

Striking the Balance Plant, protein and the planet

April 2023



S A C I N I C

Research Approach

Why? To develop a comprehensive understanding of the **market dynamics, consumer consumption behaviour, attitudes and perceptions** of the **plant-based market** to support the development of a **roadmap for success for the food, drink and horticulture industry while facilitating more robust innovation development.**

How?

1. Extensive **desk review** to provide contextual grounding and identify exemplars of note
2. **N=8 in-depth interviews** with commentators and experts along different points in the supply chain
3. Exploratory mission at the **Plant-Based Expo** in London
4. National **online consumer survey** in n=7 markets

Who? Nationally Representative of all adults

Where?       

How Many? *Plant-Based Consumer Survey*
N=7,096 in Total; approx. n=1,000 per market
N=6,066 excluding China

*Please note:
China Market
will be reported
separately*

When? **October– December 2022**



Photo by Stijn Dijkstra from Pexels

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Who we spoke to: In Depth Interviews



Thought leader in Global Agribusiness, AgTech, and Food Systems



Animal- Free Meat and Dairy Producers



Monaghan Biosciences



Vegan Restaurant Owner



Dietitian and Owner of Dublin Nutrition Centre



Professor of Psychiatry



Tillage Farmer who Implements Regenerative Practices

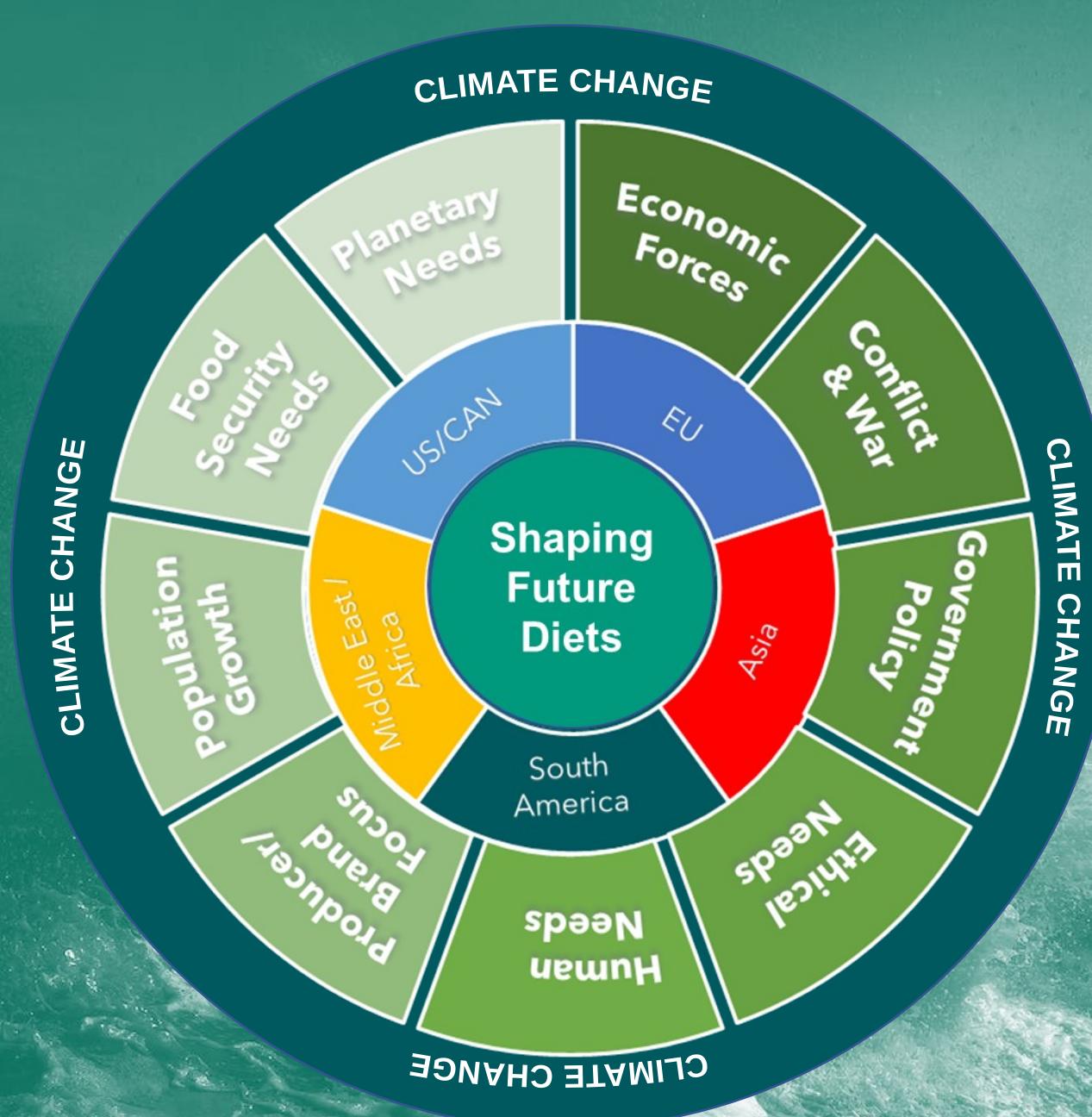


University Design Lecturer and in Sustainable Materials

Food System Pressures

Taking a Step Back





Alongside Climate Change there are many forces that will impact our future dietary choices....

