smart protein

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What consumers want: a survey on European consumer attitudes towards plant-based foods

with a focus on flexitarians

November 2021

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Imprint

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Smart Protein Project
Smart Protein is a €10-million, EU-funded project that seeks to develop a new generation of foods that are cost effective, resource efficient, and nutritious. Alternative protein sources such as legumes and side streams from beer and pasta production are used to generate plant-based ingredients and plant-based meat, seafood, dairy products, and baked goods.

ProVeg International
ProVeg International is a food awareness organisation working to transform the global food system by replacing animal-based products with plant-based and cultured alternatives.

ProVeg works with decision-making bodies, companies, investors, the media, and the general public to help the world transition to a society and economy that are less reliant on animal agriculture and more sustainable for all humans, animals, and our planet.

ProVeg has offices in nine countries across four continents and is active around the world. ProVeg has permanent observer status with the UNFCCC, special consultative status with ECOSOC, is accredited for UNEA, and has received the United Nations' Momentum for Change Award.

University of Copenhagen
The University of Copenhagen was founded in 1479 by the Danish king Christian I, and today has 37,500 students and 9,000 employees – of whom some 5,000 are researchers – and revenues of DKK 9.1 billion. Nine Nobel Prizes have been awarded to researchers at the University. The Department of Food Science (UCPH FOOD) carries out research and education that help solving the global challenges in relation to food with focus on the development of new foods and ways of producing them. Using sophisticated equipment, Future Consumer Lab (FCL) investigates the determinants of consumer transition towards greener food choices, sensory preferences, and evaluates the effectiveness of behavioural interventions supporting this transition.

Ghent University
Ghent University is a top-100 university, founded in 1817, and one of the major universities in Belgium, with more than 47,000 students and 15,000 employees. The 11 faculties offer more than 200 courses and conduct in-depth research within a wide range of scientific domains. Its credo is 'Dare to Think', challenging everyone to question conventional views and to dare to take a nuanced stand. It is a pluralistic university and open to all, regardless of ideological, political, cultural, or social background. Ghent University Global Campus is also the first European university in Songdo, South Korea.

Innova Market Insights
Innova Market Insights is a global knowledge leader in the food and beverage industry. Our market intelligence platforms provide customers with up-to-the-minute insights covering areas such as new product launches, market sizing, consumer feedback, surveys and trend reports to help them formulate the right strategic decisions to grow their business. Our tools enable developers to create relevant new products, researchers to find the data they need and retailers to gain insights on current and future trends. Our customers, among the top 500 FMCG companies in the world, value us for our local and regional market insights that guide them in their decision-making. With some of the most experienced analysts located around the world, Innova is perfectly positioned to interpret the latest food and beverage developments and place them in both a local and global context.

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Clearly, there is a long-term consumer trend of including vegan protein in the regular diet. The ProVeg report on European consumer attitudes towards plant-based foods illustrates this development in a remarkable way. One thing we do know for sure: neither meat products alone nor currently available alternative-protein options are going to be able to sustainably meet the protein requirements of future generations on their own. A holistic protein-platform strategy is needed, which includes ecologically optimized meat production as well as a visionary approach in the field of alternative proteins. Therefore our 'alternative proteins' business unit was founded in 2018 and we are working constantly to offer the best and most sustainable protein mix for the future.

MARCUS KEITZER

Board Member, PHW Group

The survey underlines one of the key trends of our time and confirms us in defining plant-based foods as a relevant topic for ALDI Nord. As a discount retailer in daily contact with millions of people we do not only have the opportunity but also consider it our responsibility to contribute to a balanced diet. Our aim is to make plant-based food easily available and affordable for everyone. We are committed to our customers' wishes and thus constantly expanding and optimising our plant-based product range. By labeling relevant food products with the V-Label we make shopping as easy as possible for our customers.

CHRISTOPH GEORGIUS

Business Unit Director Corporate Responsibility and Quality Assurance International, ALDI Nord

European consumers' appetite for plant-based foods is here to stay, as shown by the number of Europeans who say they want to eat more plant-based alternatives to dairy and meat in the future. The regulatory framework for these products, for instance in terms of labelling, must not lag behind and should help guide consumers towards these products.

VINCIANE PATELOU

Director, ENSA-European Plant-based Foods Association

The survey suggests tremendous potential for plant-based foods in Europe and gives a green light to all relevant players in the field to develop more and better products. Consumer demand for alternative proteins is growing at a remarkable rate, with no end in sight.

JASMIJN DE BOO

Vice President, ProVeg International

Foreword

We at Rügenwalder Mühle believe in the power of contrasts. We also believe in the fact that different eating styles, tastes, or even attitudes to food and nutrition are compatible with each other – the world of our consumers is not black and white either. Our task therefore: to promote sustainable nutrition and engage personal choices in such a way that everyone comes to the same table to enter an honest discourse.

We prove that artisanal tradition and innovative spirit can go hand in hand. As modern first movers, we are driving new developments from plant-based proteins. Our product range is the logical consequence of people's changing needs – they are paying more attention to their health, the climate, and animal welfare. That's why we strongly believe that the future is full of alternatives to the status quo.

We want to provide our children and grandchildren a good life in an intact environment and in a society worth living in. We are working consistently to become more sustainable at a small and large scale. This applies to our products and their production, but also to the raw materials we use.

With our products, we want to make a contribution to build bridges on the subject of nutrition and bring people back together around the same table. We bring sustainability and conscious nutrition to the center of society. However, change does not happen overnight: It is nevertheless worthwhile to embark on the journey together, with courage. This is what our brand stands for: the red mill.

The world around us is changing rapidly. Major challenges can only be overcome with collaboration and cooperation. That's why an appreciative exchange with all stakeholders is particularly close to our hearts. And so, we are very pleased that the new survey on European consumer attitudes towards plant-based foods has created another fact-based foundation for this important exchange.

MICHAEL HÄHNEL
CEO, Rügenwalder Mühle

Executive summary

In spring 2021, for the first time in Europe, retail scanning data from the plant-based sector was published by Nielsen MarketTrack, revealing the tremendous growth of plant-based food in the region. As the plant-based food sector continues its relentless rise, it is attracting a rich diversity of actors, from multinationals such as Nestlé, Starbucks, and Coca-Cola, to a slate of startups from around the world.[1]

More than ever, consumers are demanding alternative proteins that are as delicious, affordable, and accessible as conventional products. In June 2021, ProVeg conducted a study, in partnership with Innova Market Insights, as part of the Smart Protein project. More than 7,500 people in 10 European countries (Austria, Denmark, France, Germany, Italy, Netherlands, Poland, Romania, Spain, and the UK) were asked about their attitudes towards the consumption of plant-based foods, their trust in relation to such products, their current consumption habits, the key drivers of their food choices, and various other relevant topics in the field of alternative proteins.

Plant-based eaters represented 7% of respondents, while 30% of respondents followed a flexitarian diet. Notably, just under 40% of European consumers intended consuming less meat products in the near future, while almost half of those sampled (46%) had already reduced their meat consumption, and around 30% stated that they intended reducing their dairy consumption. The share of flexitarians that reduced their meat consumption heavily was even higher, at 73%. Conversely, almost 30% of Europeans said that they plan to consume substantially more plant-based dairy and meat products.

In terms of perceptions of plant-based products, nearly half of flexitarians (45%) think that there are not enough plant-based choices in supermarkets, restaurants, etc., while 50% of them perceive plant-based options as being too expensive – and would like more information about these products. Nearly two-thirds of flexitarians trust that foods based on plant protein are safe (61%) and accurately labelled (60%). Flexitarians trust plant-based proteins the most, followed by fungi and algae-based proteins.

[1] If you want to stay informed about the latest developments in the plant-based food sector, please sign up up for ProVeg's Plant-based Sector News Highlights. More information can be found here: https://proveg.com/blog/from-nestle-to-coca-cola-the-plant-based-and-cultured-food-sectors-continue-to-rise/

Our findings on flexitarians also revealed that potatoes and rice were the preferred ingredients for plant-based food, followed by lentils, almonds, and chickpeas. Plant-based poultry, beef, salmon, and tuna are the plant-based meat/fish products that they would most like to see in supermarkets, while, in terms of plant-based cheese, flexitarians would especially like to see plant-based mozzarella and sliced cheese available for purchase. We found that taste and health are the top drivers in terms of flexitarian purchases of plant-based foods, followed by freshness, no additives, and low price points.

When asked about which retail channels they would buy their groceries from in the future, 43% of consumers said that they would purchase their food most frequently from discount stores, and nearly a quarter of respondents indicated they would do so at specialty food stores such as butcheries and bakeries. These findings highlight the importance of discount stores (as well as specialty food stores) in the European market, after supermarkets.

Finally, our findings show that nearly 60% of Europeans use search engines such as Google when gathering information about plant-based food, while nearly 50% of them visit health and nutrition-society websites when learning about these products.

These numbers suggest tremendous potential for plant-based foods in Europe and give a green light to all relevant players in the field to develop more and better products. Consumer demand for alternative proteins is growing at a remarkable rate, with no end in sight.

1. Introduction

Over the past few years, plant-based foods have transformed from a niche product into a mainstream phenomenon. The soaring interest in plant-based food, particularly meat and dairy alternatives, has multiple underlying factors and represents a fundamental shift in global food consumption in the direction of healthier and more sustainable eating.

From improving health to fighting climate change to reducing future risks of pandemics, there are tremendous benefits to a plant-based diet – for both human beings and the planet. What we see today is just the beginning of the shift in protein consumption – as more and more people become vegetarian or vegan, flexitarianism is also becoming mainstream.

The appetite for alternative proteins and plant-based food products is growing, with animal-free protein increasingly viewed as the healthier choice. However, the plant-based sector and plant-based products face three major obstacles: taste, texture, and price. As such, plant-based foods must effectively imitate the familiar flavours of their conventional counterparts, whether meat, seafood, dairy, or eggs.

Plant-based alternatives should also look and feel the same as their animal-based equivalents. And, finally, price is crucial – plant-based foods are often more expensive than animal-based products despite the fact they are often far cheaper to produce. At the moment, the prices – and costs – of plant-based options are still too high.

The good news is that change is happening. Based on a recent analysis conducted by Blue Horizon and BCG, alternative proteins will achieve cost parity, as well as realistic tastes and textures, between the early 2020s and the early 2030s (BCG and Blue Horizon, 2021). This should fuel widespread adoption, particularly given the increased awareness of the environmental and health benefits of a plant-based diet.

Flexitarians are driving the plant-based boom, since they are looking to diversify their diets with more plant-based options.

As this previously niche market becomes increasingly mainstream, the wider food and beverage industry needs to act on the opportunities presented. But important questions remain in terms of meeting consumers' requirements. The purpose of this research is to understand the general population's perceptions of, and attitudes towards, plant-based food in Europe. The study puts a special focus on flexitarians since they are the most important target group in terms of plant-based food, and about 90% of plant-based users are neither vegetarian nor vegan (The NPD Group, 2019). According to recent research from Euromonitor, flexitarians accounted for 42% of consumers globally in 2020 (Euromonitor, 2020).

Specifically, this study aims to identify the extent to which EU consumers are ready to make the shift towards a more plant-based diet, and to determine their current habits, the key drivers of their food choices, and levels of consumer trust towards plant-based foods. Additionally, the study also provides insights on Europeans' future shopping locations and their current online communication behaviour, with a focus on plant-based foods.[2]

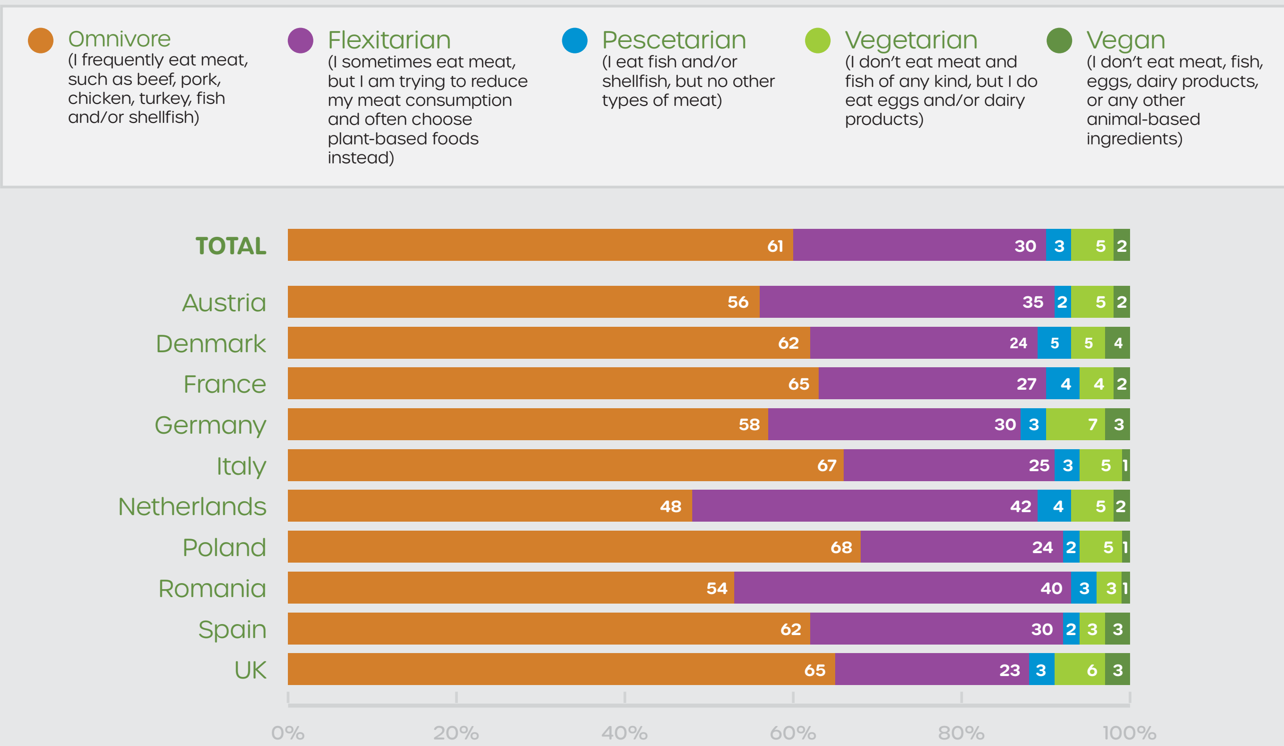
[2] Many more country-specific insights can be found in the country reports. This overall report provides details of the most relevant and significant results and also puts the spotlight on flexitarians.

2. About the survey

An online survey was conducted in 10 European countries in June 2021: Austria, Denmark, France, Germany, Italy, Netherlands, Poland, Romania, Spain, and the UK. The survey was completed by respondents who were recruited by Innova Market Insights, with a total of 7,590 participants over the age of 18 participating, and around 750 respondents per country.[3] We collected data on several demographic categories, including age, gender, and educational background. We set quotas for age and gender for all 10 countries in order to ensure that the samples were representative of the general population and equally distributed with respect to these variables.

Additionally, in order to assess the habits and attitudes of those consumers who are making the actual purchase decisions, we asked people to fill out the questionnaire only if they were fully or partly responsible for the household's grocery shopping. Participants were nationally representative in terms of their diet types. The sample consisted predominantly of people on a mixed diet, but also included flexitarians, pescatarians, vegetarians, and vegans (see chart 1).

CHART 1: DIETARY LIFESTYLE BY COUNTRY



Question: Which category best describes your current dietary lifestyle?

[3] For details, please see country reports.

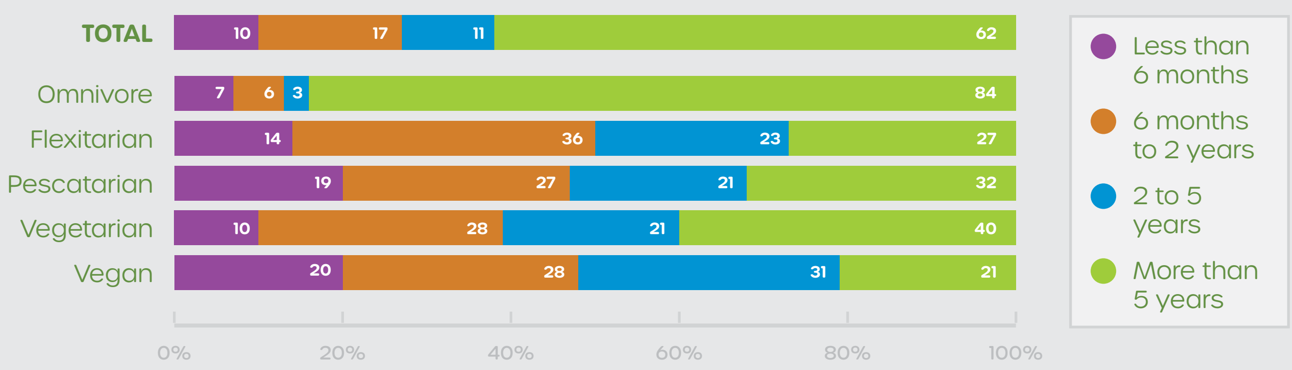
37% of Europeans in our sample are flexitarian, vegetarian, or vegan, indicating that reduced consumption of animal-based foods – and even cutting these products out of one's diet – is the new normal in Europe.

