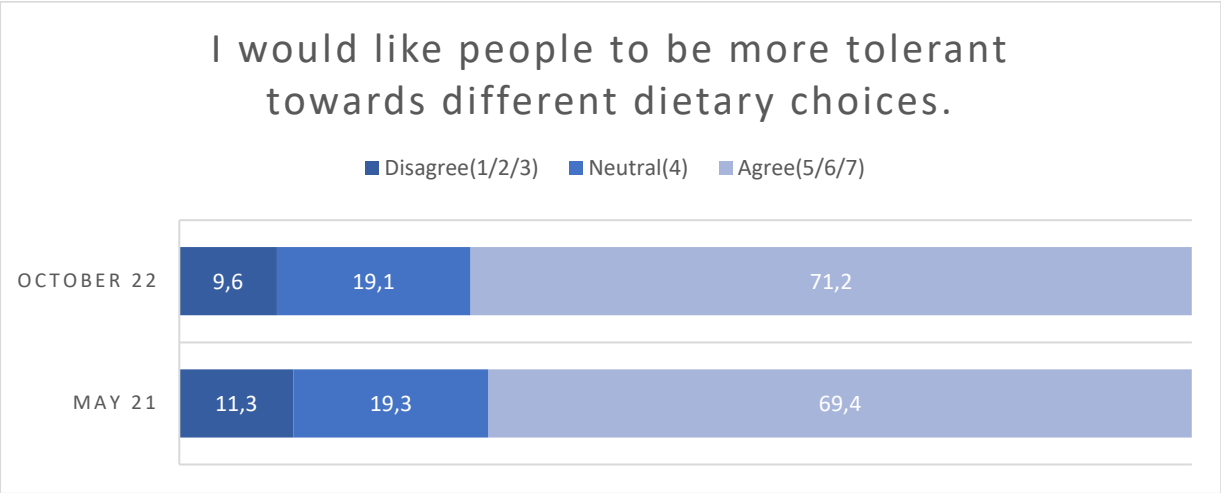
The same sentiment can be seen also in the graph below. The graph shows the percentage of respondents who agreed, disagreed, or answered neutral, on average across three statements. The measurement was done on a 7-point disagree-agree Likert scale. Trust in the industry is high as the majority of the respondents agreed with the three statements presented to them (Plant-based food manufacturers have the competence to control the quality of the food they produce; Plant-based food manufacturers have sufficient knowledge to guarantee the quality of food products; Plant-based food manufacturers are honest about the quality of food).

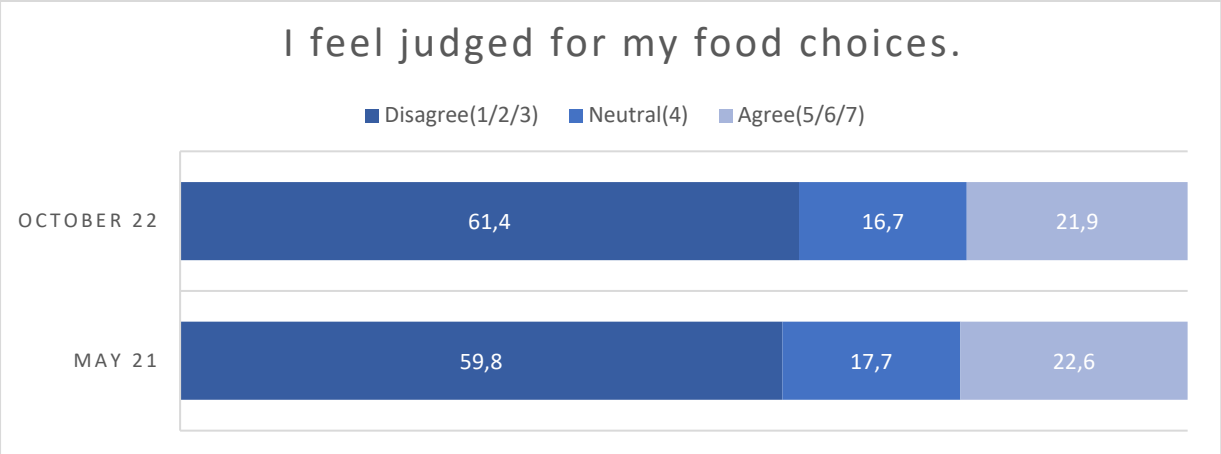


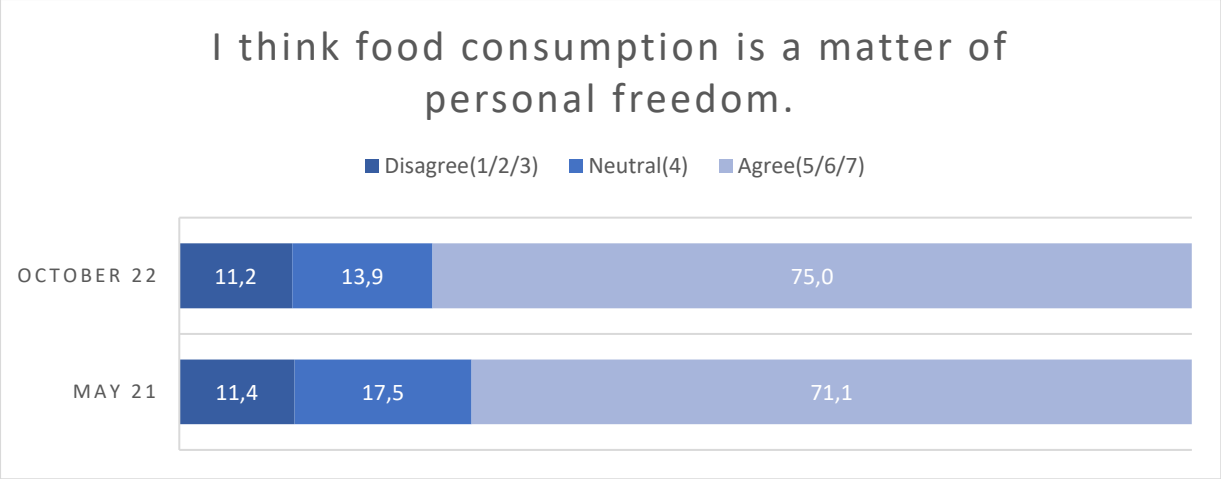
Perceived conflict

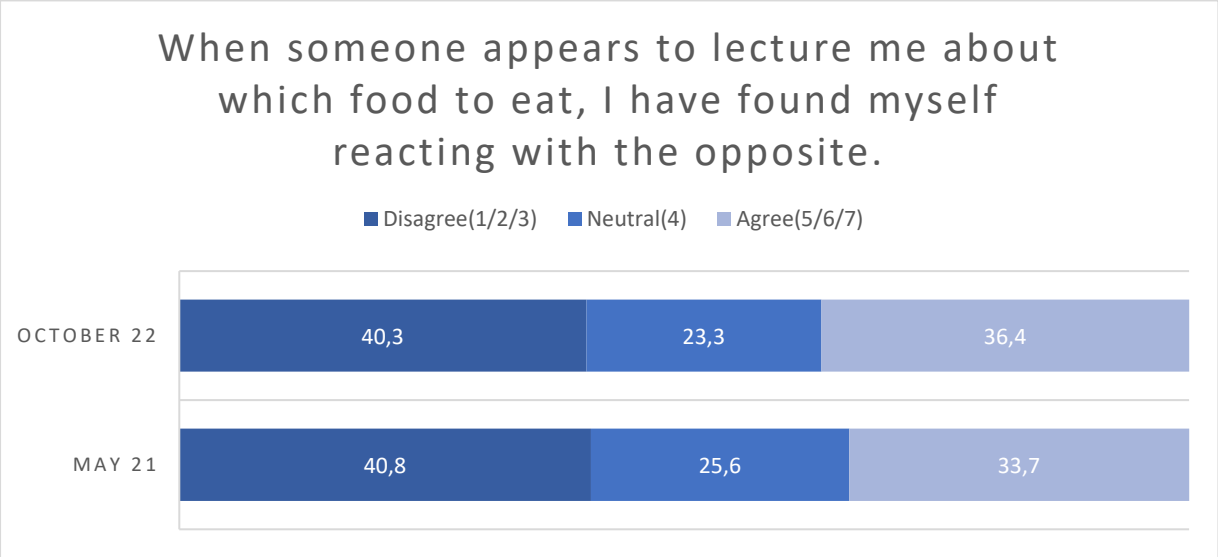
Six statements had been developed to measure whether respondents perceive that there is a conflict in society around the topic of 'meat versus plant' and about what to eat in this context. The measurement was done on a 7-point disagree-agree Likert scale There was high agreement to various of these statements, as can be seen in the following graphs. The numbers are percentages.

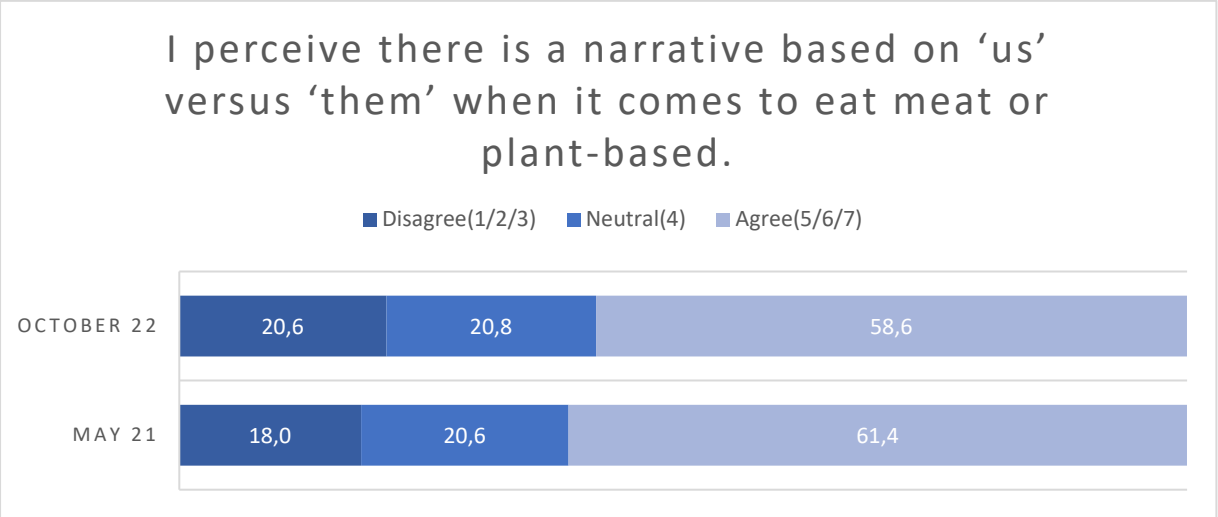






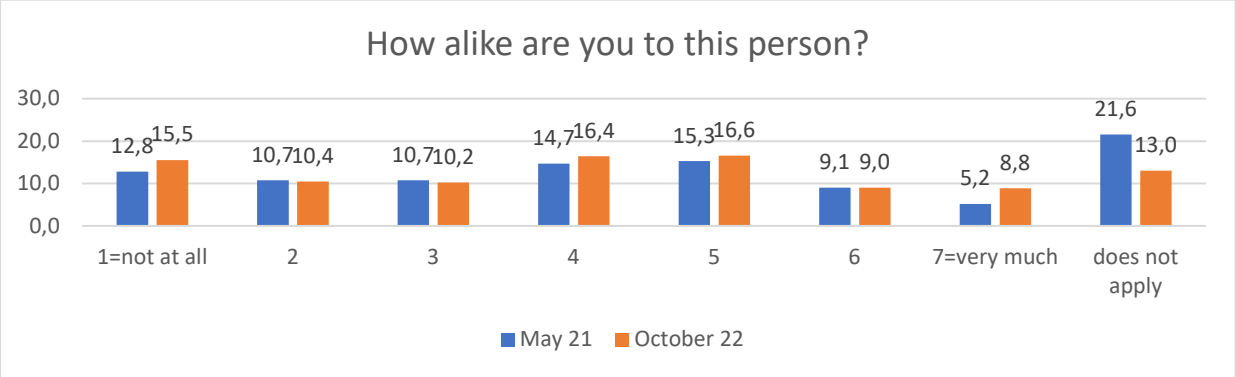

I think food consumption is a matter of personal freedom.
Disagree(1/2/3)
Neutral(4)
Agree(5/6/7)
OCTOBER 22
11,2
13,9
75,0
MAY 21
11,4
17,5
71,1

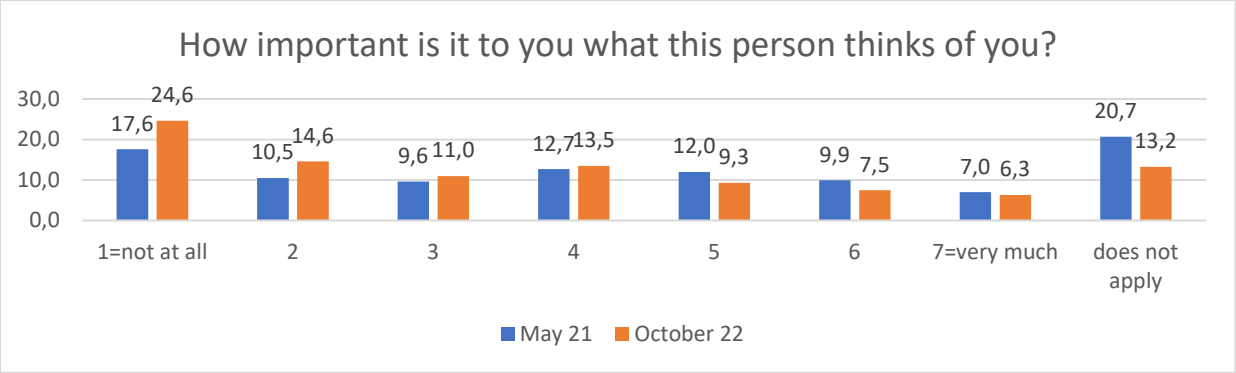

When someone appears to lecture me about which food to eat, I have found myself reacting with the opposite.
Disagree(1/2/3)
Neutral(4)
Agree(5/6/7)
OCTOBER 22
40,3
23,3
36,4
MAY 21
40,8
25,6
33,7

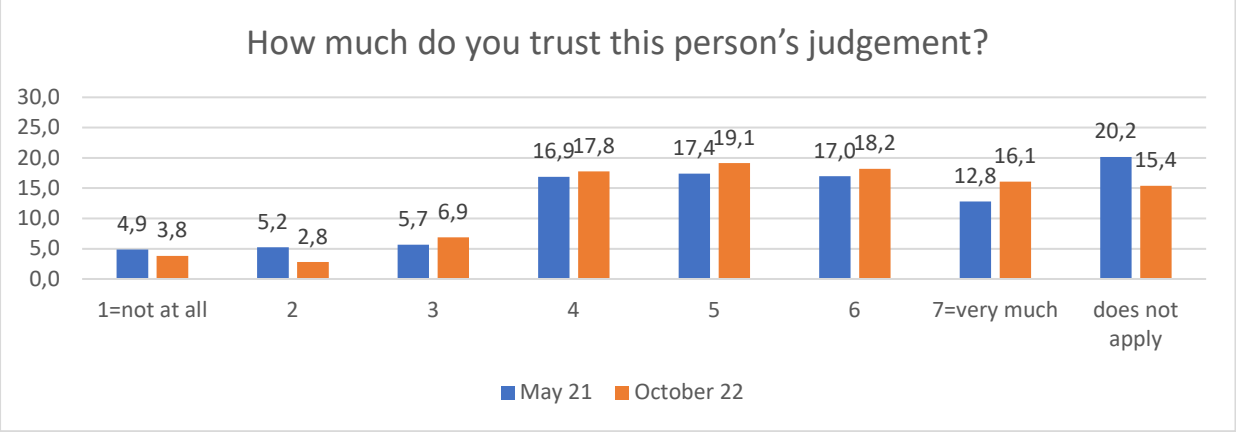

I perceive there is a narrative based on 'us' versus 'them' when it comes to eat meat or plant-based.
Disagree(1/2/3)
Neutral(4)
Agree(5/6/7)
OCTOBER 22
20,6
20,8
58,6
MAY 21
18,0
20,6
61,4

Reduction of meat

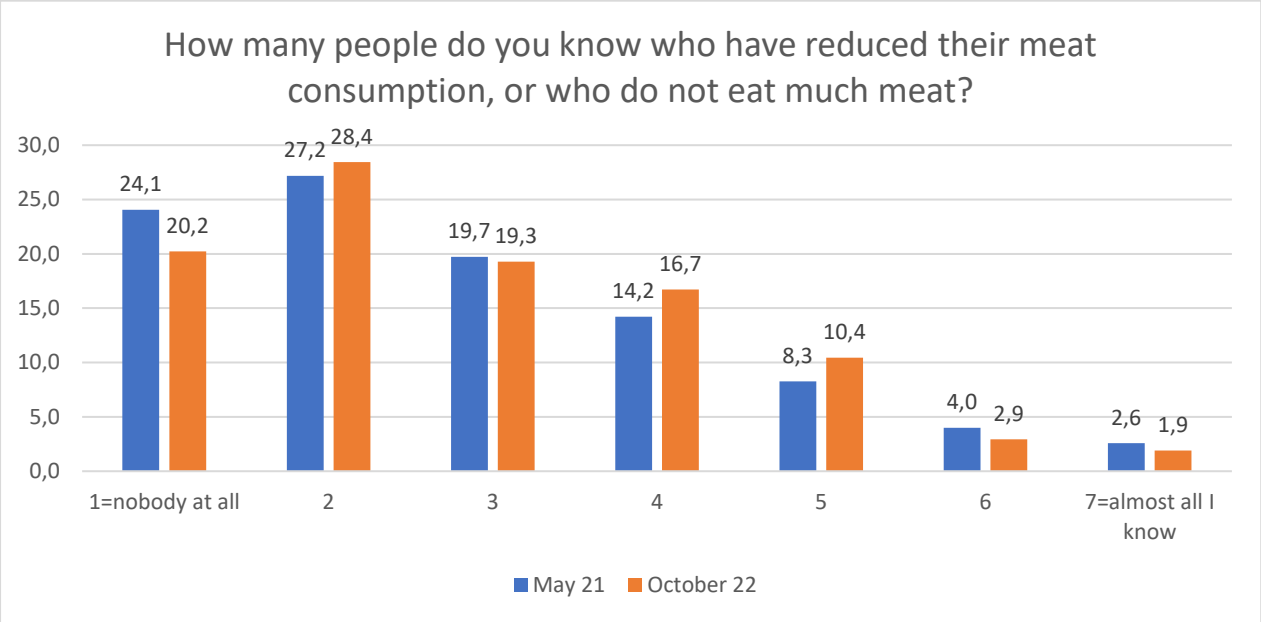
Respondents were asked to think of a person which they personally know and who has reduced meat consumption recently or in the past 10 years. In order to assess whether it is a person that can be regarded as a 'peer' (alike and important to oneself), they were asked the following statements. From the answers to 'does not apply' (if the respondent does not know any person like that) it appears as if in general, more respondents can think of at least one person who has reduced meat consumption and which they personally know, in October 2022 compared to May 2021.