A total of 2,300 participants stated that they follow a flexitarian diet, which represents 30% of the population in Europe. Plant-based eaters (vegans and vegetarians) constituted 7% of the European consumers surveyed.

The Netherlands and Romania had the most flexitarians, at 42% and 40% respectively, while Germany had the most people following a plant-based diet (10% of the population), followed by the UK with 9% of people identifying as vegans or vegetarians.

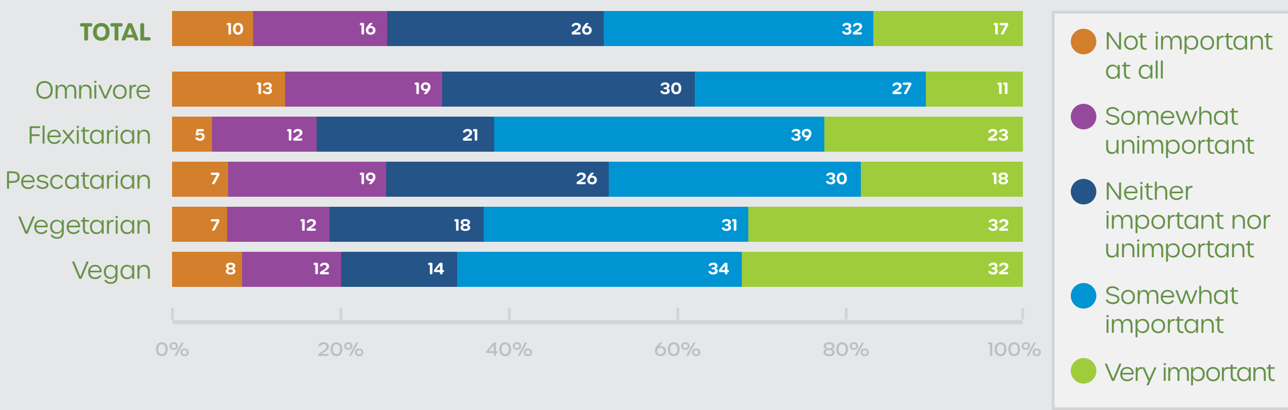
When asked how long they had been following their current dietary lifestyle, more than 80% of people who follow a mixed diet had been doing so for more than five years, and 40% of vegetarians had been vegetarian for at least five years. Interestingly, in the pescetarian, vegan, and flexitarian groups, all four answer options were chosen roughly equally (less than 6 months, 6 months to 2 years, 2 to 5 years, more than 5 years), as can be seen in chart 2.

CHART 2: LENGTH OF DIETARY LIFESTYLE BY DIET TYPE



Question: How long have you been following your current dietary lifestyle?

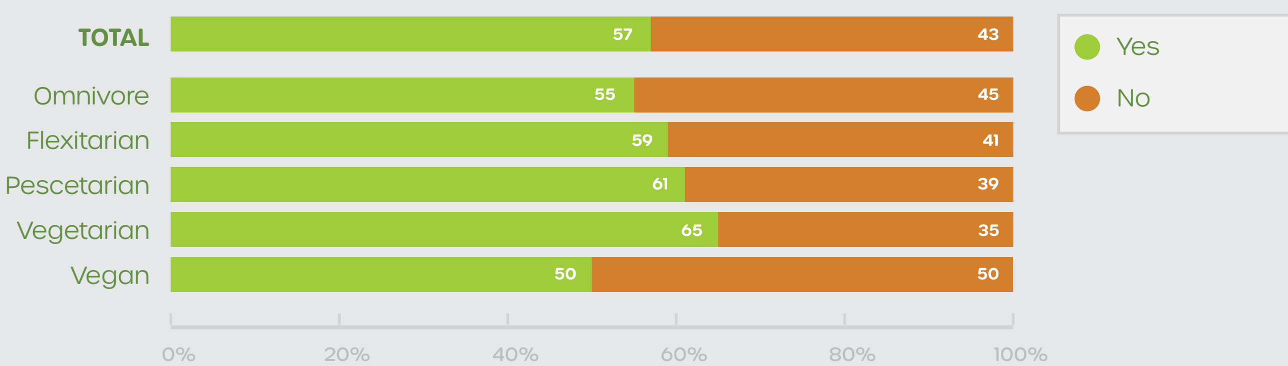
CHART 3: IMPORTANCE OF ORGANIC LABELLING IN TERMS OF PLANT-BASED FOOD BY DIET TYPE



Question: How important is an organic label for you when it comes to plant-based food products (e.g. meat/dairy alternatives)?

In terms of organic labelling, flexitarians, vegans, and vegetarians all consider this to be an important factor when it comes to plant-based food. As chart 3 shows, more than 60% of people in these groups stated that an organic label is crucial with regards to plant-based food products. 62% of flexitarians said that an organic label is somewhat or very important, while, for vegetarians and vegans, the figures were 63% and 66% respectively. In contrast, opinions about the organic labelling of plant-based food differed in the omnivore and pescetarian groups, with around a quarter of them stating that an organic label is neither important nor unimportant.

CHART 4: PETS BY DIET TYPE

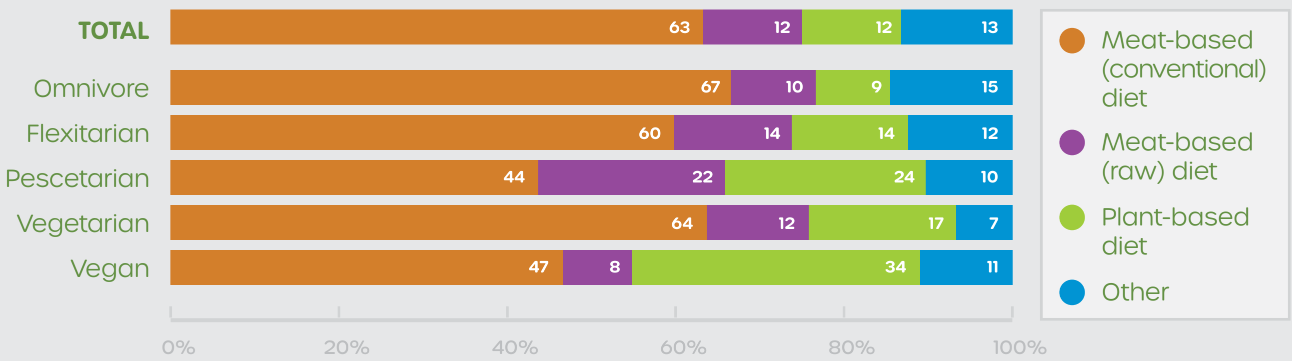


Question: Do you have an animal living with you?

We also wanted to find out more about the pet foods that respondents purchased (if they had pets). The majority of sample respondents (57%) had an animal living with them in their household (chart 4). Vegetarians are most likely to have a pet (65%), followed by pescetarians (61%) and flexitarians (59%).

Although most respondents in all dietary groups still feed their pets with meat, vegans are most likely to feed their pets a plant-based diet. More than a third of them (34%) choose animal-free diets for their pets (see chart 5).

CHART 5: PET FOODS BY DIET TYPE



Question: If yes: what do you feed them?

Looking at the demographics of respondents, the distribution of men and women was roughly equal for all countries. Age groups were also more-or-less equally distributed in all countries, with 20% of respondents being between the age of 18 and 24, 20% between 25 and 34, 20% between 35 and 44, 20% between 45 and 54, and 20% between 55 and 70. The average age of

CHART 6: HIGHEST LEVEL OF EDUCATION (TOTAL SAMPLE)

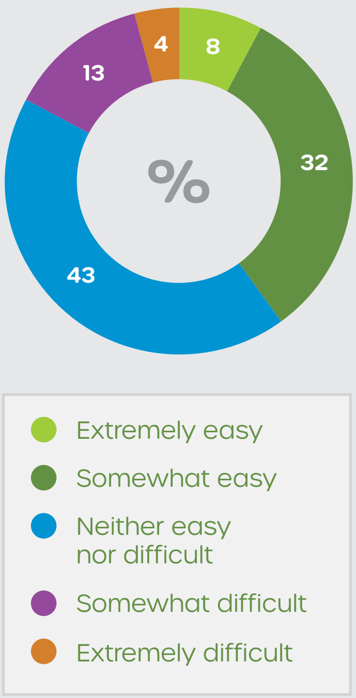
Question: What is your highest level of education that you have successfully completed?

respondents for all the countries surveyed was 40. In terms of education, three-quarters of our respondents have completed vocational training (26%), secondary school (25%), or a bachelor's degree (23%), as shown in chart 6.

Over half of the respondents (56% or 4,235 people) lived in an urban area and 20% in a rural region (1,489 people), while the remaining respondents described the area where they live as "suburban" (24% or 1,854 people). We also wanted to find out about respondents' financial and economic status, and asked them to describe their own financial situation on a 5-point scale, ranging from "extremely easy" to "extremely difficult". Most consumers (43% or 3,275 people) stated that their financial situation was "neither easy nor difficult", followed by 32% of respondents describing it as "somewhat easy" (2,410 people) and 13% as "somewhat difficult" (chart 7).

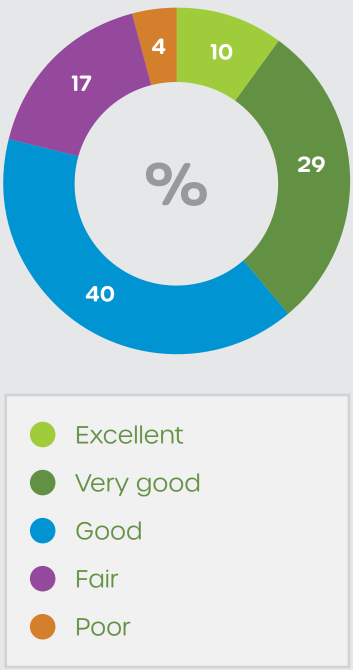
Health is one of the top drivers for purchasing plant-based foods and shifting in the direction of a plant-based diet. As such, we also included a question on health in our questionnaire. 10% of respondents described their health status as "excellent", while 29% described it as "very good" and 40% as "good". Only 17% of Europeans experienced their health situation as "fair" and only 4% as "poor" (chart 8).

CHART 7: FINANCIAL SITUATION (TOTAL SAMPLE)



Question: How would you describe your own financial situation?

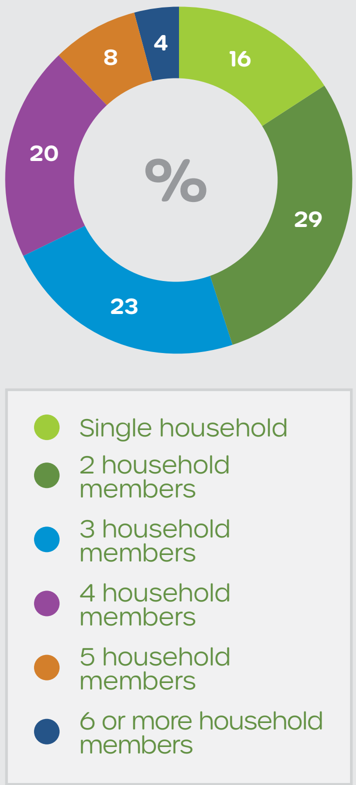
CHART 8: HEALTH STATUS (TOTAL SAMPLE)



Question: In general, how is your health?

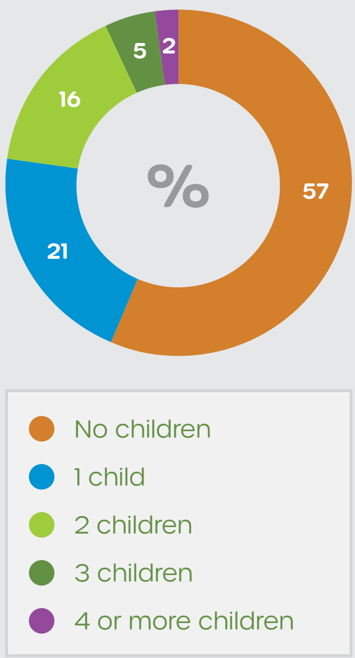
In terms of the makeup of the household, 16% of sample respondents lived in a single household, 29% in a two-person household, 23% in a three-person household, 20% in a four-person household, 8% in a five-person household, and 4% in a household with at least six members (see chart 9). The majority of respondents (57%) stated that no children lived in their household (chart 10).

CHART 9: NUMBER OF HOUSEHOLD MEMBERS (TOTAL SAMPLE)



Question: How many people live in your household, including yourself?

CHART 10: NUMBER OF CHILDREN (TOTAL SAMPLE)



Question: How many children live in your household?

3. Results

3.1 Current consumption situation and outlook

This section provides an overview of current consumption patterns of animal- and plant-based foods in Europe. Additionally, it provides predictions as to what foods European consumers will eat in the near future in order to provide clear recommendations to the food industry.

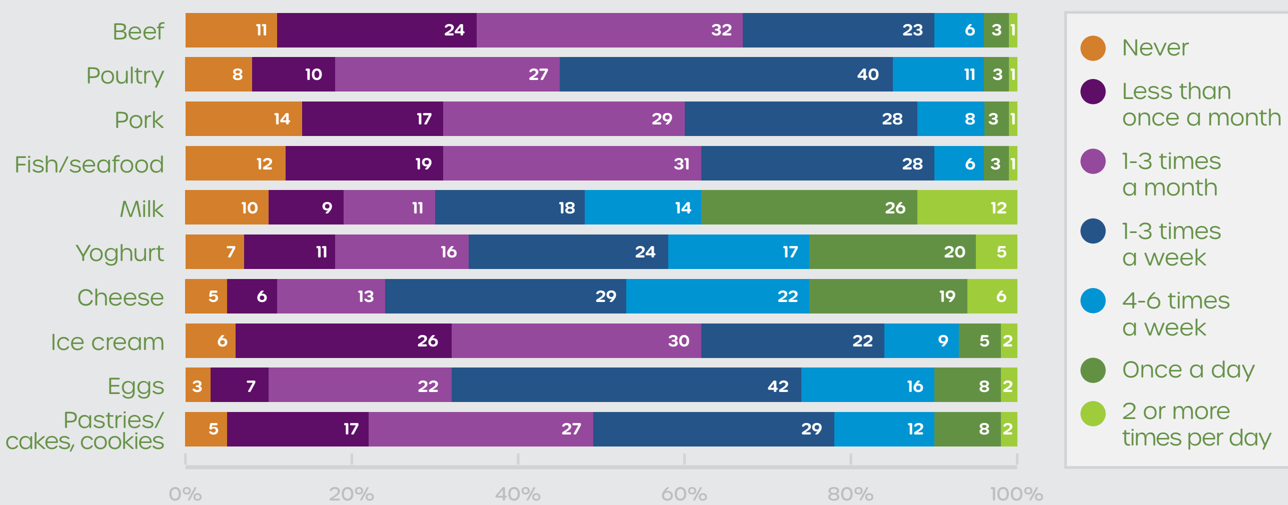
3.1.1 Reducing the consumption of animal-based foods is becoming the new normal

What are the current consumption patterns in terms of animal-based foods? And what kind of animal-based products do Europeans eat the most? In order to find out the answers to these questions, we asked respondents how frequently they had consumed several animal-based foods in the previous 12 months. From chart 11, we can see that cheese, eggs, milk, and yoghurt are consumed by European consumers the most often, at least once a week. Cheese is the leading animal-based food product, with three quarters of respondents consuming it "1-3 times a week", "4-6 times a week", "once a day", or "2 or more times per day". In terms of meat, poultry is the category that is consumed the most.

Reducing meat consumption goes mainstream in Europe.

In response to the question "Compared to a year ago, how much meat (e.g. beef, pork, chicken) are you eating now?", 3,173 of European respondents (omnivores and flexitarians) out of

CHART 11: CONSUMPTION FREQUENCY OF ANIMAL-BASED FOODS (TOTAL SAMPLE)



	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
Beef	11	24	32	23	6	3	1
Poultry	8	10	27	40	11	3	1
Pork	14	17	29	28	8	3	1
Fish/seafood	12	19	31	28	6	3	1
Milk	10	9	11	18	14	26	12
Yoghurt	7	11	16	24	17	20	5
Cheese	5	6	13	29	22	19	6
Ice cream	6	26	30	22	9	5	2
Eggs	3	7	22	42	16	8	2
Pastries/ cakes, cookies	5	17	27	29	12	8	2

Question: Which statement best describes how frequently you have consumed the following foods in the last 12 months?