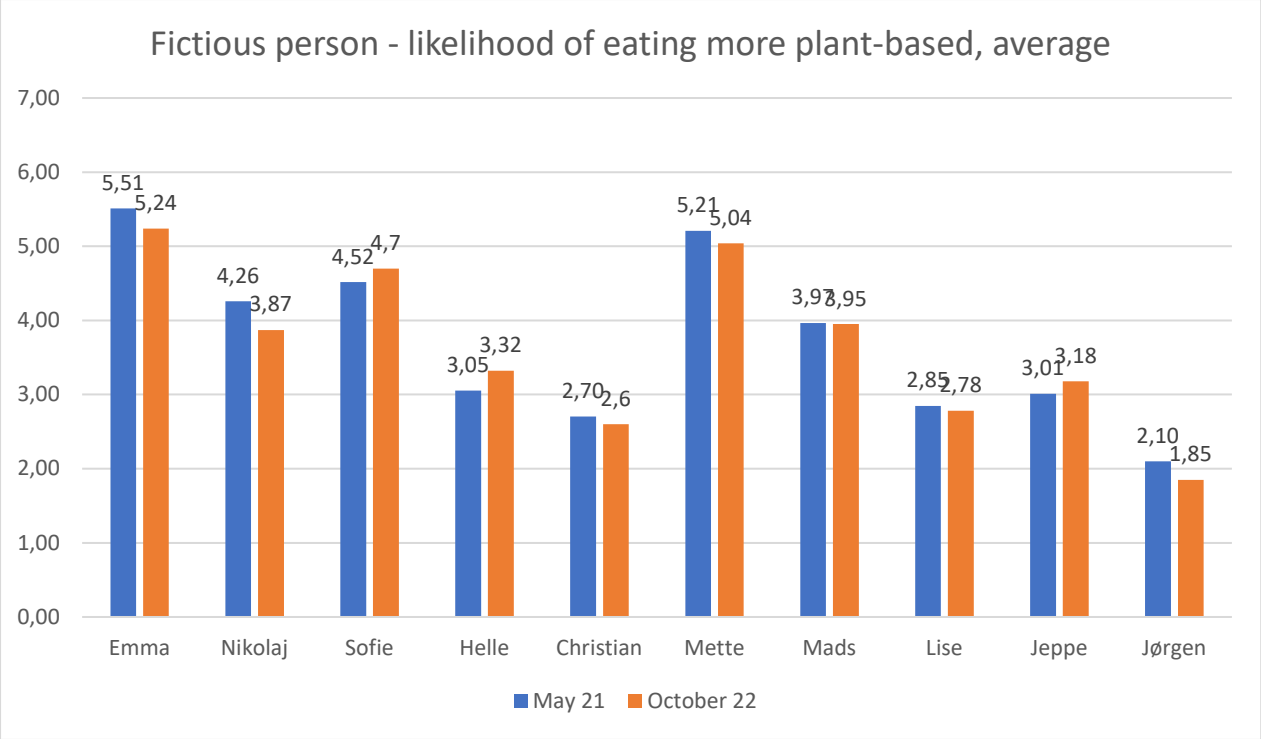
Respondents were also asked how many people they know who have reduced meat consumption or do not eat much meat. The percentages in the graph below indicate that circa 24% respectively 20% answered 'nobody at all'.



Fictious persons

Respondents were randomly presented with one out of 10 'fictious persons' – short descriptions of a fictious person with different traits and backgrounds. They were then asked to guess how likely this person is to eat more plant-based within a year from now. The personas had been created for the purpose of exploring whether there will be changes over time in the diversity of people expected to be interested in plant-based eating – for example, if not only the 'typical' candidates are considered potentially interested in eating more plant-based.

The question was "How likely do you think it is that this person will eat a predominantly plant-based diet (low amounts of meat and moderate amounts of fish, eggs and dairy products), one year from now". The graph shows the average of the answer (of those 1/10 respondents who read the description belonging to the name). The end points of the scale were 1 = Extremely unlikely and 7 = Extremely likely.

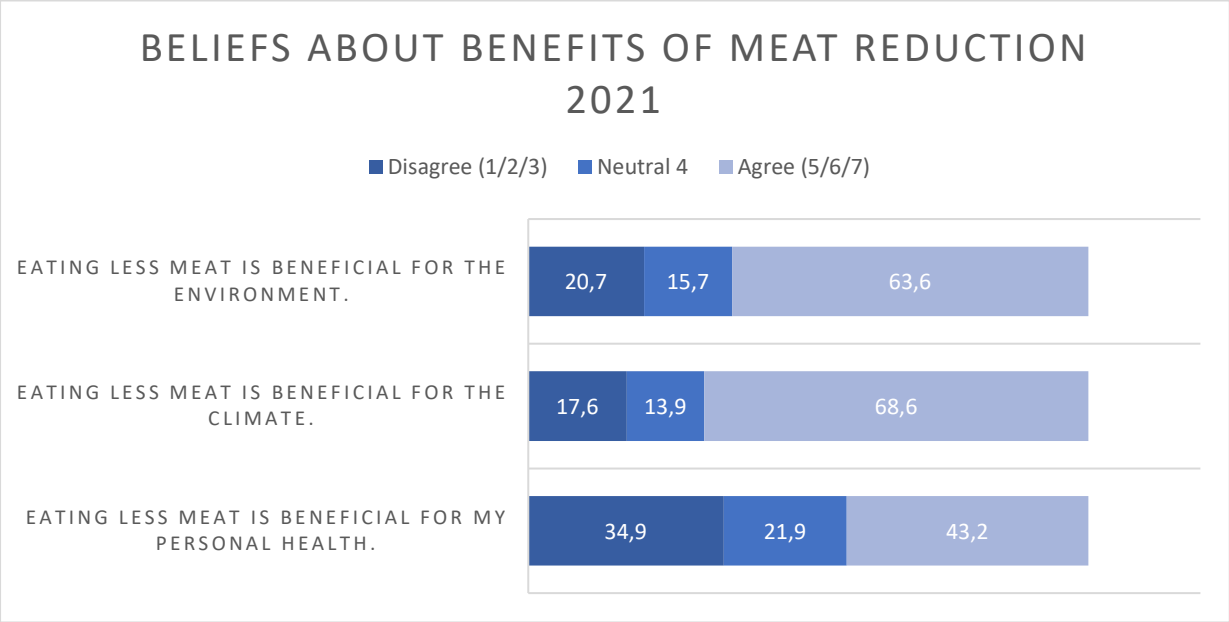


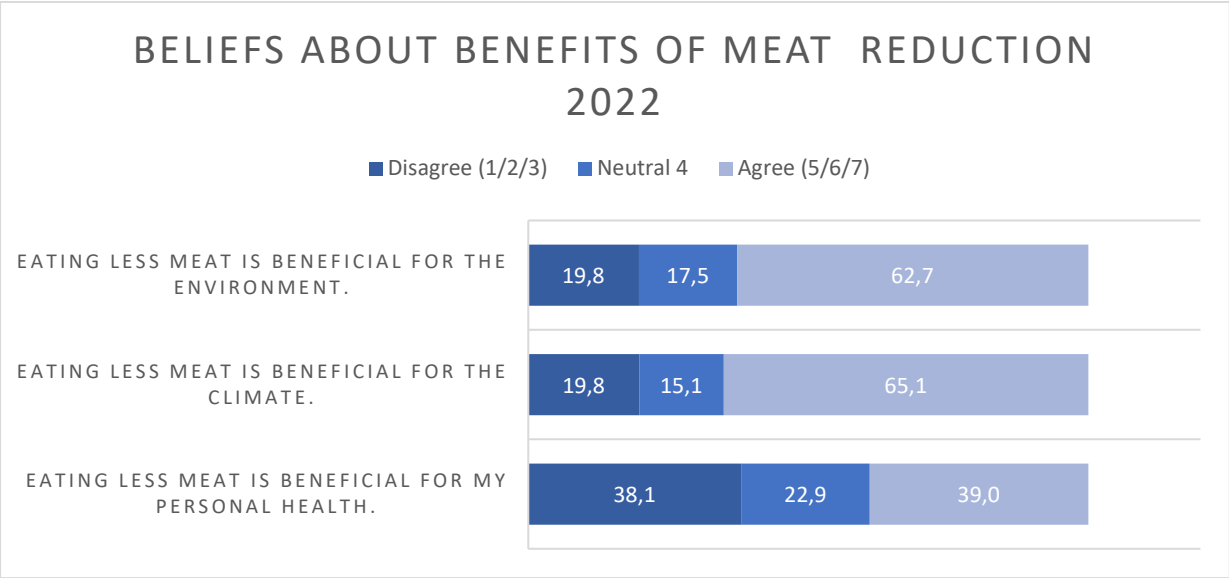
Emma is 29 years old and lives in Aalborg. She has just become a mother for the first time. Emma is an educated journalist and has her own blog writing about her passion for healthy and sustainable choices.
Nikolaj is 33 years old and lives in Odense. Nikolaj is a personal trainer and dietician, spending the most of his time helping others through training programs and diet plans. Nikolaj lives in a house together with his girlfriend and their dog.
Sofie is 22 years old and studies psychology at Aarhus University. Sofie lives with her childhood friend in the central part of Aarhus. Besides from spending a lot of time on her studies, she loves to go shopping, cook at home and visit her friends. She is part of a food club with her friends.
Helle is a housewife soon turning 55 years. She has a kid on her own besides two stepchildren with her Swedish husband. Together they live in Kolding and love to go and spend their vacations in Asia.
Christian is 31 years old and self-employed, living in Randers. He spends the majority of his time at his office. He eats take-away more often than not. When he is off from work he stays active at boxing practice or goes to town with his friends.
Mette is 47 years old, works as a theatre instructor and a mother of three. She lives in an apartment on Frederiksberg. Mette enjoys cooking her own meals and in her spare time, she practices yoga and meets up with her friends at the local cafes.
Mads is 45 years old and lives in Aarhus. He works as a creative director in an advertising agency. He is very active on Twitter where he often shares his political beliefs. He spends a lot of time with his wife and two kids in their common holiday home.
Lise is 45 years old and lives in Hadsund with her husband and their two teenage daughters. Lise works as an elementary school teacher. She loves to cook a traditional meal for herself and her family and only dine out for special occasions.
Jeppe is 61 years and early retiree from working as a DSB technician. He lives with his wife in their common house in Viborg. He enjoys growing his own vegetables in their garden.
Jørgen is a 52-year old factory worker living in his childhood city in Jutland. Jørgen is divorced and lives alone, after his two kids moved from home. He loves to watch football at the local stadium.

Beliefs

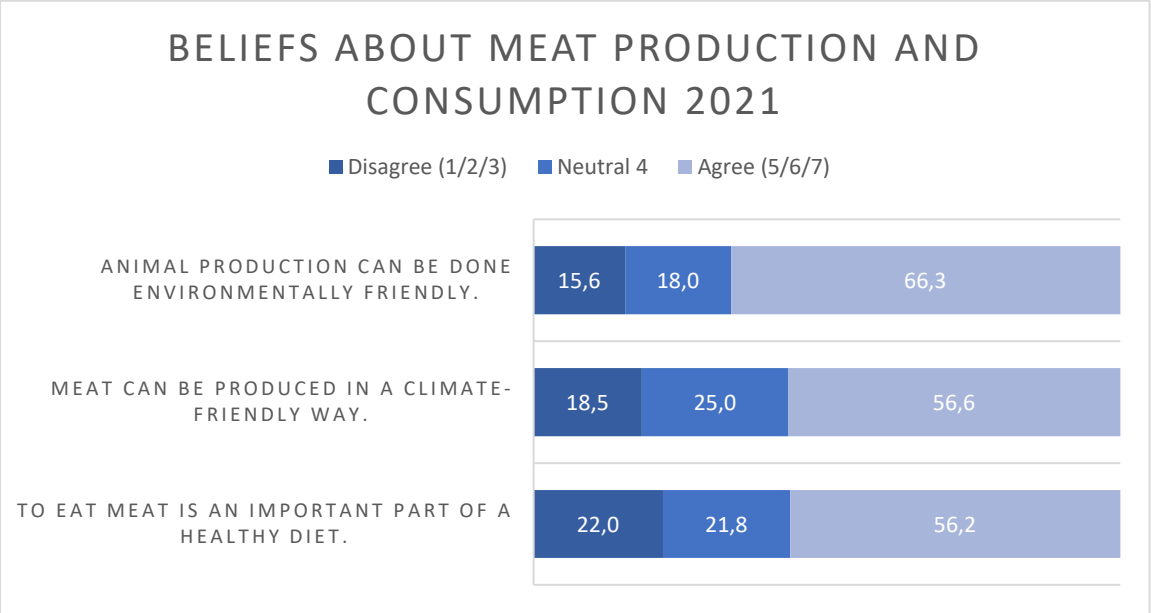
Knowledge and beliefs about meat production and consumption reduction were measured using variations of phrasings such as 'Eating less meat is beneficial …' or 'Meat can be produced …' and then referring to climate, environmental and health aspects. We show three statements indicating the believed benefits of reducing meat consumption, and three statements indicating beliefs about meat production and consumption, e.g. whether it is important for health and can be conducted in environmentally or climate friendly manner. The measurement was done on a 7-point disagree-agree Likert scale

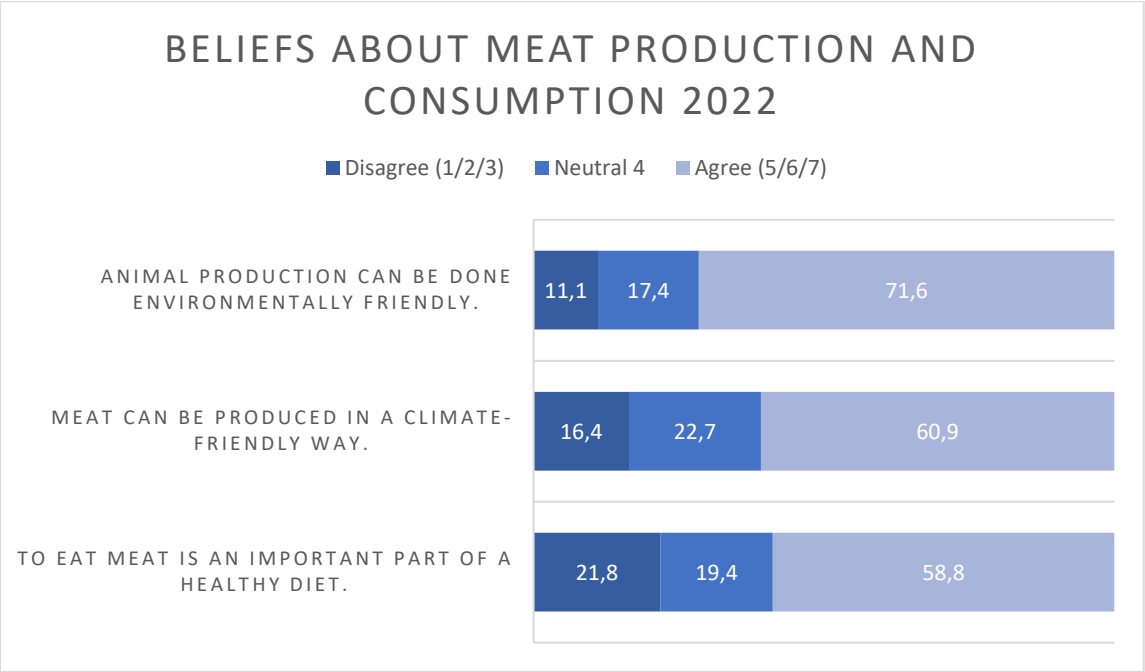
Beliefs about benefits of meat reduction





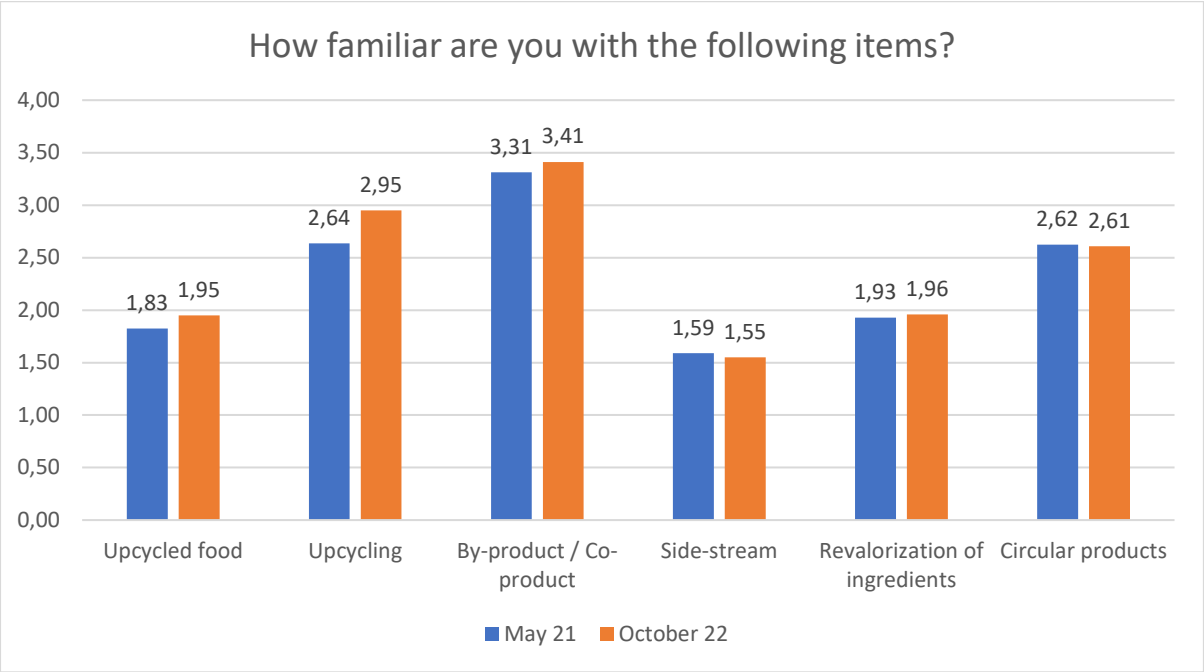
Beliefs about meat production and consumption