6,882 (46%) answered that they would eat less meat, whereas only 6% stated that they intend to consume more meat. This underlines the fundamental shift in food consumption in the direction of a healthier and more sustainable diet, and clearly shows that in Europe it is becoming the new normal to eat less animal-based food.

When comparing respondents' intention to increase or reduce their meat and dairy consumption in the near future, it becomes obvious that Europeans will continue to reduce their meat consumption – nearly 40% stated that they intend consuming less meat in the near future, while a remarkable 46% have already reduced their meat consumption dramatically.

Similarly, Europeans also plan to reduce their dairy products consumption, although the percentage is slightly lower here, at around 30%. This indicates that consumers seem to understand the connection between their meat consumption and its influence on topics such as the environment, animal welfare, food security, and health. However, the connection between their dairy consumption and its consequences on climate, animals, health etc. is not as obvious to them. One could also argue that this is in line with the numbers of vegetarians and vegans in each country, since there are far more vegetarians than vegans in the countries surveyed. It is well-known that most vegans were previously vegetarian, suggesting that people who start to engage increasingly with the topic of diet and its effects on health, climate, and animal welfare have an increased probability of shifting in a more plant-based direction and perhaps becoming vegan at some point.

3.1.2 European consumers are including more and more plant-based foods in their diets

We also wanted to find out more about respondents' plant-based food consumption during the last year. That is, how frequently did Europeans consume plant-based products such as milk alternatives or meat alternatives. This also helps to identify gaps in the market and thus provide a clear way forward. The results show that Europeans frequently consume plant-based milk, with 28% of respondents stating "1-3 times a week", "4-6 times a week", "once a day", or "2 or more times per day" (chart 12). Plant-based meat prod-

ACTUAL MEAT CONSUMPTION VS A YEAR AGO

A lot less	**14%**
Slightly less	**32%**
No change	48%
Slightly more	5%
A lot more	1%

Question: Compared to a year ago, how much meat (e.g. beef, pork, chicken) are you eating now?

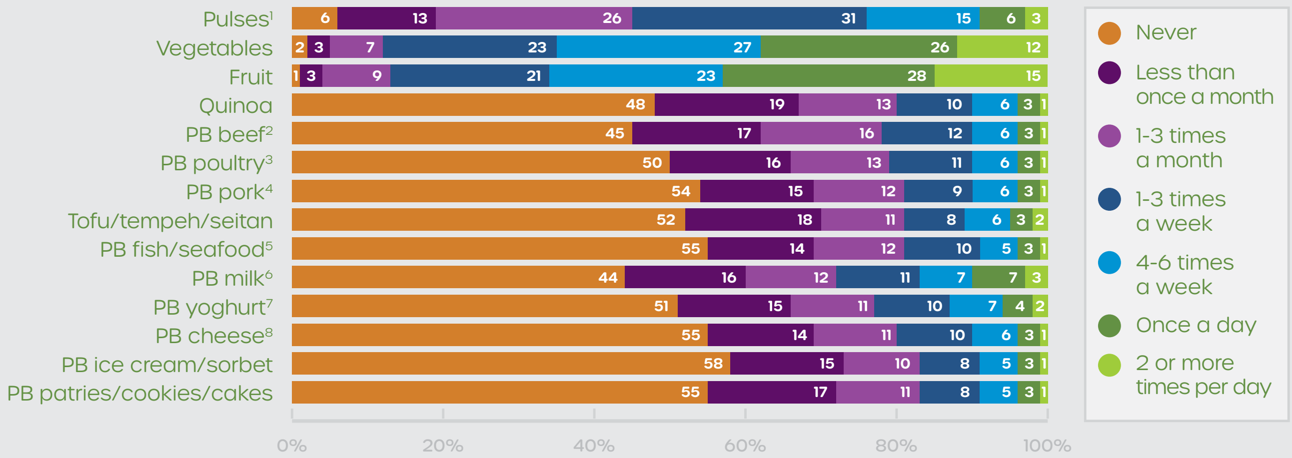
FUTURE CONSUMPTION OF ANIMAL-BASED PRODUCTS

	Dairy products (e.g. milk, yoghurt, cheese)	Meat products (e.g. beef, pork, chicken)
I will consume less	**10%**	**11%**
I will consume a little less	**18%**	**28%**
I will consume about the same	64%	55%
I will consume a little more	6%	5%
I will consume more	2%	2%

Question: Do you intend increasing or reducing your consumption of the following food categories in the next 6 months?

All kinds of plant-based food products are still needed.

CHART 12: CONSUMPTION FREQUENCY OF PLANT-BASED FOODS (TOTAL SAMPLE)



Question: Which statement best describes how frequently you have consumed the following foods in the last 12 months?
Examples: 1: lentils, beans 2: PB* burger/mince 3: PB* chicken strips/chunks
4: PB* sausage/pulled pork 5: PB* fish sticks/fish burger/tuna 6: soya almond/oat/coconut/rice/pea milk
7: soya/almond/oat/coconut yoghurt 8: PB* cream cheese/cheese slices/grated cheese

ucts are also frequently consumed by respondents, with plant-based beef (e.g. plant-based burgers/mince) leading the way, 22% having consumed such products at least once a week in the previous 12 months. Plant-based yoghurt is also one of the most frequently consumed plant-based foods – 23% of respondents ate it once a week or more.

The results of the survey also revealed that Europeans plan to increase their consumption of plant-based foods, which is consistent with their stated intentions to reduce their consumption of animal-based foods. Almost 30% of respondents stated that they will consume more plant-based dairy products as well as more plant-based meat products.

This indicates that consumers in Europe intend eating more and more plant-based food products. This is in line with the tremendous growth rates of the European market (Smart Protein Project, 2021).

FUTURE CONSUMPTION OF PLANT-BASED PRODUCTS

	PB* Dairy products (e.g. soya/oat milk, coconut yoghurt)	**PB* Meat products** (e.g. plant-based burgers/ sausages)
I will consume less	11%	11%
I will consume a little less	11%	11%
I will consume about the same	52%	53%
I will consume a little more	**20%**	**19%**
I will consume more	**6%**	**6%**

Question: Do you intend increasing or reducing your consumption of the following plant-based food categories in the next 6 months?

*Plant-based

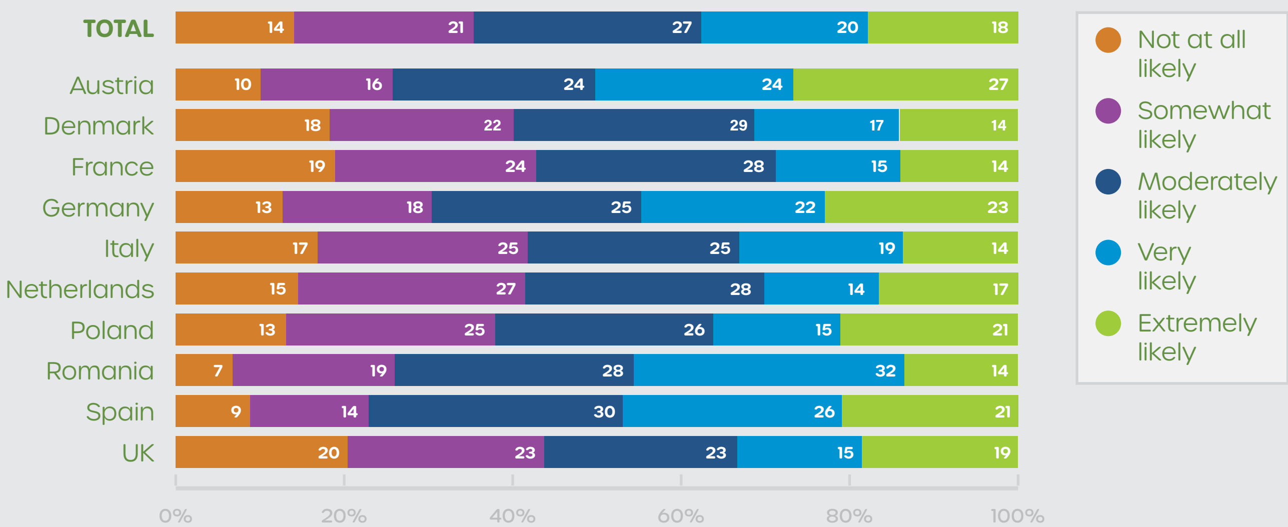
3.2 Readiness to consume plant-based foods: a country comparison, with a focus on plant-based meat, cheese, and baked goods

As we can see from the above results, as well as from several other studies, there is a strong demand for more and better plant-based meat products and cheese alternatives (e.g. Gebhardt, 2021; Kerry, 2019; Veganz, 2020). In 2020, ProVeg's European Consumer Survey on Plant-based Foods revealed that cheese alternatives and meat alternatives that mimic meat are some of the products that consumers would most like to see more of in supermarkets (ProVeg *a*, 2020). Furthermore, baked goods are a lucrative business opportunity, since it is relatively easy to replace animal-based ingredients such as eggs or butter with plant-based alternatives. Companies could use this as a means of reaching increased numbers of consumers and thus increasing their sales. This section takes a more in-depth look at these plant-based food categories and compares country-specific findings.

Over the past few years, plant-based meat in Europe has shown tremendous growth rates. Between October 2019 and September 2020, plant-based meat generated 1.4 billion euros in sales (including both vegan and vegetarian options), growing at a remarkable rate of 37%, up from 23% in the previous period (Smart Protein Project, 2021).

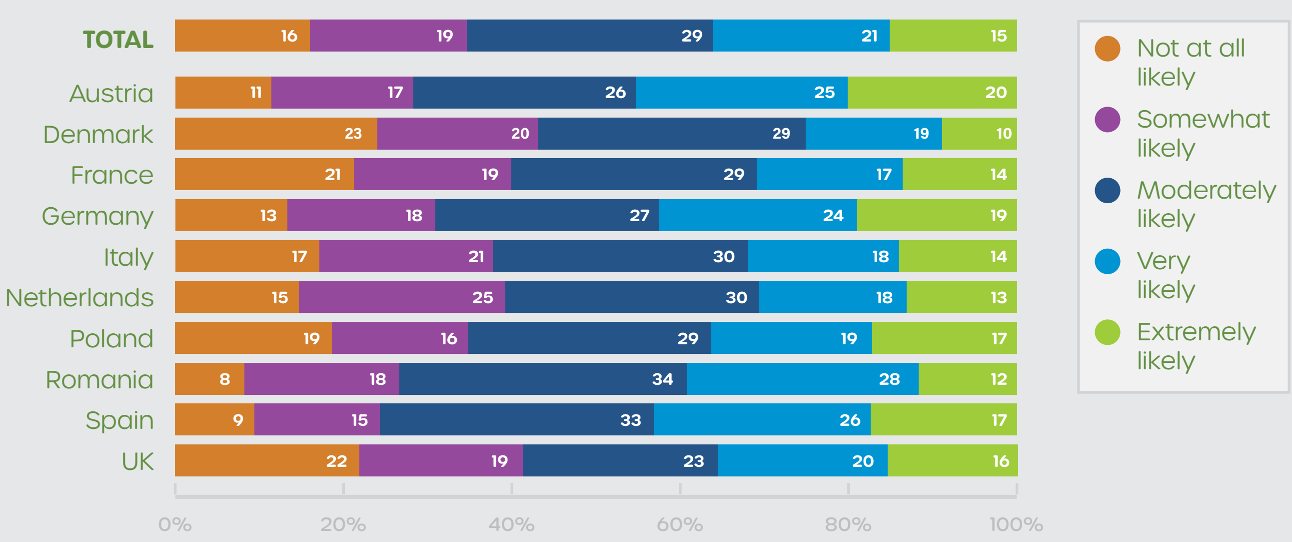
In order to find out more about countries' individual readiness to adopt plant-based diets, we asked European consumers how likely they would be to try plant-based meat if it was tasty, affordable, and widely available at grocery stores, restaurants, butchers, and markets. More than 60% of consumers stated that they were moderately, very, or extremely likely to try plant-based meat (chart 13). Consumers in Austria were the most likely to try these kinds of products, followed by Spanish, Romanian, and German consumers, as shown in chart 13.

CHART 13: LIKELIHOOD OF TRYING PLANT-BASED MEAT



Question: Imagine that plant-based meat has become widely available, tasty and affordable at grocery stores, restaurants, butchers, and markets. How likely are you to try plant-based meat?

CHART 14: LIKELIHOOD OF EATING PLANT-BASED MEAT INSTEAD OF ANIMAL-BASED MEAT



Question: Imagine that you've had the opportunity to try a plant-based meat that has the identical taste and texture as animal-based meat. How likely are you to eat plant-based meat instead of animal-based meat?

When comparing plant-based meat with its animal-based counterparts, just under half of Austrian consumers (45%) indicated that they were more likely to eat plant-based meat than animal-based meat. Similarly, Spanish and German consumers also indicated a high likelihood of favouring plant-based meat over its conventional counterparts (chart 14).

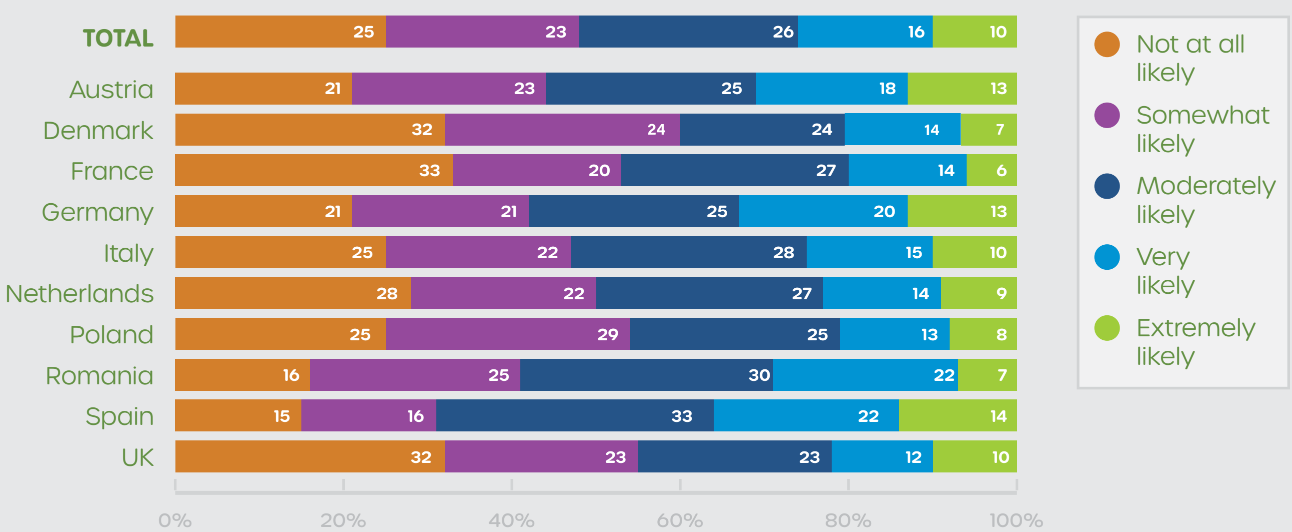
According to recent research, the demand for plant-based cheese is growing at an exponential rate and is expected to attain a market value of 7 billion USD by the end of 2030. Europe leads the global plant-based-cheese sector, followed by North America. The European market is expected to remain in the lead and is expected to constitute nearly 40% of the global market by 2030 (Transparency Market Research, 2020).

In addition to these impressive forecasts, the Smart Protein Plant-based Food Sector Report, which was published in March this year, also highlighted the importance of plant-based cheese in Europe, revealing that the sales value of plant-based cheese grew by 400% in the Netherlands and 150% in Germany over the past two annual periods (Smart Protein Project, 2021). Given this potential growth, we also wanted to focus on consumers' readiness to purchase plant-based cheese.

As such, we asked consumers how likely they would be to eat plant-based cheese products instead of conventional cheese products if plant-based cheese had the identical taste and texture to conventional cheese. More than half of consumers (52%) stated that they were moderately, very, or extremely likely to eat the plant-based version rather than the conventional option. More specifically, 3,970 respondents indicated a high likelihood of consuming plant-based cheese. Chart 15 shows that Spanish and German consumers are the most likely to replace conventional cheese with plant-based cheese.