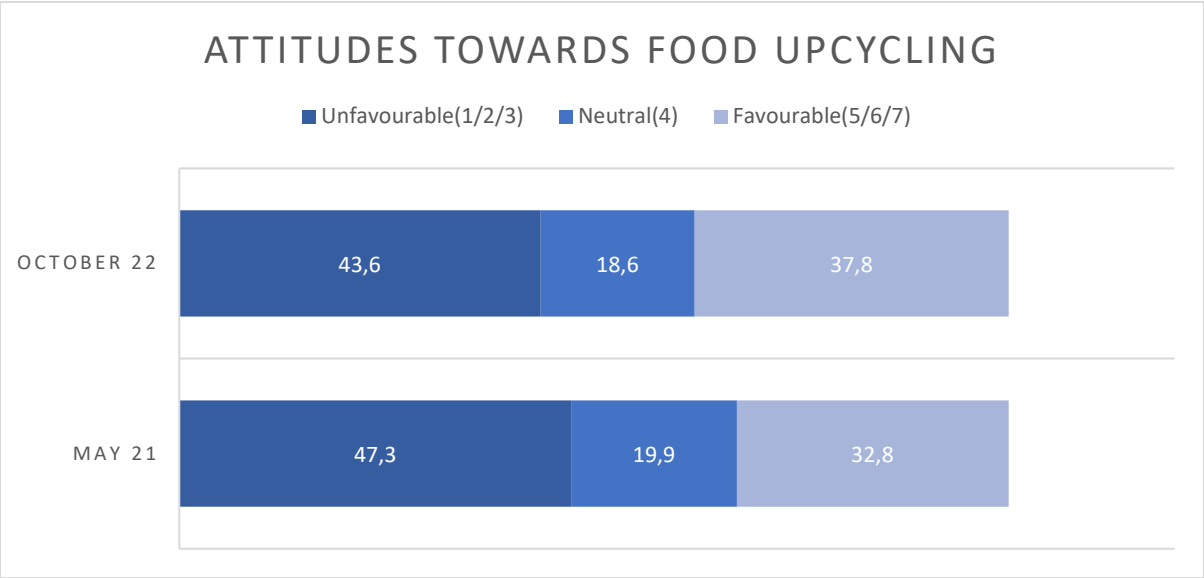


Upcycled food

Below one can see the development of familiarity about the terms mentioned below. The numbers are the averages (from a 7-point Likert scale "How familiar are you with the following terms: Upcycled food, Upcycling, By-product/Co-product, Side-stream, Revalorization of ingredients, Circular products? (meaning; you have heard the term and have an idea about what it stands for"). Overall, knowledge of these terms that can describe upcycled food, is low, but there appear to be differences in which terms respondents have heard of so far.



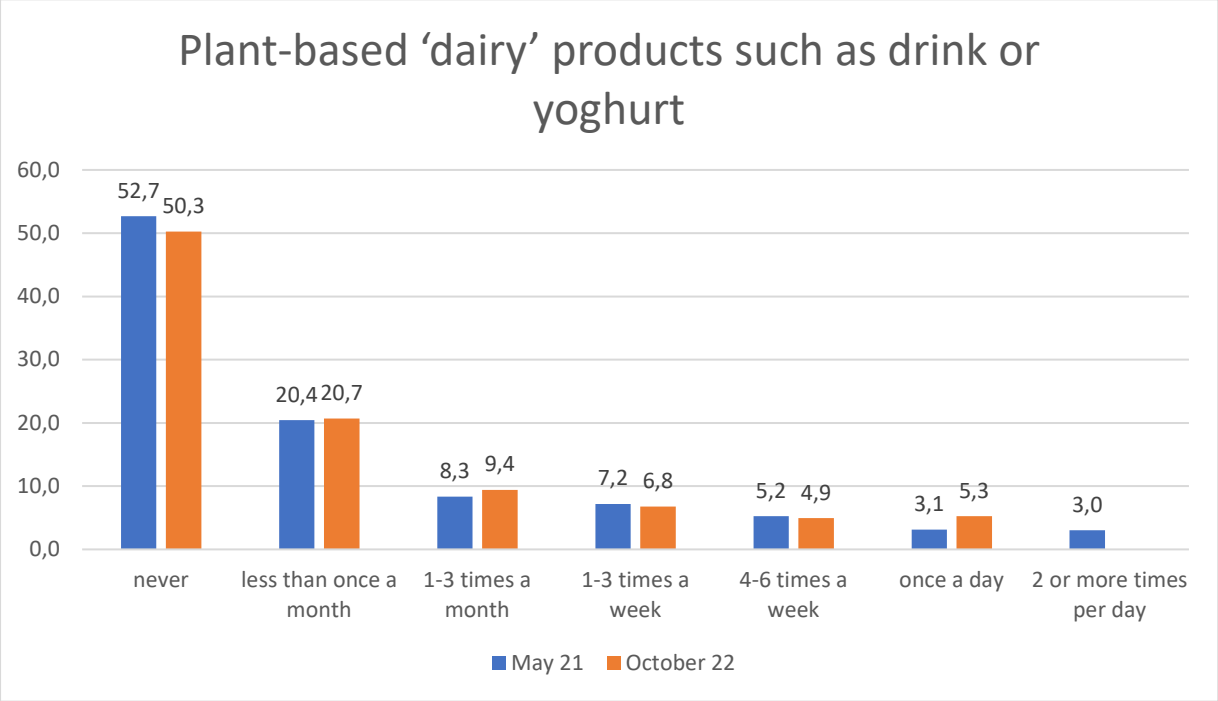
After a short explanation ("Upcycled foods use ingredients that otherwise would not have gone to human consumption. This reduces food waste."), respondents were asked about their attitude towards upcycling with three statements. The below shows the average across the three statements, grouped for unfavourable, neutral, or favourable attitude. The measurement was done on a 7-point disagree-agree Likert scale

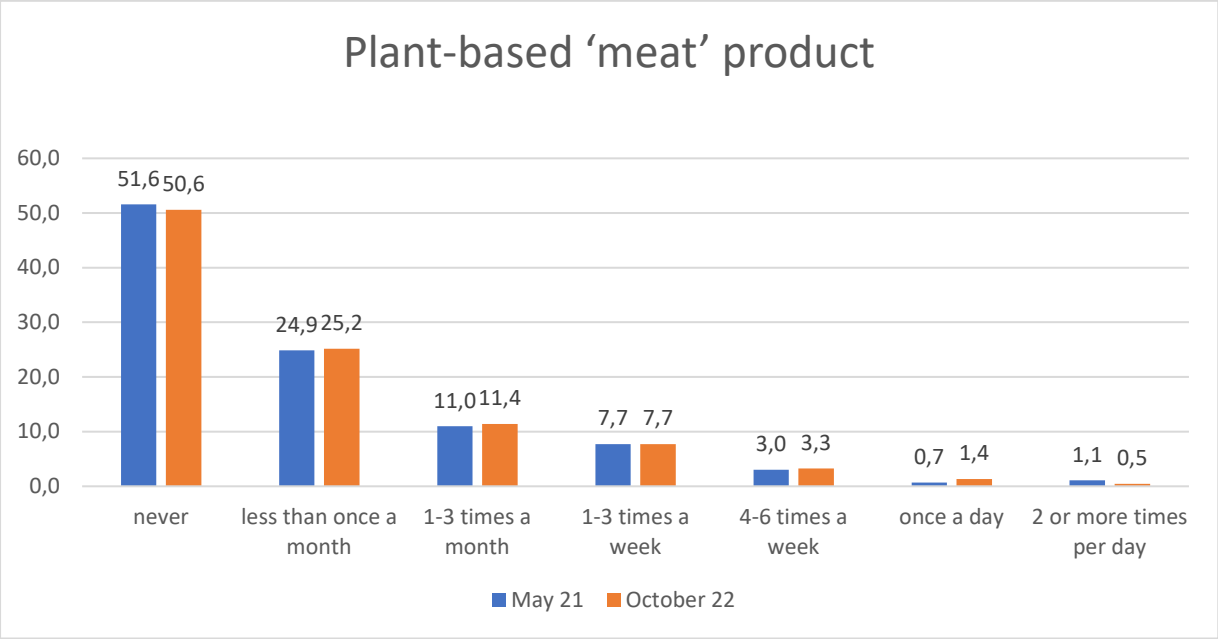


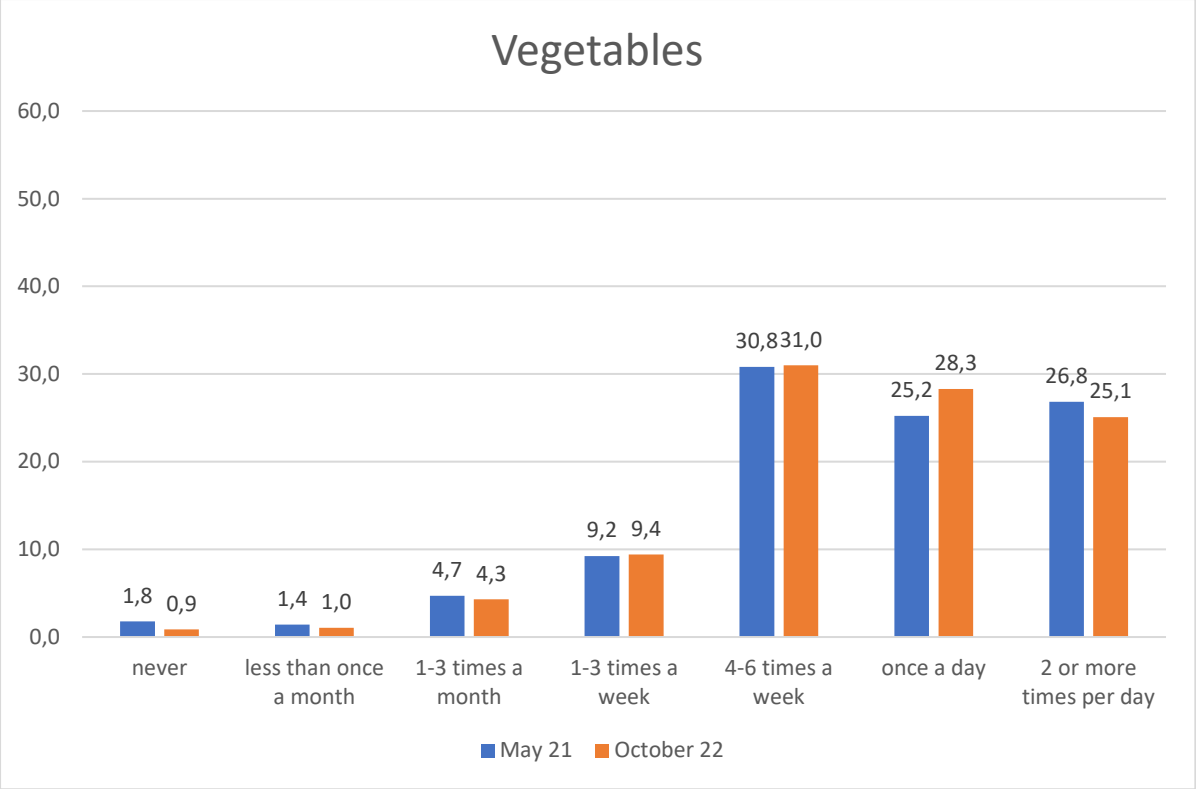
Dietary behaviour variables

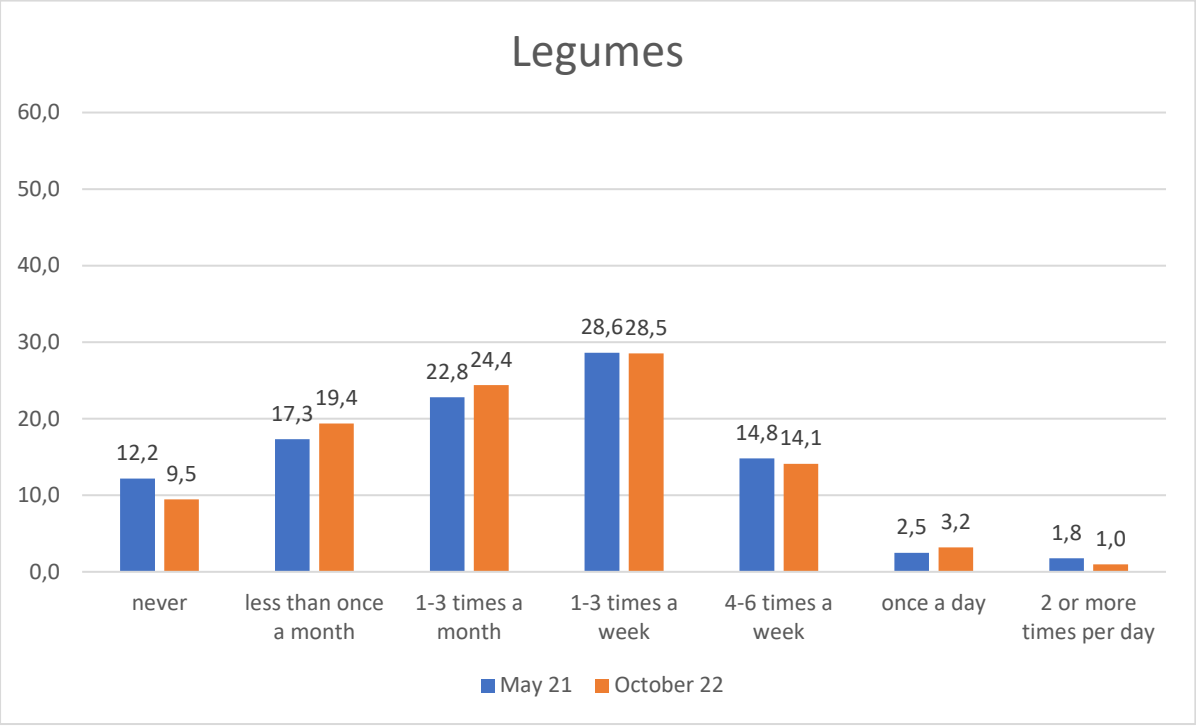
Respondents were asked about the frequency of use of several food categories. The following graphs show the percentages of respondents. Circa half of respondents never use plant-based drinks or plant-based meat products, and further circa 20-25% only do so less than once a month; Circa half of respondents report to eat legumes few times a month or less.

From the following examples of food categories: How often do you personally consume a product from this category?






Vegetables
60,0
50,0
40,0
30,0
20,0
10,0
0,0
1,8
0,9
1,4
1,0
4,7
4,3
9,2
9,4
30,8
31,0
25,2
28,3
26,8
25,1
never
less than once a month
1-3 times a month
1-3 times a week
4-6 times a week
once a day
2 or more times per day
May 21
October 22

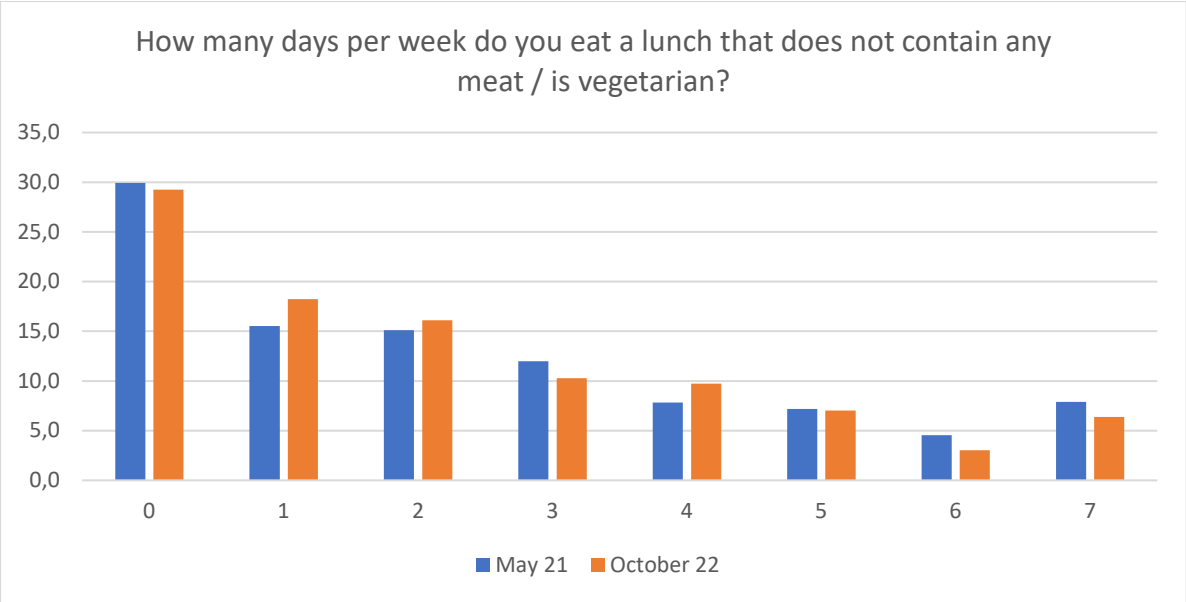

Legumes
60,0
50,0
40,0
30,0
20,0
10,0
0,0
12,2
9,5
17,3
19,4
22,8
24,4
28,6
28,5
14,8
14,1
2,5
3,2
1,8
1,0
never
less than once a month
1-3 times a month
1-3 times a week
4-6 times a week
once a day
2 or more times per day
May 21
October 22

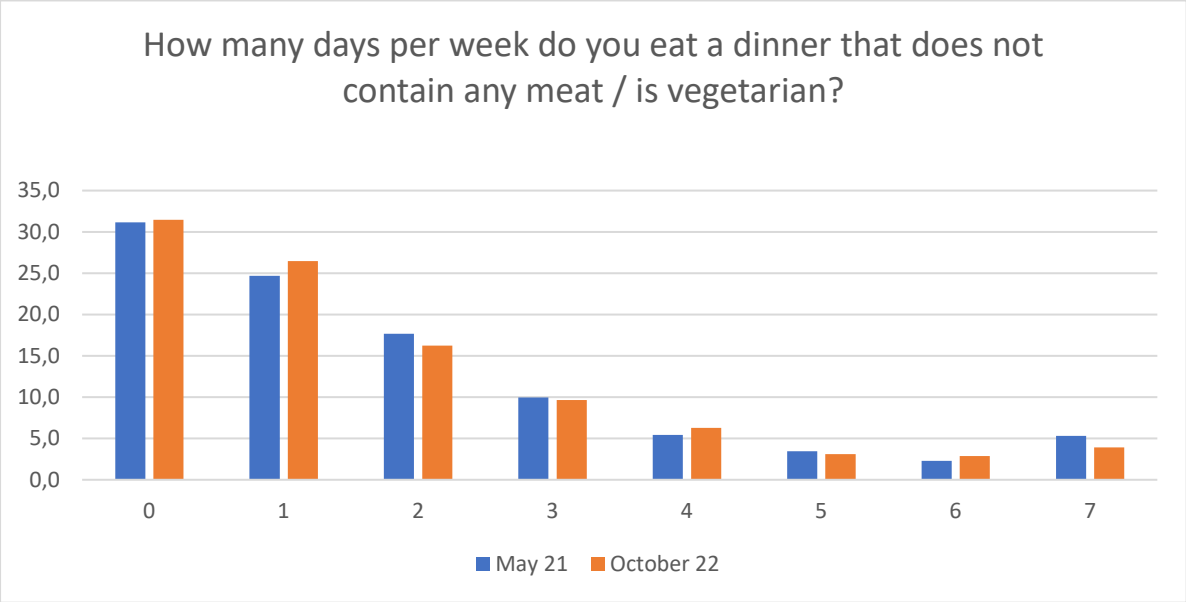
Frequency of meat-free lunch or dinner

Respondents were asked how many days per week they consume a lunch respectively dinner that does not contain meat / is vegetarian (see the share of answers below).