Another lucrative food category is the global vegan-baking-ingredients sector, which is expected to grow at a compound annual growth rate of 5.6% from 2019 to 2025 (Grand View Research, 2019). This growth is likely to be driven by an increasing number of people following a vegan diet, a rise in demand for plant-

CHART 15: LIKELIHOOD OF EATING PLANT-BASED CHEESE INSTEAD OF CONVENTIONAL CHEESE



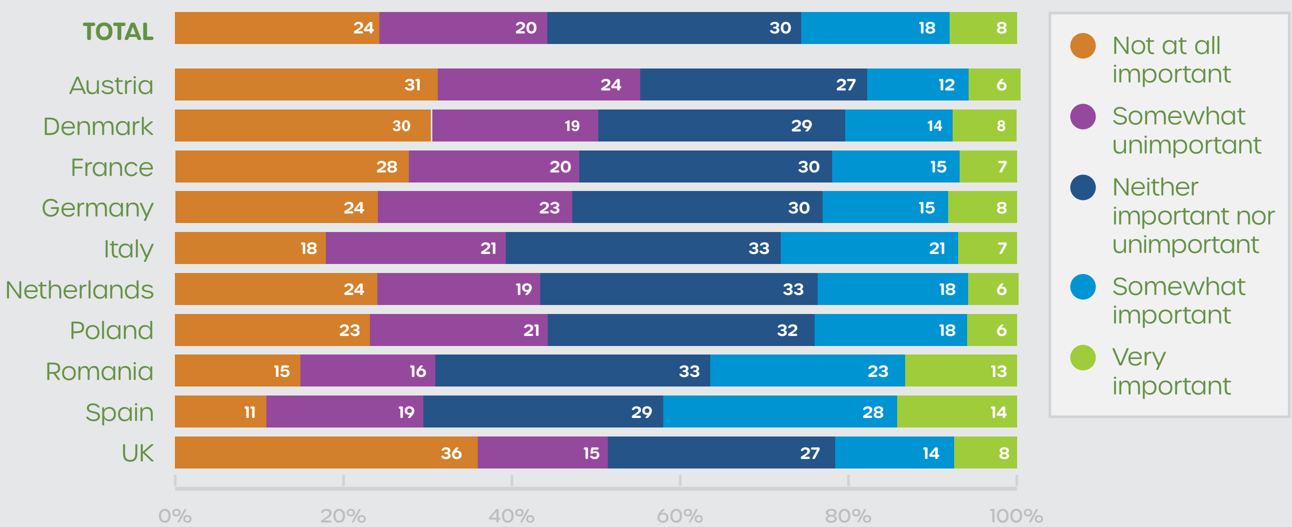
Question: Imagine that you've had the opportunity to try plant-based cheese products, and the taste and texture were identical to conventional cheese products. How likely are you to eat plant-based cheese products instead of conventional cheese products?

based baking ingredients, and ongoing research and development in the sector. Additionally, it is expected that there will be a rise in the number of vegan food-service chains and restaurants offering vegan baked-good products. For example, the number of vegan restaurants in Germany increased from 75 in 2013 to almost 300 in 2021 (Graefe, 2021). Given that there is currently little consumer research on European consumers' attitudes towards plant-based baked goods, we included some questions on this important food category.

We also wanted to find out more about how important consumers think it is to exclude animal-based ingredients such as eggs and butter from baked goods such as breads and cookies, etc. More than a quarter (26%) of European consumers think that baked goods should exclude animal-based ingredients (they chose the answer options "somewhat important" or "very important"). In Spain and Romania particularly, there is a strong potential demand for vegan baked goods – 42% of Spanish respondents stated that it is somewhat or very important for them that baked goods exclude eggs and butter, while in Romania, the share was slightly lower, at 36% (chart 16).

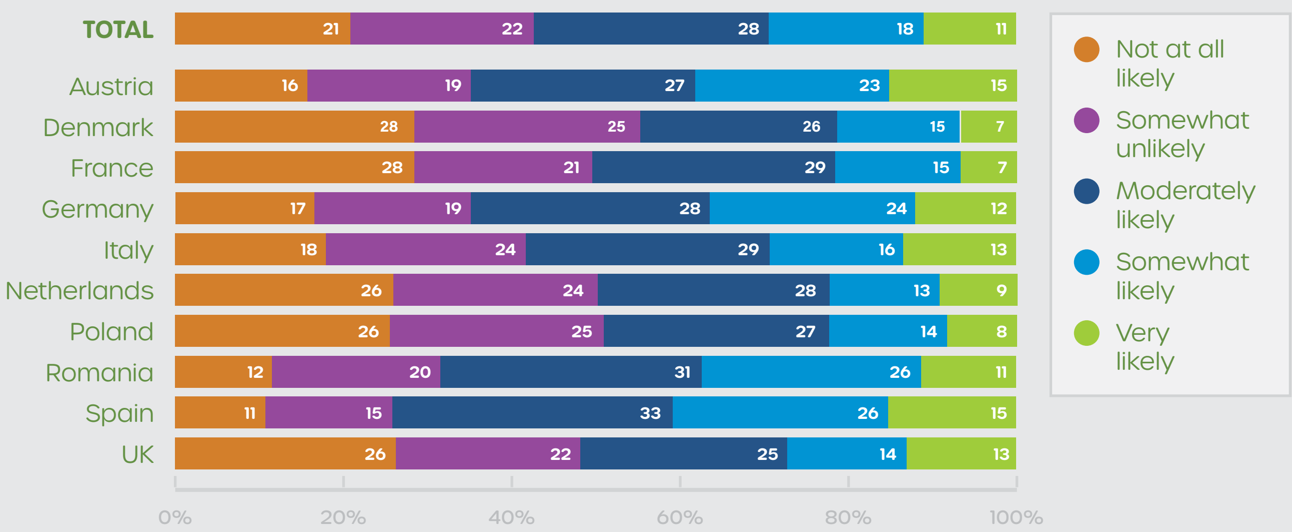
In addition, we also wanted to find out more about consumers' readiness to replace conventional baked goods (which contain animal-based ingredients such as eggs) with plant-based products. 57% of consumers were moderately, very, or extremely likely to eat vegan baked goods rather than conventional products (compared to 65% for plant-based meat and 52% for plant-based cheese). Spanish consumers showed the highest likelihood of eating vegan baked goods, with 41% of them stating that they are very or extremely likely to choose the plant-based version rather than the conventional option (chart 17).

CHART 16: IMPORTANCE OF EXCLUSION OF ANIMAL-BASED INGREDIENTS IN BAKERY PRODUCTS



Question: How important is it for you that bakery products (e.g. bread or cookies) exclude animal-based ingredients such as eggs or butter?

CHART 17: LIKELIHOOD OF EATING VEGAN BAKERY PRODUCTS INSTEAD OF CONVENTIONAL BAKERY PRODUCTS



Question: Imagine that you've had the opportunity to try vegan bakery products (e.g. bread or cookies made without eggs or butter) with exactly the same taste and texture as conventional bakery products. How likely are you to eat vegan bakery products instead of conventional bakery products?

In conclusion, in terms of readiness to consume plant-based foods, Austrian, Spanish, German, and Romanian consumers showed the highest likelihood of eating and consuming plant-based food products such as meat or cheese alternatives or vegan baked goods. In general, a large proportion of Europeans are ready to replace conventional meat products with plant-based equivalents. It seems likely that it is only a question of time before these consumers will also be prepared to substitute conventional cheese with plant-based cheese and conventional (non-vegan) baked products with plant-based options.[4]

[4] To see what kinds of plant-based meat/fish/cheese alternatives flexitarians would like to see more of in supermarkets, have a look at the section 'Plant-based food: what do flexitarians want?'.

3.3 Spotlight on flexitarians

It is clear that flexitarians are driving the plant-based-food sector. A survey by the NPD Group found that almost 90% of plant-based-meat consumers were meat eaters (The NPD Group, 2019). This means that it is vital for plant-based-protein manufacturers to understand the habits and motivations of flexitarians. As such, this section focuses on flexitarians, analysing their consumption habits in terms of foods consumed as well as their attitudes towards plant-based foods, which are key drivers in the general shift towards plant-based eating.

3.3.1 Consumption habits of animal- and plant-based foods

In order to find out more about flexitarians' current consumption habits, we asked them how frequently they consumed specific animal-based and plant-based foods in the previous 12 months.

In terms of conventional meat, poultry is the option they consume the most often. 44% of respondents stated that they eat poultry 1-3 times a week, 4-6 times a week, once a day, or two or more times per day. In comparison, only 25 % of respondents consume pork at least 1-3 times a week or more, and only 20% of respondents eat beef at similar frequencies. Looking at flexitarians' dairy-product consumption, cheese is their favourite dairy product, with 76% stating that they eat cheese at least 1-3 times a week or more. However, their consumption of milk and yoghurt is also pretty high, at 67% for yoghurt and 66% for milk.

When it comes to fish and seafood, flexitarians' consumption of such products is quite high, with 40% of them stating that they consumed fish/seafood at least 1-3 times a week or more in the previous 12 months. For eggs, the share is even higher, with 66% of flexitarians eating these products at least 1-3 times a week or more. After chicken, eggs and fish could have the greatest impact for animals if they were replaced with plant-based or cultured alternatives, according to recent research conducted by Faunalytics in the US (Faunalytics, 2020).

CONSUMPTION HABITS OF FLEXITARIANS

	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
Beef	11%	35%	34%	15%	3%	1%	1%
Pork	16%	28%	32%	18%	4%	2%	1%
Poultry	5%	15%	36%	35%	6%	2%	1%
Fish/seafood	10%	18%	33%	30%	7%	2%	1%
Milk	11%	11%	12%	21%	14%	22%	9%
Yoghurt	6%	10%	16%	26%	19%	18%	4%
Cheese	3%	7%	15%	31%	22%	18%	5%
Ice cream	7%	27%	30%	22%	8%	5%	1%
Eggs	2%	8%	24%	41%	16%	7%	2%
Pulses (e.g. lentils, beans)	3%	9%	23%	37%	18%	7%	2%
Vegetables	1%	2%	5%	19%	27%	30%	16%
Fruit	1%	3%	7%	17%	22%	31%	19%
Quinoa	36%	21%	17%	14%	7%	4%	1%
Pastries, cakes, cookies	5%	18%	27%	29%	12%	7%	2%
PB* beef products (e.g. plant-based burgers/mince)	28%	20%	25%	17%	7%	2%	1%
PB* poultry products (e.g. plant-based chicken strips/chunks)	34%	20%	20%	15%	6%	3%	1%
PB* pork products (e.g. plant-based sausages/pulled pork)	43%	20%	17%	11%	5%	3%	1%
Tofu, tempeh, seitan	37%	23%	19%	11%	6%	3%	1%
PB* fish/seafood products (e.g. plant-based fish sticks/fish burger/tuna)	47%	17%	15%	11%	6%	2%	1%
PB* milk (e.g. soya/almond/oat/coconut/rice/pea milk)	28%	19%	17%	16%	9%	8%	3%
PB* yoghurt (e.g. soya/almond/oat/coconut yoghurt)	37%	20%	16%	13%	8%	5%	2%
PB* cheese (e.g. plant-based cream cheese/ cheese slices/grated cheese)	45%	18%	15%	12%	7%	3%	1%
PB* ice cream or sorbet	47%	20%	14%	9%	5%	2%	1%
PB* pastries, cakes, cookies	42%	24%	16%	10%	5%	3%	1%

Question: Which statement best describes how frequently you have consumed the following foods in the last 12 months?

*Plant-based

Which plant-based food products do Europeans consume the most? A great deal of research has been done on this topic. For example, the Smart Protein Plant-based Food Sector Report, published earlier this year, found that plant-based meat and plant-based milk are the leading categories in Europe, when comparing the sales values and volumes of all plant-based food categories (Smart Protein Project, 2021). A ranking of all plant-based food categories shows that plant-based milk is by far the most-consumed product by flexitarians – 36% of flexitarians stated that they consume plant-based milk at least 1-3 times a week or more, followed by plant-based yoghurt and plant-based-beef products.

RANKING OF THE MOST-CONSUMED PLANT-BASED FOOD PRODUCTS (FLEXITARIANS)

		% of flexitarians consuming the respective plant-based food at least 1-3 times a week
1	PB* milk	36%
2	PB* yoghurt	28%
3	PB* beef products	27%
4	PB* poultry products	25%
5	PB* cheese	23%
6	Tofu, tempeh, seitan	21%
7	PB* pork products	20%
8	PB* fish/seafood products	20%
9	PB* pastries, cakes, and cookies	19%
10	PB* ice cream or sorbet	17%

Note: For the ranking, the following answer options were provided: "1-3 times a week", "4-6 times a week", "Once a day" and "2 or more times per day"

*Plant-based

How are flexitarians' meat-consumption habits changing, in general? In the section 'Current consumption situation and outlook', we showed that 46% of Europeans eat less meat compared to a year ago. However, this included both omnivores and flexitarians. Nearly three-quarters of flexitarians stated that they eat less meat compared to a year ago, illustrating that the transition from animal-based to plant-based meat is driven largely by flexitarians. More specifically, a remarkable 73% of flexitarians are substantially reducing their meat consumption.

In order to learn about flexitarians' future meat- and dairy-consumption patterns, we found that a remarkable 63% of them intend to reduce their meat consumption, while 40% also plan on reducing their dairy consumption. This again underlines the fact that the shift in the direction of a sustainable future for the planet, humans, and animals, is clearly driven by flexitarians. This, in turn, highlights the importance of producing more and tastier plant-based food products that provide good value for money.

In summary, flexitarians showed the highest consumption of dairy products, with cheese being the product they consume the most. Poultry is the most consumed animal-based meat, followed by pork and beef. When comparing consumption rates of plant-based foods, plant-based milk is the leading category for flexitarians, followed by plant-based yoghurt and plant-based beef products.

Flexitarians are driving the change in food consumption.

ACTUAL MEAT CONSUMPTION VS A YEAR AGO (FLEXITARIANS)

A lot less	**26%**
Slightly less	**47%**
No change	24%
Slightly more	3%
A lot more	1%

Question: Compared to a year ago, how much meat (e.g. beef, pork, chicken) are you eating now?

FUTURE CONSUMPTION OF ANIMAL-BASED PRODUCTS (FLEXITARIANS)

	Dairy products (e.g. milk, yoghurt, cheese)	Meat products (e.g. beef, pork, chicken)
I will consume less	**15%**	**22%**
I will consume a little less	**25%**	**41%**
I will consume about the same	52%	33%
I will consume a little more	6%	3%
I will consume more	1%	1%

Question: Do you intend increasing or reducing your consumption of the following food categories in the next 6 months?

3.3.2 Future consumption of plant-based foods

In order to get a detailed picture of flexitarians' readiness to adopt plant-based foods, their intentions to consume plant-based-dairy and -meat products in the near future were analysed.

The results show that flexitarians intend consuming even more plant-based dairy and meat products, in comparison to the total sample (36% of flexitarians stated that they intend consuming more plant-based-dairy products while 35% stated that they will consume more plant-based-meat products). This shows that it is not just about reducing meat consumption but also dairy consumption. This highlights the importance of offering far more plant-based foods in all categories.

Additionally, flexitarians have a tremendous likelihood of trying plant-based meat. More than half of flexitarians (55% or 1,281 respondents) would love to try plant-based meat if it was widely available at shopping locations.

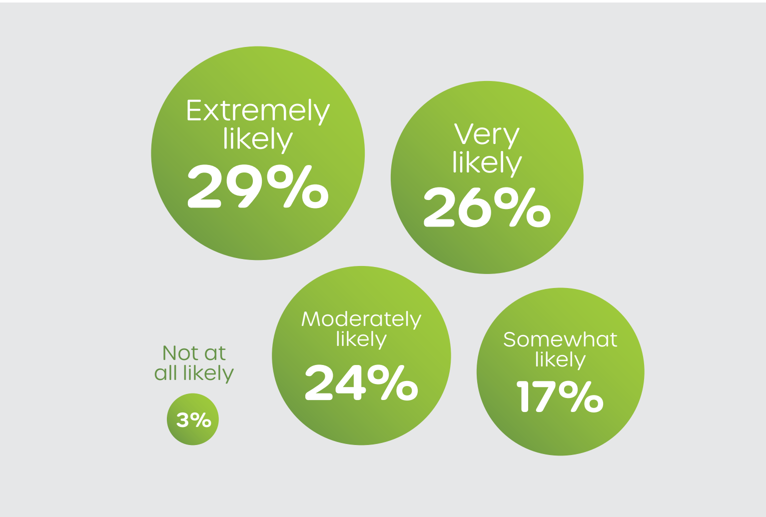
FUTURE CONSUMPTION OF PLANT-BASED PRODUCTS (FLEXITARIANS)

	PB* Dairy products (e.g. soya/oat milk, coconut yoghurt)	**PB* Meat products** (e.g. plant-based burgers/ sausages)
I will consume less	7%	8%
I will consume a little less	10%	10%
I will consume about the same	47%	47%
I will consume a little more	**28%**	**28%**
I will consume more	**8%**	**7%**

Question: Do you intend increasing or reducing your consumption of the following plant-based food categories in the next 6 months?

*Plant-based

LIKELIHOOD OF TRYING PLANT-BASED MEAT (FLEXITARIANS)



Question: Imagine that plant-based meat has become widely available, tasty and affordable at grocery stores, restaurants, butchers, and markets. How likely are you to try plant-based meat?