Exploring these further, it appears that circa 30% state that this occurs on no day of the week, for both lunch and dinner. Those who report to only eat vegetarian once a week is between 15-20% for lunch but 25% or more for dinner.

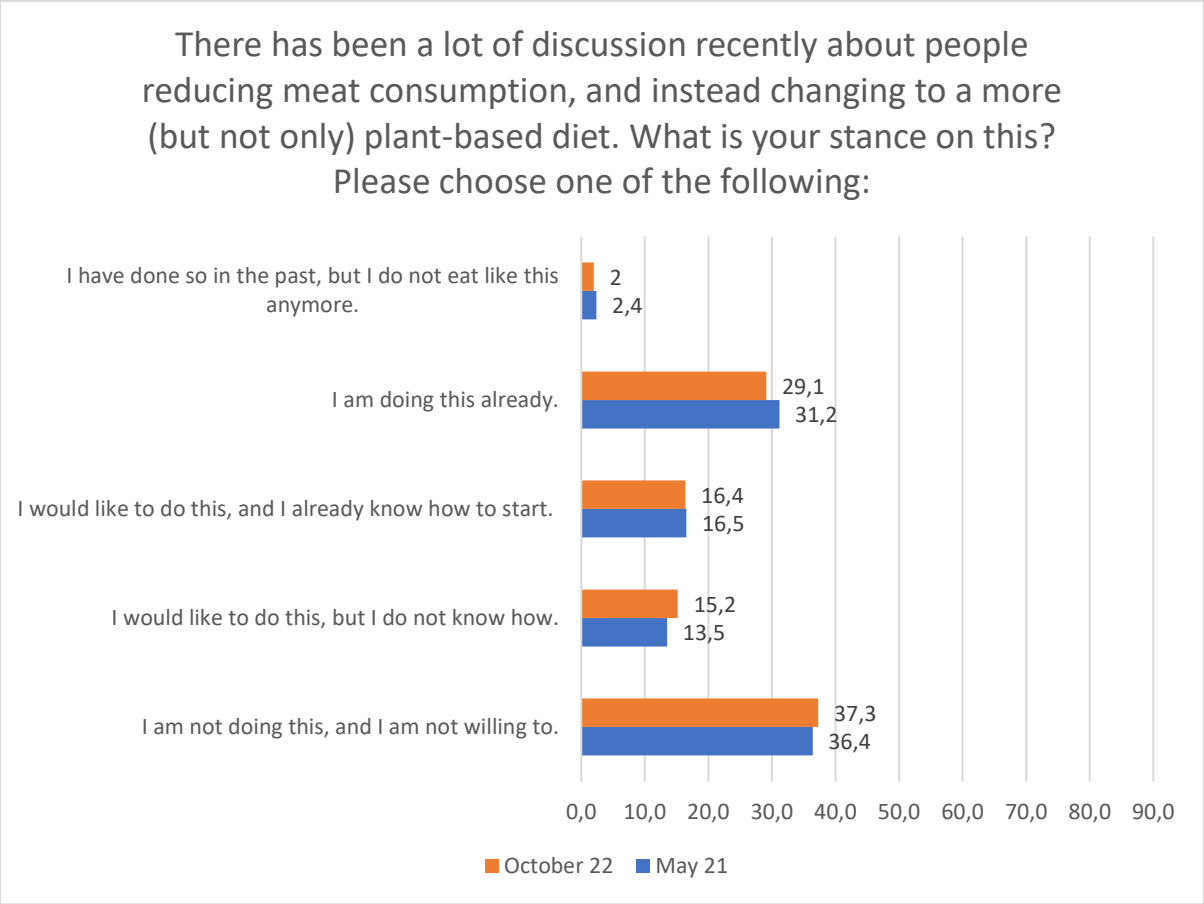
Calculating the share of respondents who report to eat vegetarian for lunch respectively dinner on two or more days we week we can see the following: In May 2021 54,5% report that eat a vegetarian lunch at least twice a week, and in October 2022 52,5% report that they eat a vegetarian lunch at least twice per week. For dinner, the percentage of people who state to eat a vegetarian meal in the evening at least twice a week is 44,1% for May 2021 and 42,1% for October 2022. In both cases it emerges that there is a slight decrease of 2% between the 2021 and the 2022 data collection.

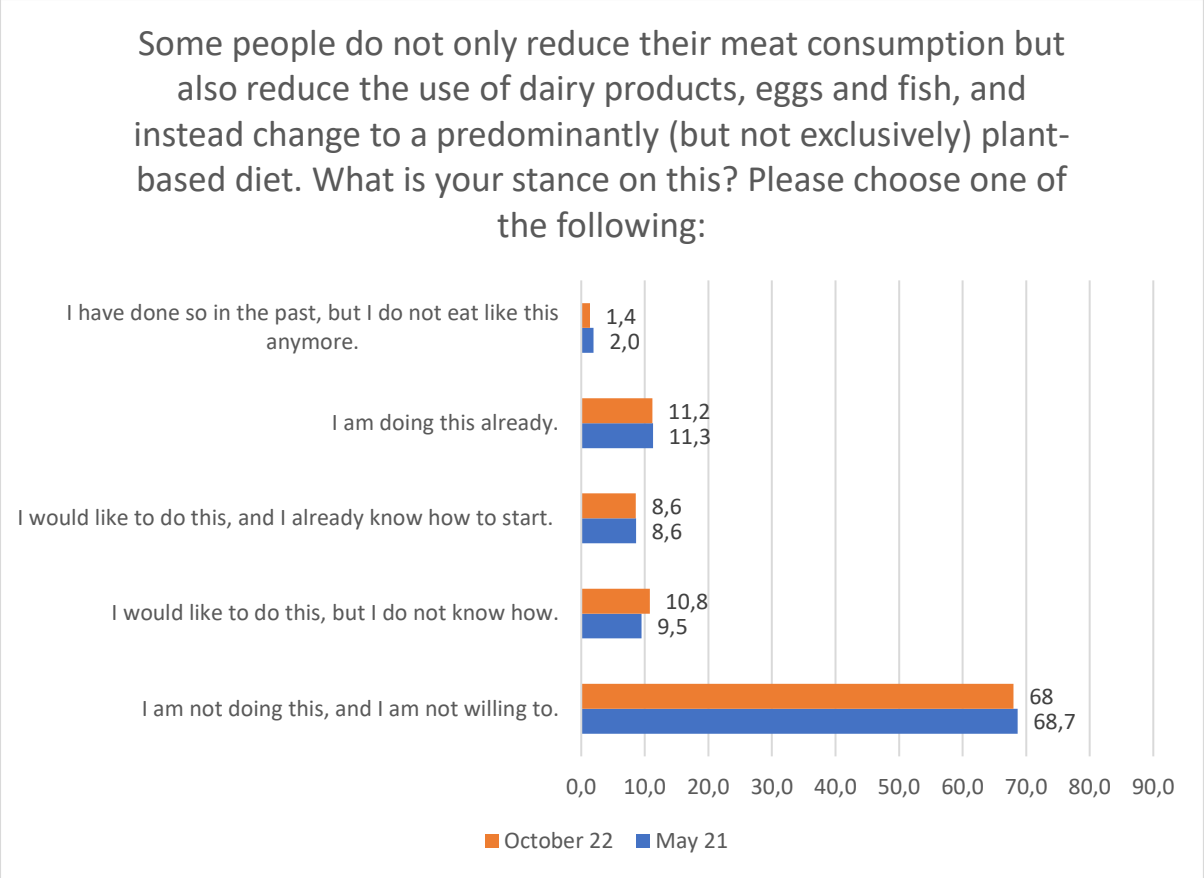




Status of dietary change

Respondents were asked about their status of change in relation to meat reduction, more plant-based eating, or exclusively plant-based eating. As expected, for each question there is an increasingly larger group not willing to change to such a diet. Circa 30% state that they already have reduced meat consumption, and circa 30% more would like to reduce their meat consumption further, and either know/do not know yet how to start. Around 11% state that they already eat a predominantly plant-based diet, and circa 18% can imagine changing their diet in this way, and either know/do not know yet how to start.

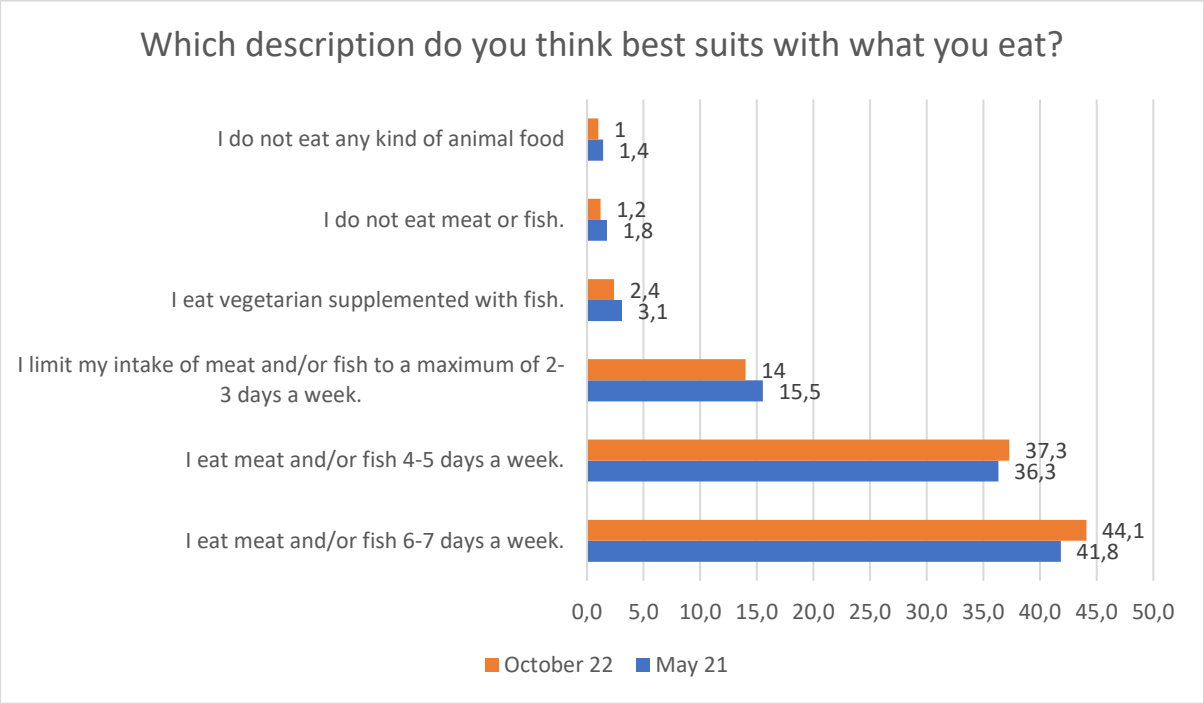


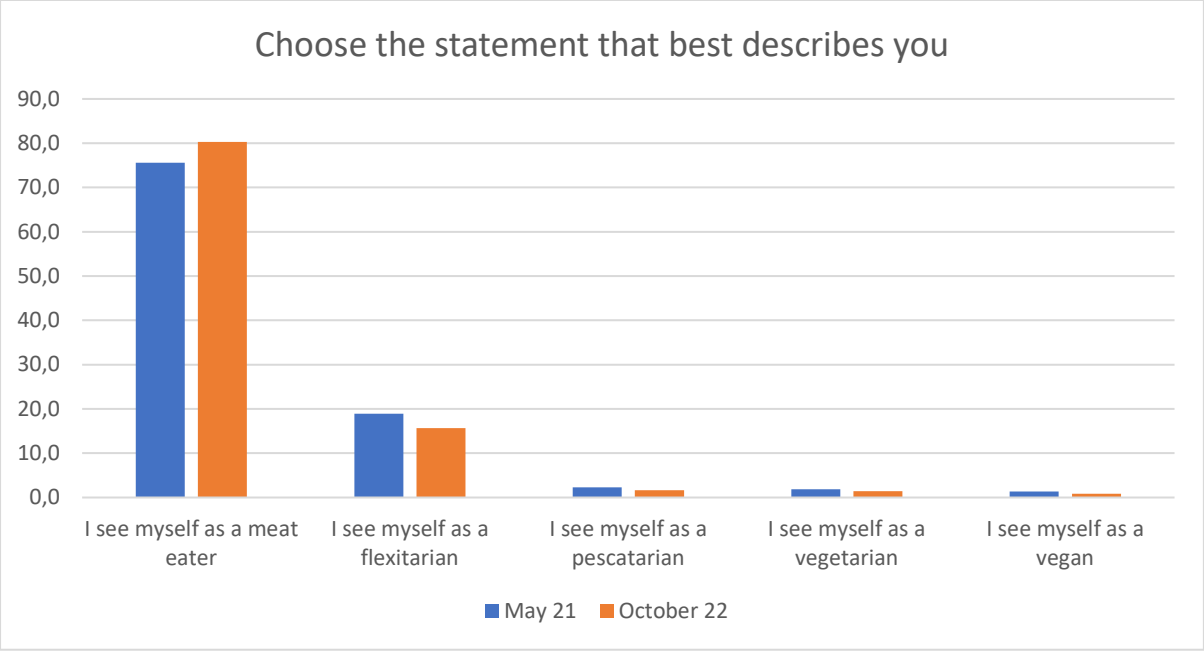

Some people do not only reduce their meat consumption but also reduce the use of dairy products, eggs and fish, and instead change to a predominantly (but not exclusively) plant-based diet. What is your stance on this? Please choose one of the following:
I have done so in the past, but I do not eat like this anymore.
1,4
2,0
I am doing this already.
11,2
11,3
I would like to do this, and I already know how to start.
8,6
8,6
I would like to do this, but I do not know how.
10,8
9,5
I am not doing this, and I am not willing to.
68
68,7
0,0 10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 90,0
October 22
May 21

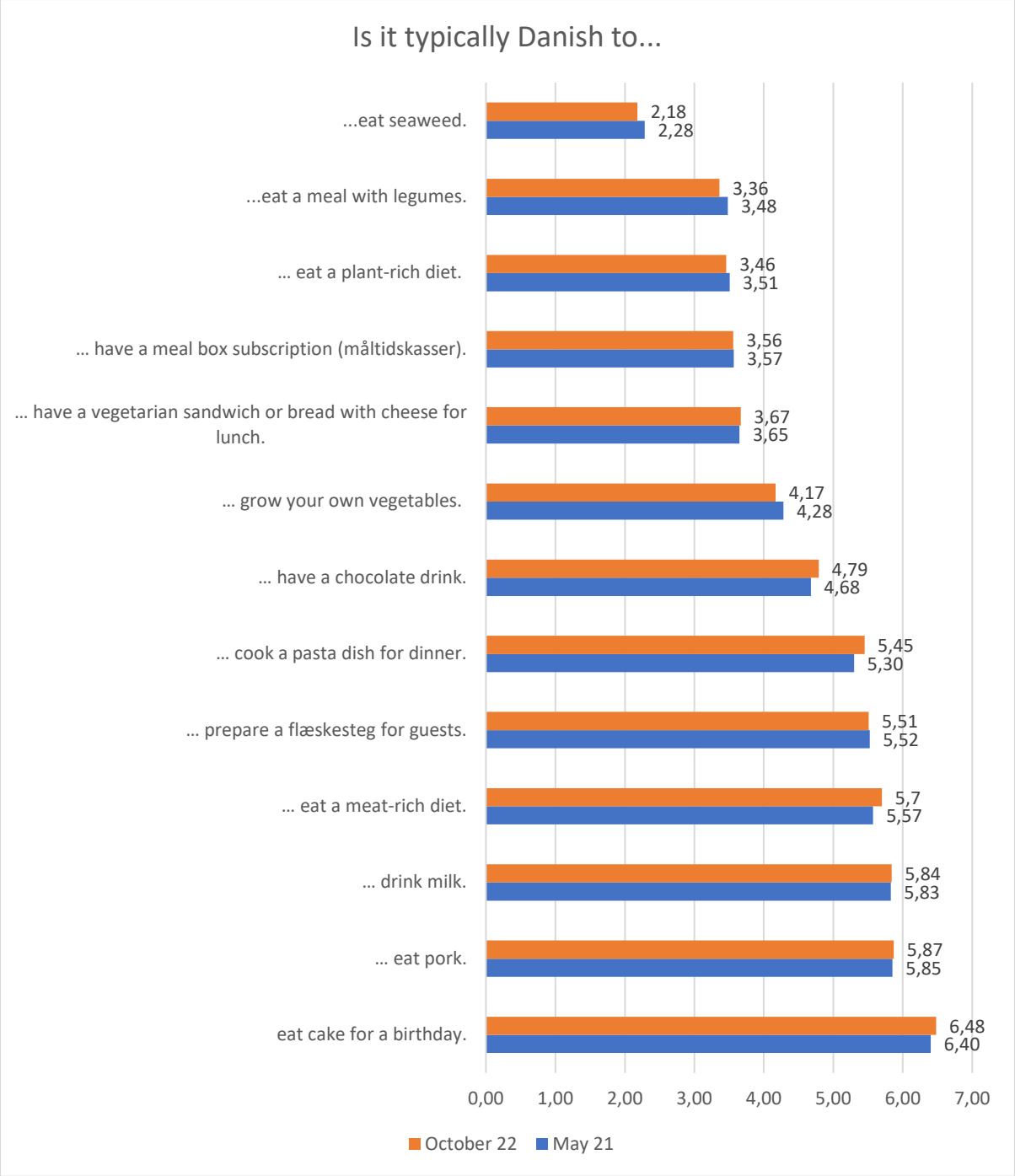
Some people eat an exclusively plant-based diet. What is your stance on this? Please choose one of the following:
I have done so in the past, but I do not eat like this anymore.
2,3
3,2
I am doing this already.
3,1
2,9
I would like to do this, and I already know how to start.
4,6
6,8
I would like to do this, but I do not know how.
6,5
6,0
I am not doing this, and I am not willing to.
83,5
81,1
0,0 10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 90,0
October 22
May 21

Diet type and dietary identity

Respondents were first asked about their diet type and the frequency of meat in this, and then about which self-description best describes them. Circa 75% respectively 80% self-ascribe as a 'meat-eater'. Circa 5% describe their diet as vegan or vegetarian, while circa 15% choose a diet type that is low in meat consumption.





Food in Danish culture

Respondents were asked to assess the role of a number of foods or food for certain occasions in terms of how 'typically Danish this is' on a 7-point agree/disagree scale.