LIKELIHOOD OF EATING/PURCHASING/PAYING A HIGHER PRICE FOR PLANT-BASED MEAT (FLEXITARIANS)

	Not at all likely	Somewhat likely	Moderately likely	Very likely	Extremely likely
Eat plant-based meat instead of animal-based meat?	6%	15%	26%	29%	24%
Purchase plant-based meat regularly?	6%	14%	31%	30%	19%
Pay a higher price for plant-based meat than for animal-based meat?	15%	22%	38%	18%	7%

Question: Imagine that you've had the opportunity to try a plant-based meat that has the identical taste and texture as animal-based meat. How likely are you to…

We also asked flexitarians how likely they are to eat plant-based meat instead of animal-based meat, as well as purchasing it regularly, and even paying a higher price for it than for animal-based meat (presuming that plant-based meat had the identical taste and texture as animal-based meat). An impressive 53% indicated a strong likelihood of eating plant-based meat rather than animal-based meat, while 49% of flexitarians indicated a high likelihood of also purchasing it regularly. However, the results also reveal that the price of plant-based meat is a key pain-point – only 25% of flexitarians indicated that they are very or extremely likely to pay a higher price than for animal-based meat.

When it comes to plant-based cheese, only 38% of flexitarians indicated a strong likelihood of eating plant-based cheese products rather than conventional cheese products. The likelihood of flexitarians purchasing such products regularly is only 37%, far lower than for plant-based meat. This differential is likely due to the fact that the plant-based-meat sector is far more mature than the plant-based-cheese sector, which is still in its infancy.

LIKELIHOOD OF EATING/PURCHASING/PAYING A HIGHER PRICE FOR PLANT-BASED CHEESE (FLEXITARIANS)

	Not at all likely	Somewhat likely	Moderately likely	Very likely	Extremely likely
Eat plant-based cheese products instead of conventional cheese products?	14%	21%	27%	23%	15%
Purchase plant-based cheese products regularly?	13%	19%	31%	23%	14%
Pay a higher price for plant-based cheese products than for conventional cheese products?	23%	21%	31%	18%	7%

Question: Imagine that you've had the opportunity to try plant-based cheese products, and the taste and texture were identical to conventional cheese products. How likely are you to…

LIKELIHOOD OF EATING/PURCHASING/PAYING A HIGHER PRICE FOR VEGAN BAKED GOODS (FLEXITARIANS)

	Not at all likely	Somewhat likely	Moderately likely	**Very likely**	**Extremely likely**
Eat vegan bakery products instead of conventional bakery products?	11%	19%	29%	**25%**	**16%**
Purchase vegan bakery products regularly?	11%	19%	31%	**25%**	**14%**
Pay a higher price for vegan bakery products than for conventional bakery products?	22%	22%	31%	**17%**	**7%**

Question: Imagine that you've had the opportunity to try vegan bakery products (e.g. bread or cookies made without eggs or butter) with exactly the same taste and texture as conventional bakery products. How likely are you to...

In terms of vegan baked goods, the proportion of flexitarians who indicated a strong likelihood of eating them of rather than conventional baked goods is similar to the rates reported for plant-based cheese (41% are very or extremely likely to try vegan baked goods instead of conventional baked goods, compared to 38% for plant-based cheese, as indicated above). Nearly 40% are also likely to regularly purchase plant-based baked goods.

3.3.3 Attitudes towards and perceived trustworthiness of plant-based food and animal/plant protein

What are the challenges and barriers that flexitarians face when shifting to plant-based foods and following a plant-based diet? We asked flexitarians about these issues, showing them 26 statements on a five-point scale, ranging from “strongly disagree” to “strongly agree”.

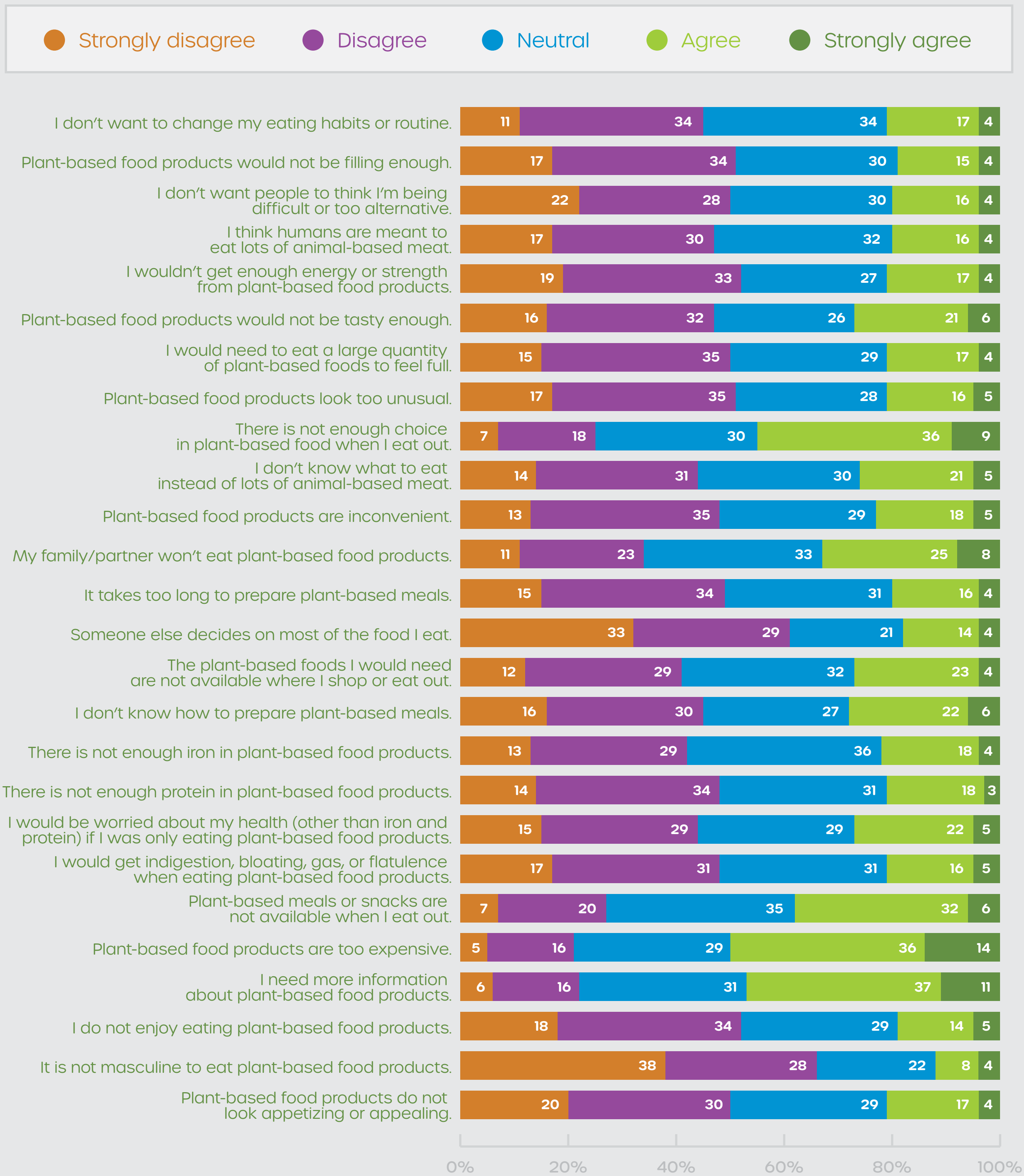
It is all about the prices of plant-based food.

The results reveal that the main barriers are related to the availability of plant-based food products, price, a lack of information, and social interactions. Nearly half of respondents (45%) stated that “There is not enough choice in plant-based food when I eat out”, which clearly highlights that more plant-based food is needed in restaurants, supermarkets, etc. (chart 18). Additionally, 38% think that plant-based meals or snacks are also not available when eating out. Exactly 50% of flexitarians said that plant-based products are too expensive, indicating the importance of lowering the prices of plant-based food.

In general, flexitarians think that there is a lack of information when it comes to plant-based food products, with 48% of flexitarian respondents agreeing with the statement “I need more information about plant-based food products”. Social interactions are also crucial in terms of eating patterns – the finding that 33% of flexitarians agreed with the statement “My family/partner won’t eat plant-based food products” clearly highlights the influence of the social setting on consumption behaviour.

For example, Griffith Foods found that Millennials and Generation Z influence their parents by encouraging them to reduce their meat consumption. More specifically, personal dietary habits influence others in the same household. This is especially the case when it comes to meat reduction (Griffith Foods, 2020).

CHART 18: BARRIERS TOWARDS EATING PLANT-BASED PRODUCTS (FLEXITARIANS)

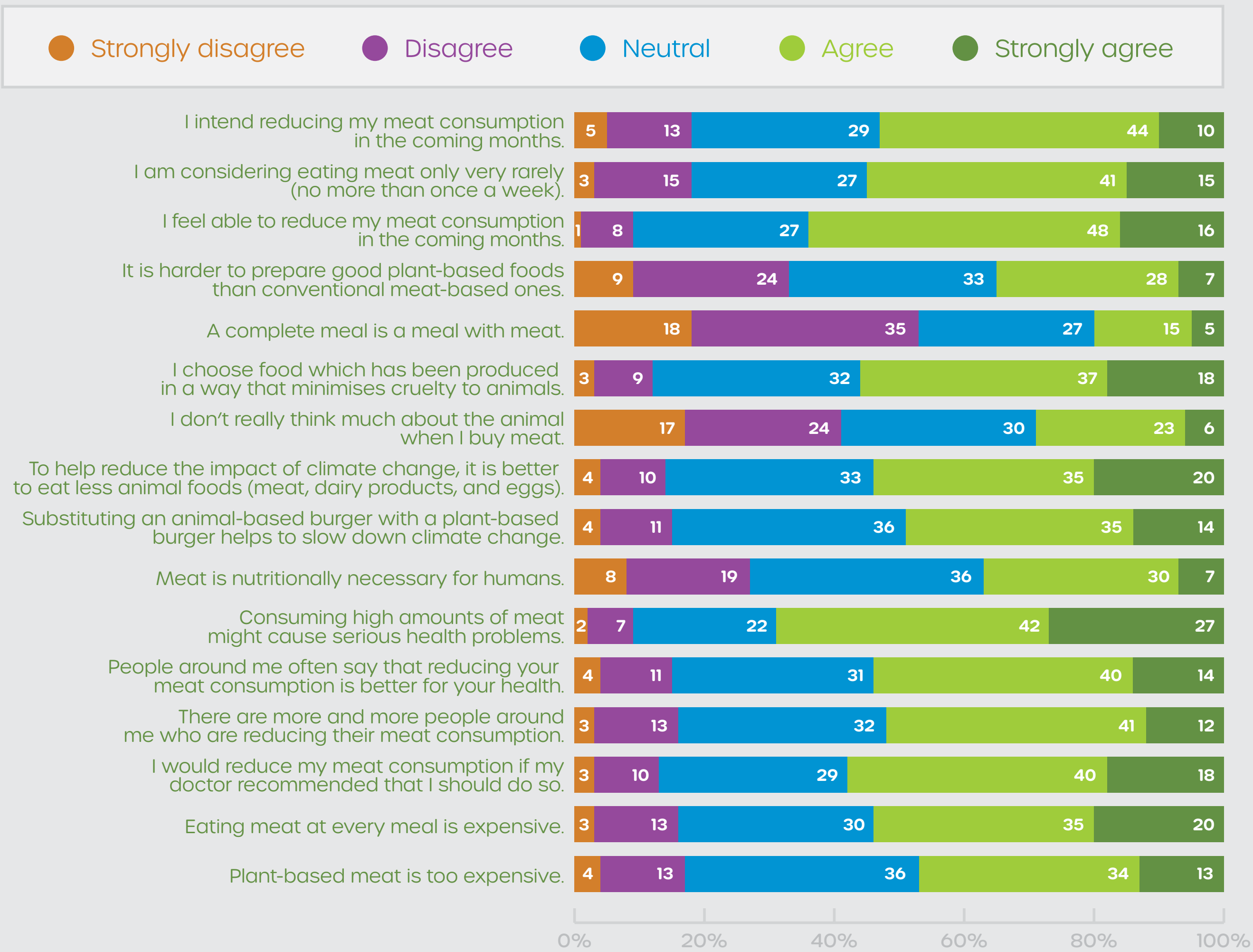


Question: Please indicate how much you disagree or agree with each of the following statements with regards to barriers towards eating new plant-based food products and following a plant-based diet.

In order to learn more about flexitarians' underlying beliefs with regard to meat and plant protein, we asked them to answer 16 statements on a 5-point scale, ranging from "strongly disagree" to "strongly agree". Almost three quarters of flexitarians (69%) think that consuming high amounts of meat might cause serious health problems and 64% think that they will be able to reduce their meat consumption in the near future ("I feel able to reduce my meat consumption in the coming months") (chart 19). Additionally, 58% agree with the statement "I would reduce my meat consumption if my doctor recommended that I should do so", while a remarkable 56% think that they will eat meat only very rarely in the future.

The research also reveals that the health consequences of eating meat play an important role for flexitarians and there is an increased awareness that meat may not confer the health benefits once believed – research has shown that there is a strong relationship between cardiovascular diseases such as cancer, type 2 diabetes, and obesity, and meat intake (Fung et al., 2004; Sato et al. 2006).

CHART 19: ASSUMPTIONS ABOUT MEAT OR PLANT PROTEIN (FLEXITARIANS)



Question: Please indicate how much you disagree or agree with each of the following statements concerning your assumptions about meat or plant protein.

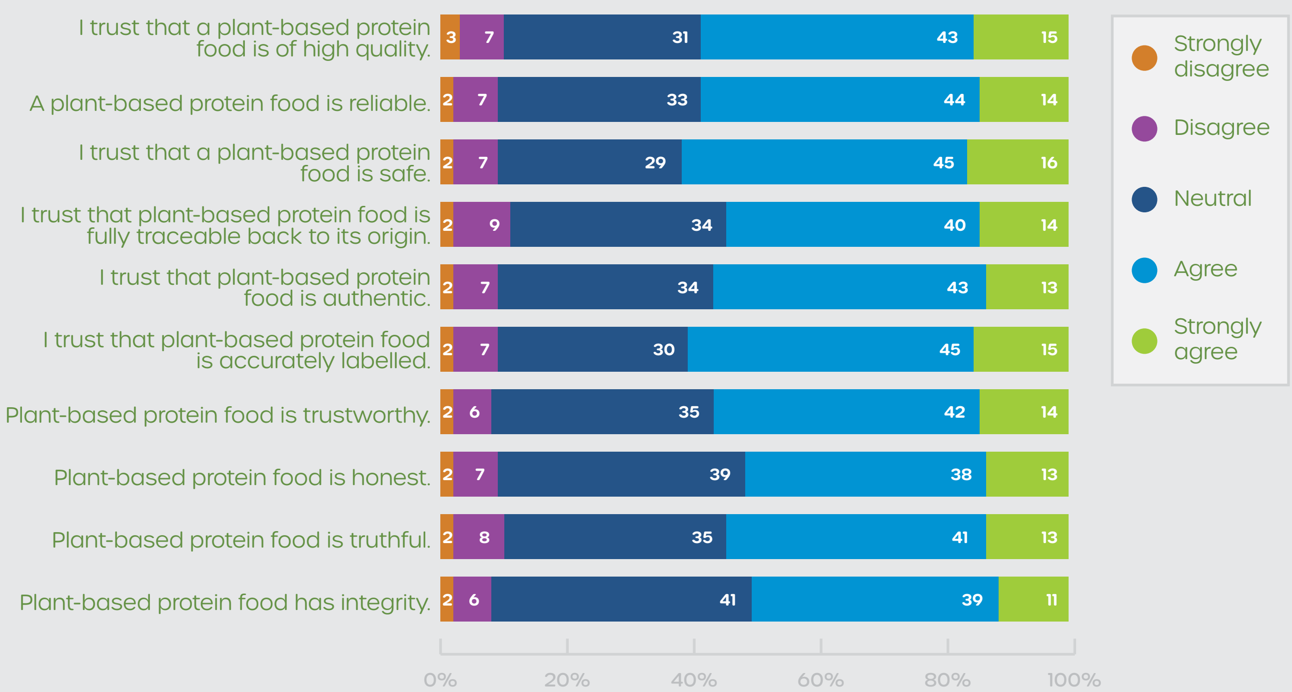
Do flexitarians trust plant-based food and plant protein? And do they believe that these products are safe and of a high quality? We asked flexitarian respondents to answer 10 statements on a five-point scale, ranging from “strongly disagree” to “strongly agree” in order to answer these important questions. The results reveal that 61% of flexitarians trust that foods based on plant protein are safe. Similarly, 60% of them agreed or strongly agreed that they are accurately labelled.

Europeans generally trust plant-based food.

In general, flexitarians seem to trust plant-based protein and think that such products are safe to eat. At least 50% (or more) of flexitarian respondents gave positive responses to the trust-related statements, as can be seen from chart 20.

In terms of trust, we also wanted to find out about flexitarians’ current attitudes towards novel alternative proteins such as plant-based proteins, cultured proteins, and algae-based proteins. We asked them to rank five different types of novel proteins, ranging from 1 (trust the most) to 5 (trust the least). Plant-based proteins are the most trusted options, followed by fungi- and algae-based proteins.

CHART 20: TRUST TOWARDS FOODS BASED ON PLANT PROTEIN (FLEXITARIANS)



Question: Please indicate how much you disagree or agree with each of the following statements with regards to trust towards foods based on plant protein (e.g. based on soy protein, pea protein etc.).

The results show that 1,415 flexitarians ranked plant-based proteins in first or second position, while 1,005 people ranked fungi in the first or second position. Flexitarians trust insect-based proteins the least, with only 634 respondents ranking this type of protein as the most- or second-most-trusted option.

More details about the number of flexitarians who ranked plant-based protein, insect-based protein, etc. in their respective positions, from 1 (trust the most) to 5 (trust the least), can be found in the table on the right.

RANKING OF NOVEL ALTERNATIVE PROTEINS (FLEXITARIANS)

1. **Plant-based protein** (including cereals, pulses)
2. **Fungi** (e.g. mushroom, mycelium, yeast)
3. **Algae based protein**
4. **Cell culture based protein** (e.g. cultured meat, dairy, etc.)
5. **Insect based protein**

Question: Which of the following alternative proteins do you trust the most? Rank them from 1 (trust the most) to 5 (trust the least).

Europeans have greater trust in alternative proteins which have their origin in natural resources such as cereals or pulses.

NUMBER OF FLEXITARIANS WHO RANKED THE RESPECTIVE ALTERNATIVE PROTEIN IN POSITION 1, 2, 3, 4, OR 5

	Trust the most 1	2	3	4	Trust the least 5
Plant-based protein	998	417	282	274	329
Insect-based protein	338	296	296	500	870
Cell culture based protein	280	466	530	539	485
Algae-based protein	285	515	646	542	312
Fungi	399	606	546	445	304

Question: Which of the following alternative proteins do you trust the most? Rank them from 1 (trust the most) to 5 (trust the least).

3.3.4 Plant-based food: what do flexitarians want?

Familiar main ingredients are the winners

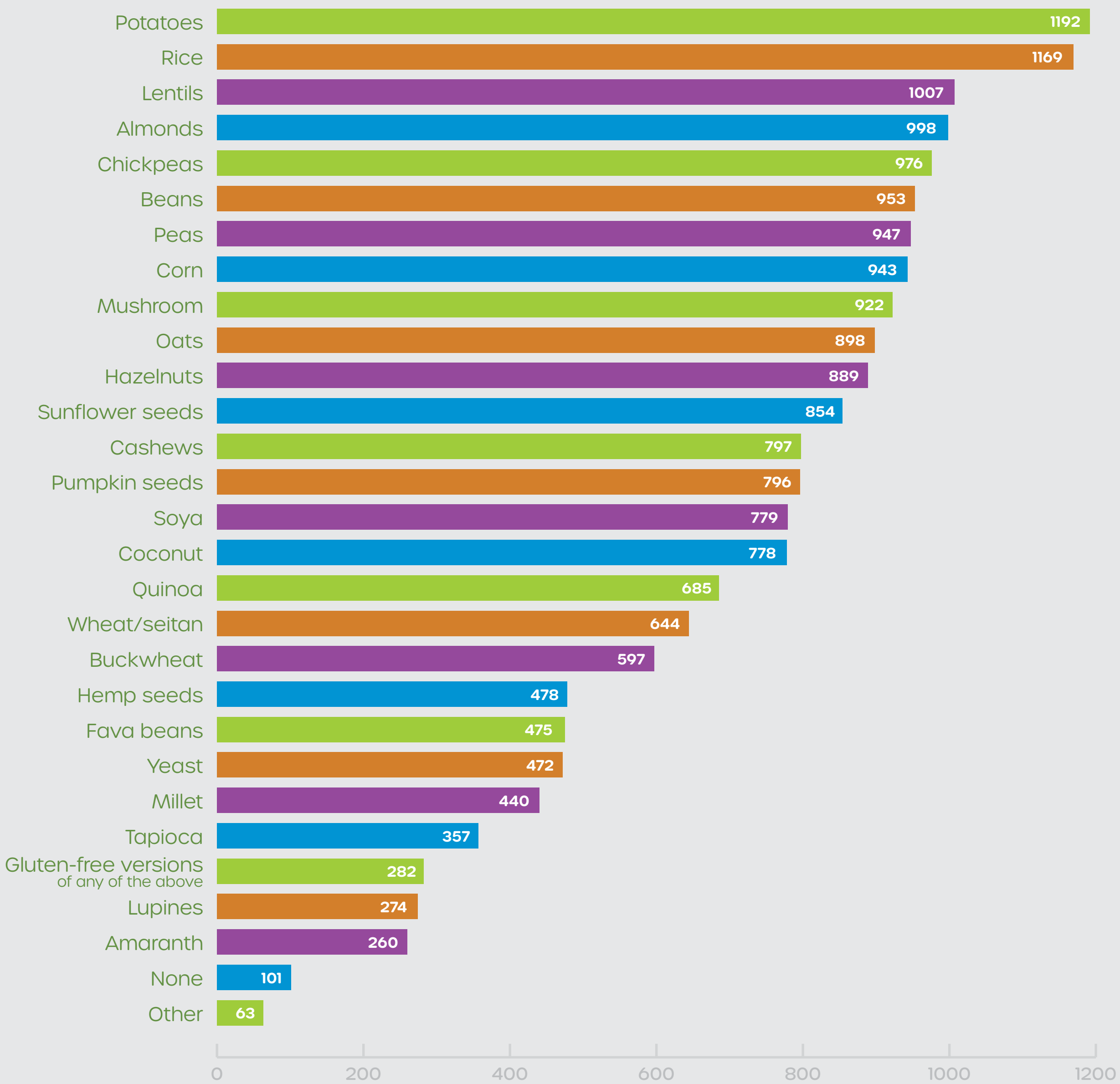
What are flexitarians' favourite ingredients for plant-based food? Using a multiple-option question, we asked respondents to choose their most preferred ingredients for use in plant-based products (see chart 21). Potatoes and rice were the favourites – at 52% (or 1,192 out of 2,300 flexitarians) and 51% (1,169 out of 2,300 flexitarians) respectively. Lentils, almonds, and chickpeas took third, fourth, and fifth place, and, as such, are also highly favoured by flexitarians. More specifically, 44% of flexitarians (1,007 out of 2,300 respondents) would like to see lentils as a main ingredient in plant-based food, while 43% of them (998 out of 2,300 respondents) selected almonds and 42% chickpeas (976 out of 2,300 respondents).

These results indicate that flexitarians favour ingredients they are fairly familiar with. Ingredients such as tapioca, lupines, and amaranth were seldom selected, which is attributed to the fact that people are not familiar with them.

Flexitarians favour ingredients they are fairly familiar with.

At the bottom end, only 274 flexitarians would like to have lupines as a main ingredient for plant-based food and only 260 of them would like amaranth as a main ingredient. It is important to note that, from a technological point of view, the production of plant-based proteins is about combining two or more different plant proteins in order to achieve specific product-development goals such as increased protein content and quality, functionality, or improved flavour, texture, etc. For example, chickpea and rice represent a synergistic combination, resulting in increased nutritional quality (The Good Food Institute *a*, 2021).

CHART 21: MAIN INGREDIENT IN PLANT-BASED FOOD (FLEXITARIANS)

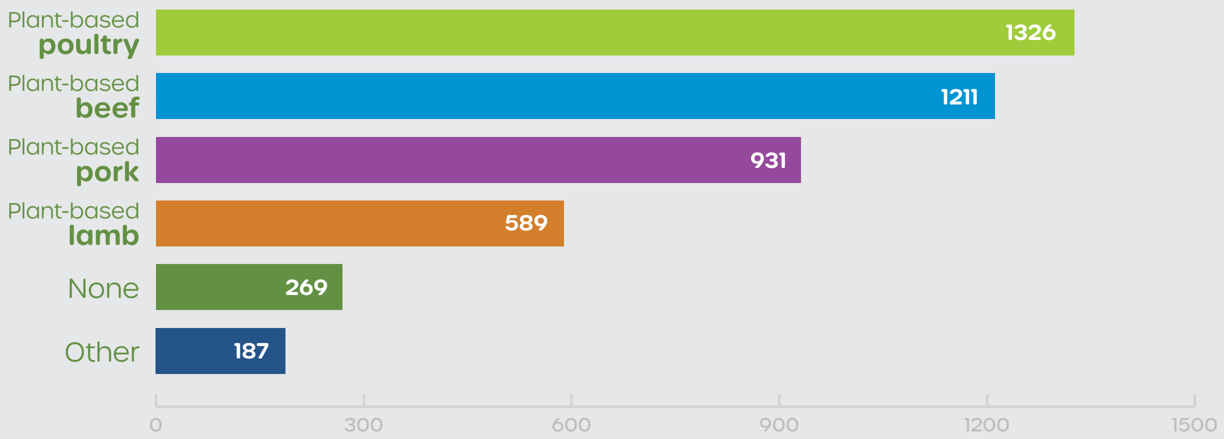


Question: Which of the following would you like to have as a main ingredient in plant-based food?

There is strong demand for more plant-based poultry and beef products
We asked consumers what kind of plant-based meat they wish they could buy in the supermarket, giving them six options in a multiple-choice question. Chart 22 shows the number of flexitarians that stated that they wish they could buy more of specific plant-based-meat products. For example, we see that 1,326 flexitarians stated that they wish they could buy plant-based poultry in the supermarket. Plant-based beef is in second position, followed by plant-based pork.

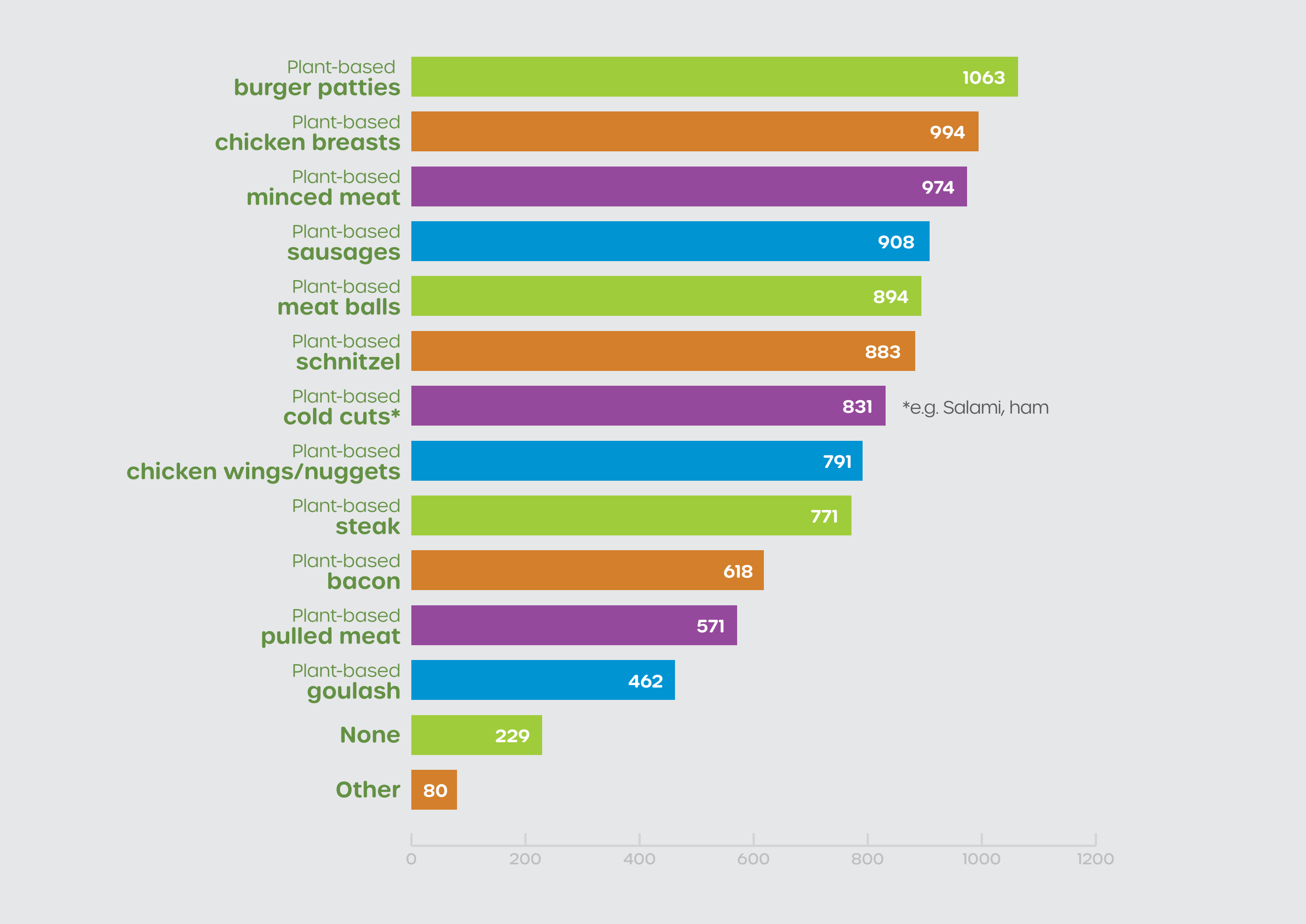
Taking a closer look at plant-based meat products in general, flexitarians asked for many more products, including plant-based burger patties, plant-based chicken breasts, etc. (chart 23).

CHART 22: PLANT-BASED MEATS THAT FLEXITARIANS MOST WANTED TO SEE MORE OF IN SUPERMARKETS



Question: What kind of plant-based meat do you wish you could buy in the supermarket?

CHART 23: SPECIFIC PLANT-BASED-MEAT PRODUCTS THAT FLEXITARIANS MOST WANTED TO SEE MORE OF IN SUPERMARKETS

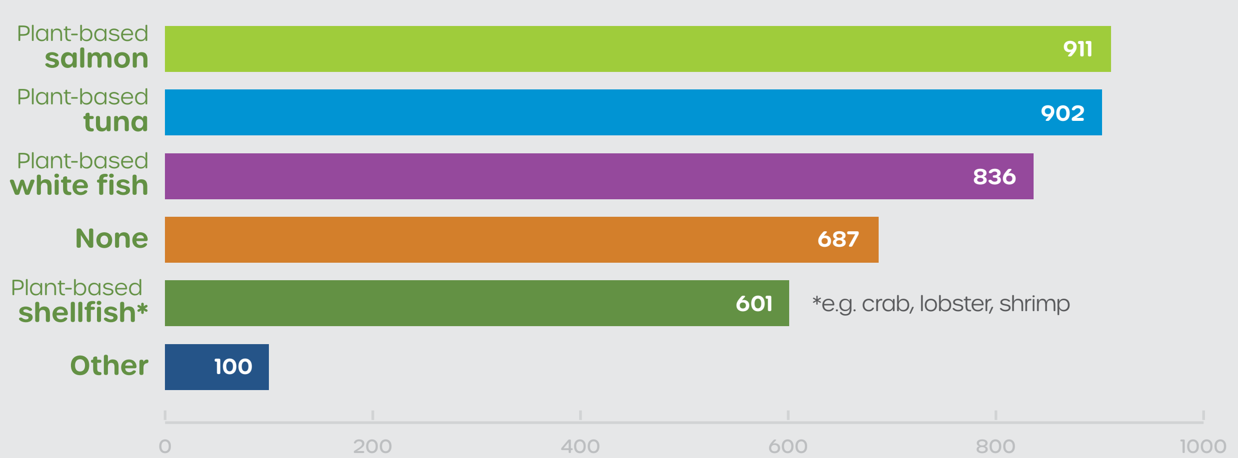


Question: Specifically, what kind of plant-based-meat products do you wish you could buy in the supermarket?

Plant-based fish: there is strong demand from flexitarians for salmon and tuna

While the plant-based-fish sector is still in its infancy, it is one of the fastest-growing plant-based-food segments in countries such as Germany (Smart Protein Project, 2021), where the plant-based sector is already relatively highly developed. The potential for growth in sales of plant-based fish and seafood presents a huge opportunity for the food industry. As such, we also asked flexitarians what they would like to see in terms of plant-based fish. Echoing their wishes for more plant-based-meat products, flexitarians would also like to see far more plant-based fish in supermarkets, as shown in chart 24. Nearly 1,000 consumers stated that they would like to see more plant-based salmon and tuna available for purchase.

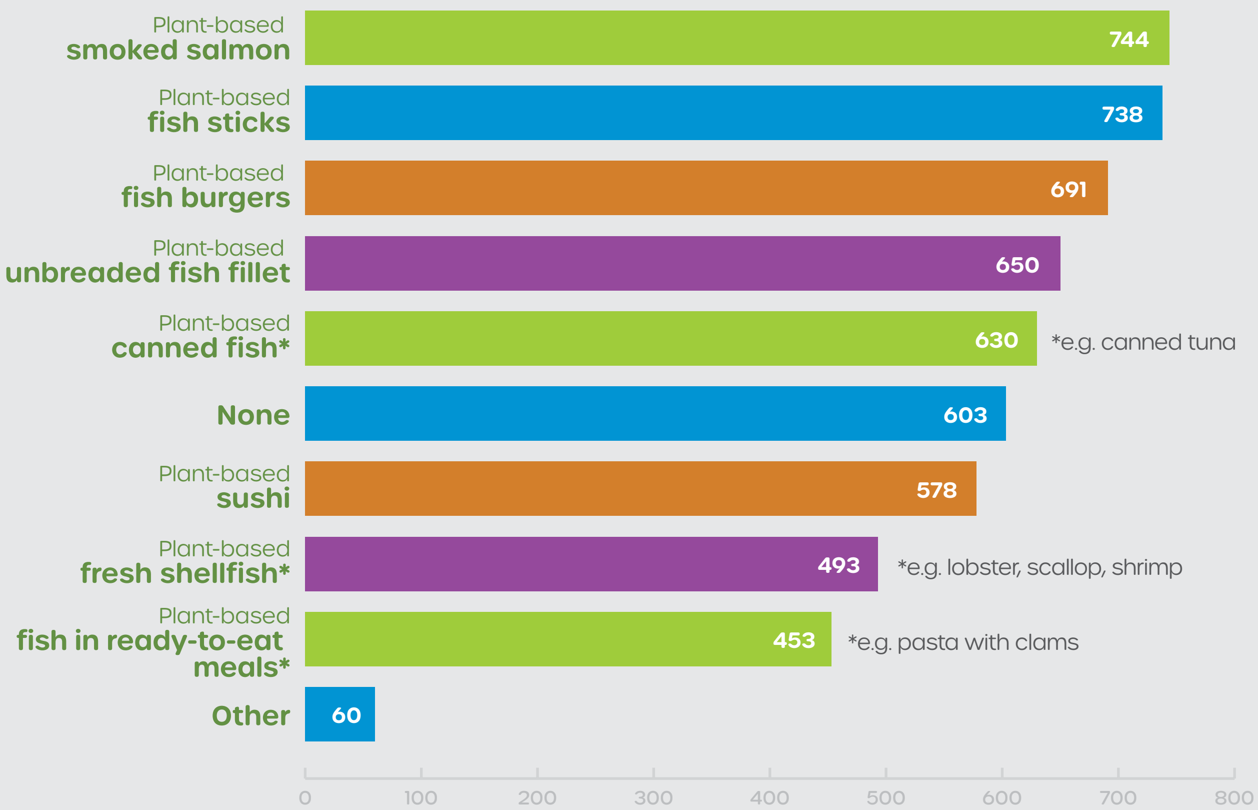
CHART 24: PLANT-BASED FISH THAT FLEXITARIANS MOST WANTED TO SEE MORE OF IN SUPERMARKETS



Question: What kind of plant-based fish do you wish you could buy in the supermarket?

The two plant-based-fish products that flexitarians would most like to see in supermarkets in Europe are plant-based smoked salmon and plant-based fish sticks, followed by plant-based-fish burgers and plant-based unbreaded fish fillets (chart 25). Whole cuts of meats such as fish fillets also present a major opportunity for food manufacturers, since the sector in Europe is largely untapped at this point.

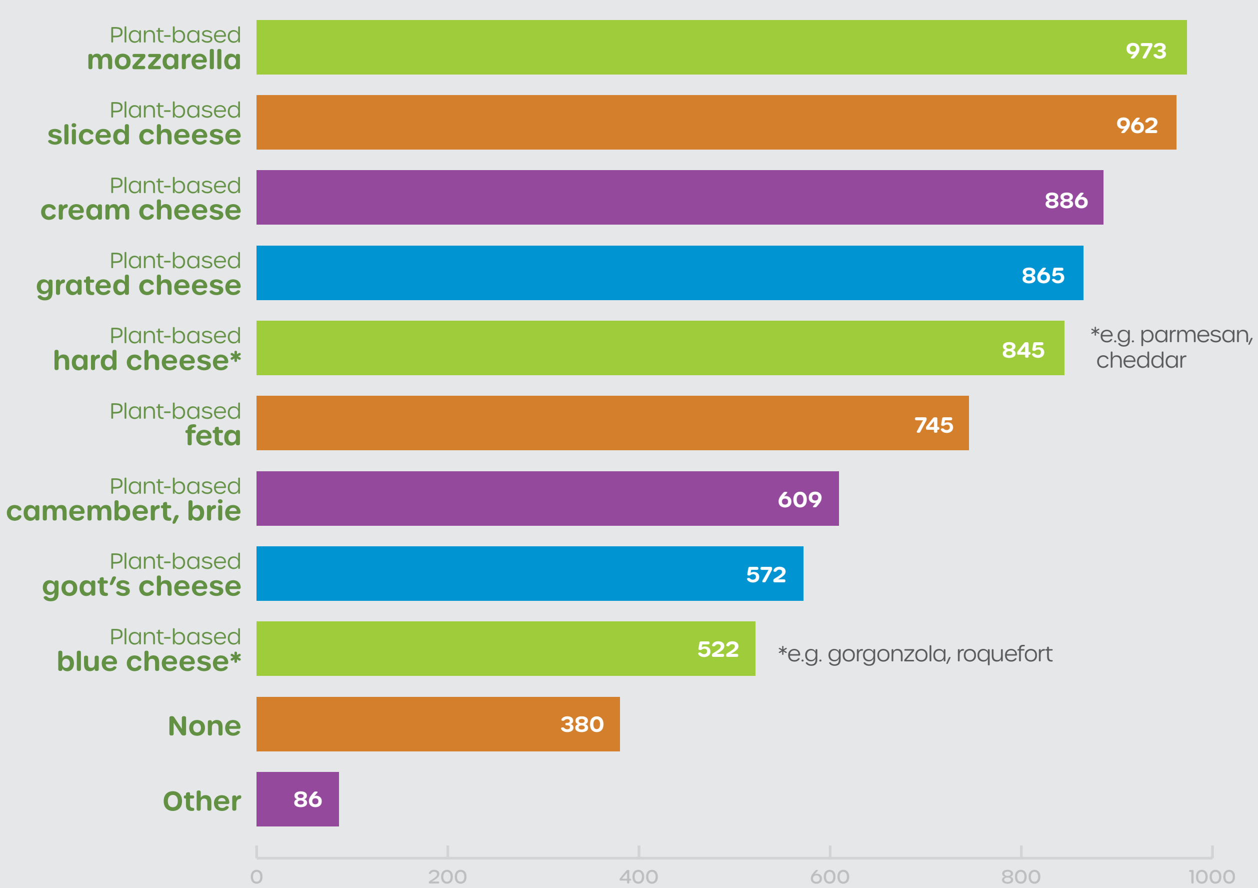
CHART 25: PLANT-BASED FISH PRODUCTS THAT FLEXITARIANS MOST WANT TO SEE MORE OF IN SUPERMARKETS



Question: Specifically, what kind of plant-based fish products do you wish you could buy in the supermarket?

Plant-based mozzarella and sliced cheese are the most-wanted plant-based-cheese products
Plant-based mozzarella and plant-based sliced cheese are the top two cheese products that flexitarians wish they could buy in supermarkets (chart 26). However, there are many more plant-based cheese products that they would really like to see on supermarket shelves. For instance, more than 800 flexitarians indicated that they wanted to have far more plant-based cream cheese, grated cheese, and hard cheese (e.g. parmesan, cheddar) available in supermarkets.

CHART 26: SPECIFIC PLANT-BASED CHEESE PRODUCTS THAT FLEXITARIANS MOST WANTED TO SEE MORE OF IN SUPERMARKETS



Question: What kind of plant-based cheese products do you wish you could buy in the supermarket?

3.3.5 Taste and health are the strongest drivers when purchasing plant-based foods

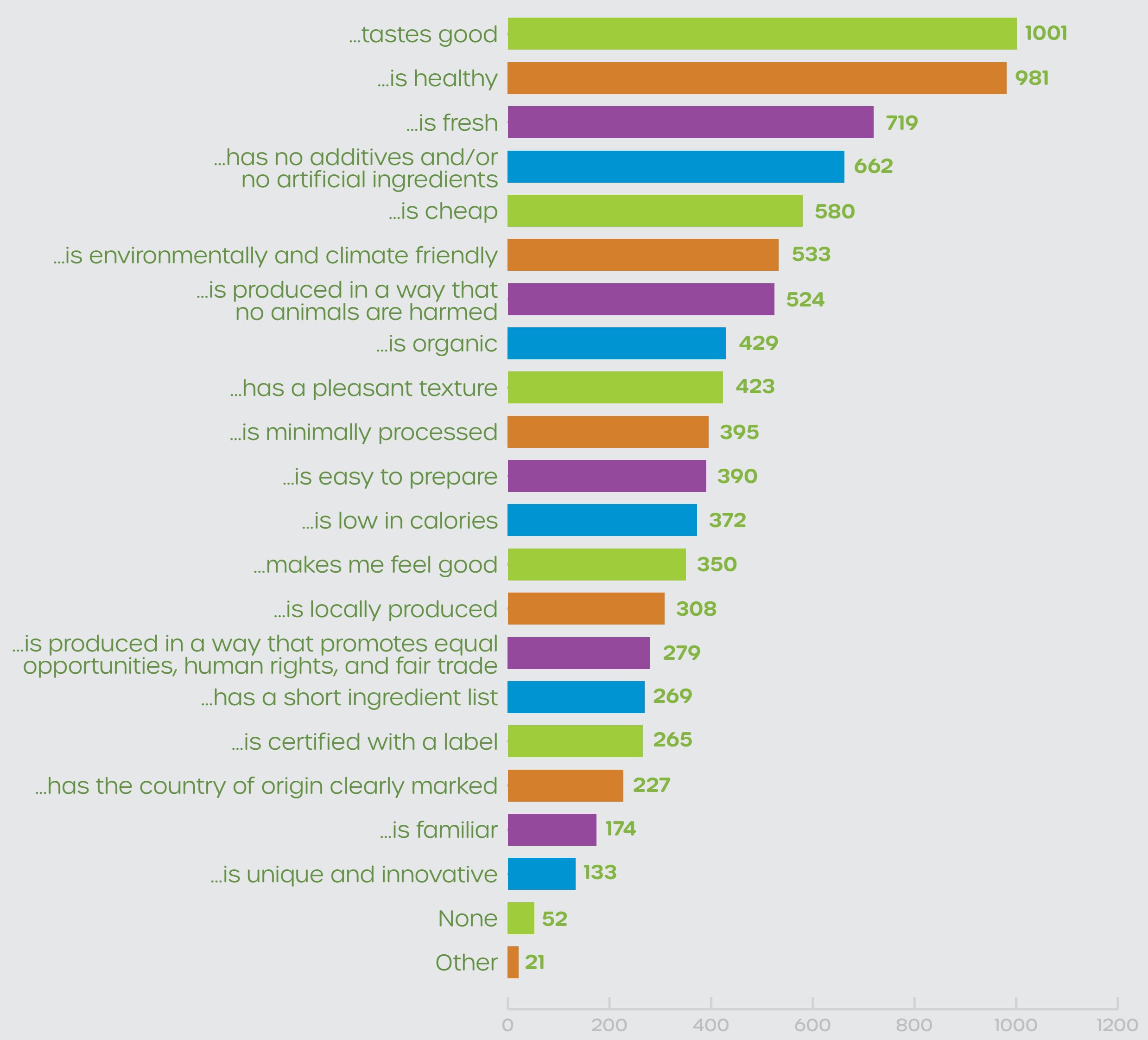
Why are consumers making the shift to plant-based eating? A great deal of research is dedicated to answering this important question. For example, Euromonitor (2020) found that the global key drivers for a plant-based diet are animal rights (37%), health (36%), and environmental concerns (35%) (Euromonitor, 2020). The ProVeg European Consumer Survey on Plant-based Foods (2020) highlighted the fact that curiosity, health, trust in a brand, and taste are the top drivers for flexitarians when purchasing plant-based food products (ProVeg *a*, 2020). Similarly, Forsa also recently conducted a survey in Germany, commissioned by the German Federal Ministry of Nutrition and Agriculture (Bundesministerium für Ernährung und Landwirtschaft), and found that curiosity is the most important reason when buying plant-based meat alternatives (75% of Germans stated that they buy plant-based meat out of curiosity), followed by animal welfare, taste, and environmental concerns (Bundesministerium für Ernährung und Landwirtschaft, 2020).

In the current study, we asked flexitarians about the most important factors when choosing a plant-based/vegan food product, giving them 22 choices in a multiple-option question (a maximum of five answers was allowed). The

results show that taste and health are the most important purchase drivers – around 2,000 flexitarians stated that it is important to them that the plant-based food product they choose is tasty and healthy. Freshness, no additives, and price were also included in the top five purchase drivers, as shown in chart 27.

For flexitarians it is all about taste and health.

CHART 27: IMPORTANT FACTORS WHEN CHOOSING A PLANT-BASED/VEGAN FOOD PRODUCT (FLEXITARIANS)



Question: What are the most important factors when choosing a plant-based/vegan food product? It is important to me that the plant-based food product I choose...

3.4 Supermarkets and discount stores are favoured shopping locations

Looking at the top two future shopping locations, 65% of European consumers intend purchasing their food products in supermarkets, while 43% intend shopping at discounters when buying food.

It is important to note that Polish and German consumers are especially likely to purchase their foods from discount stores – 61% of Poles and 54% of Germans stated that they are likely to purchase their foods in such stores.

The importance of discount stores for plant-based food in countries such as Germany is emphasised in the Smart Protein Plant-based Food Sector Report, published in 2021. Discount stores constituted a 25% share in terms of sales value, indicating that a quarter of plant-based food sales in Germany occur in such stores. Growth rates of plant-based food sales were even higher in discount stores compared to supermarkets, highlighting the fact that plant-based food has gone mainstream and is available in all kinds of retail outlets in Germany (Smart Protein Project, 2021). Danish and Austrian consumers also indicated a high likelihood of purchasing their food products from discount stores in the future, with 51% of Danes stating that they are likely to purchase their groceries from such outlets. In Austria, the results were similar, at 53%.[5]

Romania had the highest share of consumers that are likely to purchase their foods at farmer's market (35%), while the UK had the most consumers who are likely to do their grocery shopping online (26% of UK consumers indicated that they are likely to purchase their food products most frequently from online shops such as Ocado). In Denmark, convenience stores such as Brugsen play an important role, with 35% of consumers indicating that they are very likely to buy food in these locations in the future. Spain is the country where consumers are most likely to buy their groceries at specialty food shops such as bakeries – 32% of Spanish respondents stated that they are very likely to purchase their food products at such outlets in the future.[6]

Discount stores are key retail locations in Poland and Germany.

EUROPEAN RANKING OF FUTURE SHOPPING LOCATIONS

Supermarkets	**65%**
Discount stores	**43%**
Specialty food shops (e.g. butcher, bakery, cheese)	23%
Farmers' markets	20%
Convenience stores	16%
Organic supermarkets	14%
Online grocery stores	13%
Specialty food retail online shops for organic and health foods	7%
Drug stores	7%
Other	2%
Don't know	2%

Question: Where are you likely to purchase food products most frequently from in the future?

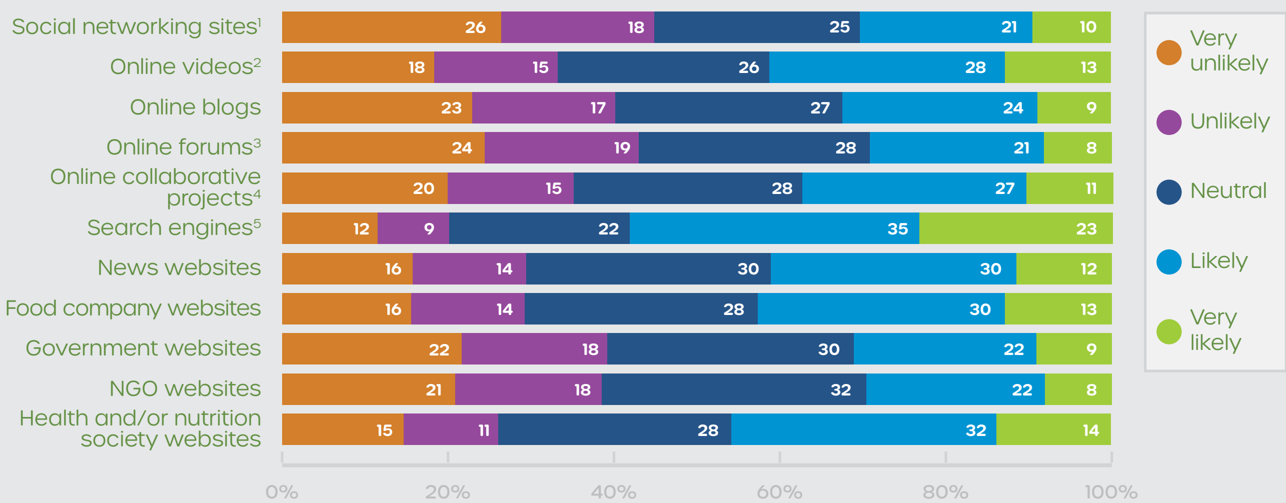
[5, 6] Country specific findings are shown in the country reports.

3.5 Search engines and health and nutrition-society websites are the leading channels for finding out about plant-based foods

It is well known that younger generations such as Generation Z and Millennials are increasingly looking for food options that are healthier and more ethical, and that they generally associate these features with plant-based food products. These younger generations are also hugely influenced by social media. Facebook, which is a staple in the social-media world, has the greatest user-reach across generations, while platforms such as Instagram and YouTube showed much stronger usage by younger generations specifically (Euromonitor, 2020). In our survey, we also wanted to determine which online communication channels European consumers use to find information about plant-based food options and to what extent they trust these channels. Nearly 60% of respondents were likely or very likely to use search engines such as Google to find out more about plant-based foods, making this the channel most used by European consumers to learn about these kinds of products (chart 28).

Search engines and health and nutrition-society websites are the top channels for communicating about plant-based food.

CHART 28: LIKELIHOOD OF USING DIFFERENT ONLINE COMMUNICATION CHANNELS TO FIND OUT INFORMATION ABOUT PLANT-BASED FOOD PRODUCTS (TOTAL SAMPLE)



1) e.g. Facebook, Twitter, Instagram, Pinterest 2) e.g. YouTube 3) e.g. Reddit
4) e.g. Wikipedia 5) e.g. Google

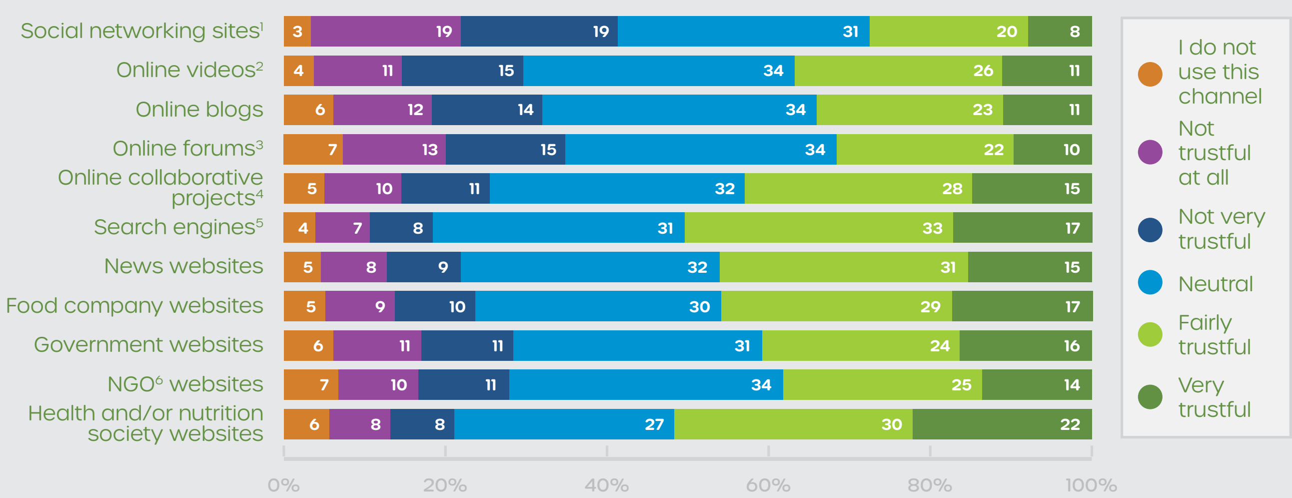
Question: How likely would you be to use these online communication channels to look for information about plant-based food products?

This is followed by health and nutrition-society websites – nearly 50% of our respondents were likely or very likely to go to these websites to learn about plant-based diets and foods.

Consumers also revealed a high likelihood of using food-company websites, news websites, and online video platforms such as YouTube in order to gather information about plant-based food (43% stated that they are likely or very likely to use food-company websites, while the percentage values for news websites and online videos were 42% and 41%, respectively).

Similarly, health and nutrition-society websites were perceived as the most-trusted online communication channels. 52% of Europeans believe that these kinds of websites are fairly or very trustable, followed by search engines, at 50% (see chart 29). News websites and food-company websites are also seen as somewhat-trusted sources for gathering information about plant-based food products, although the share of respondents is slightly lower in both cases, at 46%. It's important to note that social-networking sites such as Facebook, Twitter, Instagram, and Pinterest are perceived as the least-trusted sources, with almost 40% of respondents stating that they find these channels not trustable at all or not very trustable. Younger generations, in particular, are likely to use social media to find information on various topics, including plant-based foods. Platforms such as Instagram are proving crucial in the development of plant-based lifestyles among younger generations, partially because they create a feeling of community (Euromonitor, 2020). However, our results suggest that consumers do not generally perceive social media as very trusted sources.

CHART 29: TRUST IN INFORMATION ABOUT PLANT-BASED FOOD PRODUCTS FROM DIFFERENT ONLINE COMMUNICATION CHANNELS (TOTAL SAMPLE)



1) e.g. Facebook, Twitter, Instagram, Pinterest 2) e.g. YouTube 3) e.g. Reddit
4) e.g. Wikipedia 5) e.g. Google 6) Non-Governmental Organization

Question: In general, how much would you trust the information about plant-based food products from...

4. Eight key insights and the way forward

The advantages of alternative proteins and plant-based food products are obvious – it is about healthier diets, lower carbon emissions, and fewer concerns about the ethics of intensive animal farming. Furthermore, there is also the growing world population to consider. UN figures assume that the global population will reach 9.8 billion by 2050, with a corresponding increase in demand for food (United Nations, 2017; United Nations 2015). This will result in a serious global food shortage unless there is a shift to plant-based eating. In order to facilitate and encourage this shift, the food industry needs to deliver new plant-based food products and utilise new production methods such as fermentation or cellular agriculture .[7] This means that a core function of alternative proteins and plant-based food products is about finding solutions to feed the world.

In this study, we wanted to find out more about European consumers' readiness to adopt plant-based foods. A central focus was placed on flexitarians, as they are the most important target group in terms of numbers and, from a food-industry and retail perspective, also the most lucrative segment. We conclude our study with eight key insights and key takeaways for each insight.

[7] Fermentation in the alternative protein industry refers to cultivating microbial organisms for the purpose of processing a foodstuff or food ingredient, obtaining more of the organism itself as a primary source of protein, or deriving specialised ingredients, such as flavourings, enzymes, proteins, and fats, for incorporation into plant-based products (The Good Food Institute b, 2021). Cellular agriculture is the process by which animal-based products are produced directly from cell cultures rather than from animals. Cellular agriculture currently comprises two different approaches: cell cultivation (cellular) and precision fermentation (acellular). The cell-cultivation method refers to growing meat directly from cells. The precision fermentation method refers to the use of microorganisms rather than cell cultures to produce products such as milk and egg-white proteins (ProVeg *b*, 2020).

FIRST KEY INSIGHT

There is tremendous potential for plant-based foods in Europe – especially when it comes to flexitarians

In our sample of European consumers, 30% of respondents followed a flexitarian diet, while plant-based eaters represented 7% of participants. The Netherlands and Romania had the highest share of flexitarians, with 42% and 40% respectively, while in Germany there were the most plant-based eaters, with 10% of Germans following a vegetarian or vegan diet. Omnivores and vegetarians had followed their dietary lifestyles the longest, indicating that these dietary patterns are well-established. The opposite is true for vegans and flexitarians (and pescetarians) – while some of these people had been following their dietary lifestyle for a long time (e.g. more than five years), others had just recently switched to this kind of diet (a high share of people stated that they had been following their current dietary lifestyle for two years or less).

KEY TAKEAWAY

Based on these results, we see tremendous potential for plant-based foods in Europe – with Dutch, Romanian, and German consumers being especially lucrative target groups. Many vegans and flexitarians have only switched to their new dietary lifestyle in the last two years, indicating that they are open to change, and, as such, need guidance and information about plant-based foods.

SECOND KEY INSIGHT

A fundamental shift away from animal-based food and towards plant-based food is taking place

In terms of animal-based food, European consumers eat a lot of cheese, eggs, milk, and yoghurt. For example, cheese is consumed several times a week or even several times a day. Poultry is the leading animal-based meat product in terms of consumption. However, Europeans are reducing their meat and dairy consumption on an ongoing basis, with almost 40% of our sample respondents stating that they intend to consume fewer meat products in the near future, and around 30% indicating that they intend to eat fewer dairy products.

Additionally, almost half of meat-eating Europeans (46%) said that they eat less meat compared to a year ago and, when looking at European flexitarians, this share is even higher, at a remarkable 73%. These results are consistent with the fact that they are also planning to consume increasing amounts of plant-based dairy and meat: nearly 30% of respondents stated that they intend to consume more of such products.

KEY TAKEAWAY

These results show that European consumers understand the connection between their meat and dairy consumption and its impact on areas such as the environment, animal welfare, food security, and health. It is obvious that a fundamental shift in the direction of a healthier and more sustainable diet is underway, and, as such, there is a huge need for many more plant-based food products in Europe, e.g. poultry alternatives and tasty, affordable cheese alternatives with good nutritional content.

THIRD KEY INSIGHT

Availability, prices, lack of information, and social interactions are the main obstacles for flexitarians

Although the plant-based sector is growing rapidly and consumers are increasingly choosing plant-based products, producing and marketing these products comes with challenges. Nearly half of flexitarians (45%) think that there are not enough plant-based options in supermarkets, restaurants, etc., and exactly 50% of our flexitarian sample think that these food products are too expensive. Similarly, nearly 50% of Europeans agreed with the statement "I need more information about plant-based food products" and a third of respondents are concerned that their family or partner won't eat these kinds of products.

KEY TAKEAWAY

The results reveal that the main barriers to plant-based eating are related to the availability of plant-based food products, price, a lack of information, and social interactions. Providing more plant-based food products, as well as more information about them, are two key steps in tackling some of these pressing obstacles.

FOURTH KEY INSIGHT
Flexitarians trust in plant-based foods

Trust is an important topic when it comes to plant-based foods, with safety concerns becoming more central as a result of the pandemic. According to Emma Cahill, Kerry Taste & Nutrition's Strategic Marketing Manager for Food Protection & Preservation, 60% of consumers say that they're far more concerned about food safety now than they were before the pandemic (FoodNavigator, 2021). In our survey, 61% of flexitarians trusted that foods based on plant protein are safe and, similarly, 60% of them thought that they are accurately labelled. Additionally, results revealed that flexitarians trust plant-based proteins the most, followed by fungi- and algae-based proteins.

KEY TAKEAWAY

Generally, the majority of European consumers trust plant-based foods even though some of them (around 10%) disagreed with some of the trust-related statements in our survey. Proteins they are familiar with and that are perceived as more natural (e.g. plant-based proteins, fungi- or algae-based options) are more trusted than unfamiliar ones (cultured proteins or insect-based options).

FIFTH KEY INSIGHT

Flexitarians view plant-based poultry, beef, salmon and tuna, as well as mozzarella and sliced cheese, as their most missed products

When it comes to plant-based foods, our survey results also show that flexitarians in Europe prefer ingredients that they are familiar with. Potatoes and rice were perceived as the most favoured ingredients, followed by lentils, almonds, and chickpeas. Flexitarians would like to be able to buy far more plant-based-meat products in supermarkets – especially plant-based poultry and beef, e.g. plant-based chicken breasts and even more plant-based burger patties. Plant-based salmon and tuna are the two most-missed plant-based-fish products, while in the plant-based-cheese category, flexitarians would also like many more products to be available, e.g. plant-based mozzarella and plant-based sliced cheese.

KEY TAKEAWAY

Plant-based poultry, beef, salmon and tuna are some of the most-missed plant-based meat and fish products. Similarly, far more plant-based cheese alternatives, including mozzarella and sliced cheese, are needed in supermarkets. European consumers prefer ingredients that they are familiar with (e.g. potatoes and rice) over unfamiliar ones (e.g. tapioca, lupines, and amaranth).

SIXTH KEY INSIGHT

For flexitarians, it is all about taste and health

Analysing the drivers of plant-based food purchases provides a key research area in terms of recommendations for the food industry about how to merchandise these products in the most effective way. In this survey of European consumers, flexitarians rated taste and health as the top two drivers. They also stated that it is important to them that the plant-based food product they choose is fresh (third position in the ranking), has no additives or artificial ingredients (fourth position in the ranking), and is cheap (fifth position in the ranking). Ethical aspects such as the environment and animal welfare took sixth and seventh place.

KEY TAKEAWAY

As with many other studies, our results reveal that flexitarians evaluate taste as the most important aspect when it comes to plant-based foods. If a product doesn't taste good, consumers won't buy it a second time. The health and additives aspects clearly address the topic of clean label, which is increasingly of concern to consumers, especially when it comes to plant-based meats, which often have a fairly long ingredient list.

In order to enter the mainstream, and thus provide lucrative business opportunities, food manufacturers of plant-based foods also need to lower the prices of their products. This topic is thus increasingly on the the food industry's agenda, since it is well-known that reaching price parity with animal-based meat is an important step towards the widespread adoption of plant-based meat. Recently, Beyond Meat Founder and CEO Ethan Brown has said that the alternative meat giant is aiming to underprice beef within the next three years (Vegconomist, 2021).

SEVENTH KEY INSIGHT
Availability in discounters is key

The Smart Protein Plant-based Food Sector Report (2021) revealed that, in many European countries, discount stores are playing an increasingly important role when it comes to plant-based foods. In Germany, in particular, which is one of the most important European countries in the plant-based space, the share of plant-based products being sold at discount stores is increasing rapidly (in Germany, 25% of plant-based food sales occur in such stores). Our survey also shows that (after supermarkets), discount stores are one of the most important future channels for European consumers – 43% of respondents stated that they will purchase their food most frequently from these outlets in the future (in Poland, the share was 61% and in Germany 54%). Speciality food stores such as butcheries or bakeries are also important distribution channels for consumers, with nearly a quarter of our sample respondents indicating that they will buy food most frequently from these outlets in the future.

KEY TAKEAWAY

Based on our survey data, we see that plant-based foods need to be much more widely available, not only in supermarkets but also in discount stores and specialty food shops such as butcheries and bakeries. The availability of these products in far more shopping locations is key, and it is worth highlighting that plant-based food products should be placed next to their animal-based counterparts, e.g. with an integrated-segregated approach,[8] in order to meet flexitarians' needs, specifically, and to make plant-based products more visible for a wide range of consumers.

[8] An integrated-segregated merchandising strategy means shelving plant-based meat, eggs, and dairy next to conventional items in an adjacent, but separate, plant-based set (The Good Food Institute c, 2021). Using this kind of approach ensures that plant-based food products can be easily found in the store sections that the consumers already shop in and that plant-based and animal-based products can be easily compared.

EIGHT KEY INSIGHT

Search engines and health and nutrition-society websites are the leading channels for gathering information about plant-based foods

The important topic of online communication behaviour was also addressed in this survey. Results revealed that search engines such as Google are the most common channels that European consumers use in order to learn about plant-based food – nearly 60% of respondents were likely or very likely to use this online communication channel. Health and nutrition-society websites are in second place, with nearly 50% of our sample respondents revealing a high likelihood of using them for gathering information on plant-based foods.

Similarly, the results on trust in different online communication channels show that health and nutrition-society websites are the most trusted channels, followed by search engines. Half of European consumers stated that they perceive the information about plant-based foods from these websites to be fairly or very trustable. In contrast, social networking sites such as Facebook or Instagram are the least trusted – almost 40% of respondents stated that they find these channels not at all trustworthy or not very trustworthy.

KEY TAKEAWAY

Search engines and health and nutrition-society websites are the most common channels used by European consumers in order to learn about plant-based foods, while they are also the most trusted options. In line with expectations, social media is perceived as the least trusted source of information, which is important to highlight since it is well-known that younger generations use platforms such as Facebook or Instagram a great deal in order to gather information e.g. on plant-based foods. Therefore, information providers should also guarantee a certain quality of information in order to establish a trusted reputation.

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