The intersection of policy, economics, trade, industry, human behaviour and needs; the food system is uniquely complex.

Global, Complex, Interconnected and Urgent!

67% believe that if we don't radically change our approach to food production, the planet will not survive...
Max CN 82%, Min US 59%

62% of consumers are concerned about the ability of their country to secure nutrition for its citizens in the future...
Max CN 72%, Min IE 58%

78% of consumers think the planet will struggle to feed the growing global population in the future...
Max FR 80%, Min US 70%
Population will be 10bn in 2050 (UN)

Two thirds believe that Food and drink brands are a vehicle for positive environmental change...

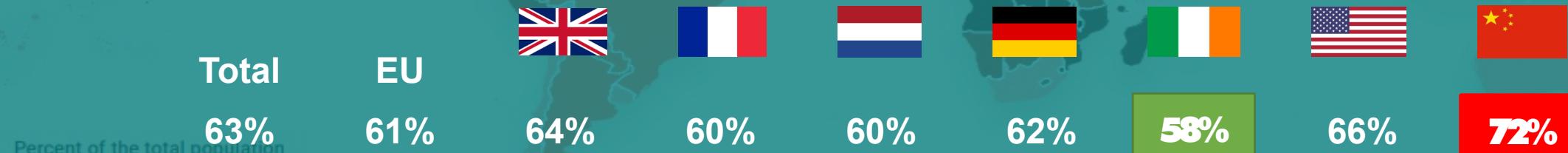
80% would like businesses/organisations to do more to reduce the impact of food and drink production/consumption on the environment



FAO FOOD INSECURITY MAP

Prevalence of Moderate or Severe Food Insecurity
SDG Indicator 2.1.2

“I am concerned about my country’s ability to supply secure nutrition to its citizens in the future”



“Between 2000 and 2020, China’s food self-sufficiency ratio decreased from 93.6 percent to 65.8 percent.”

- Council on Foreign Relations, US Think Tank

“Food security is an important foundation for national security.”
Chinese President Xi, April 2021

Source: FAO, UNICEF, WFP and WHO. 2022. The State of Food Security and Nutrition in the World 2022: Progress on several fronts, but stalling and reversals on food security and nutrition for the most vulnerable. FAO, Rome.

FAO does not necessarily endorse the views or activities of its Member Nations, partners or clients. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

A photograph showing a group of people, likely Chinese, eating a meal together. They are using chopsticks to eat from various bowls of food placed on a table. The food includes what appears to be rice, meat, and vegetables. The scene is set indoors, and the people are dressed in casual clothing.

“Despite its domestic production, China has been a net importer of agricultural products since 2004. Today, it imports more of these products—including soybeans, corn, wheat, rice, and dairy products—than any other country.”

“Between 2000 and 2020, the country’s food self-sufficiency ratio decreased from 93.6 percent to 65.8 percent.”

- Council on Foreign Relations, US Think Tank

Role of government policy particularly important in China



China's Ministry of Agriculture and Rural Affairs released its official five-year agricultural plan on January 26, 2022. For the first time, China included cultivated meats and other "future foods" like plant-based eggs as part of its **blueprint for food security** going forward.

*"This nationwide strategic initiative could accelerate the country's regulatory timeline for cultivated meat, drive more research and investment...and **fuel broader consumer acceptance** of these products."*

-Josh Tetrick, CEO of food-tech company, Eat Just Inc.



“Sustainability is not just about the environment, it’s also about food safety and economic security”

“Diversifying is key to being able to feed the world in the future”

-Mary Shelman, Thought leader- Global Agribusiness



8 in 10 don't think people will change their habits unless sustainable choices are made cheaper

78% believe conflict and war will have an impact on what they eat in the future

76% would like governments to do more to reduce the impact of food production/consumption on the environment
Max CN 89%*, Min US 65%

3 in 4 believe Government policy will have a significant impact on what they eat in the future

Almost **7 in 10** are willing to significantly change their diets to help the environment

53% would like to see more animal welfare friendly options available

Half (**49%**) are concerned about their ability to feed myself/ my family in future due to lack of access to nutritious foods...
Max CN 63%*, Min DE 44%

* Note: China scores are shown here, but not included in the total scores



“We think it’s all just about consumer choice, but for some countries its government policy that will dictate food and drink consumption behaviour and trends”

-Mary Shelman, Thought leader- Global Agribusiness

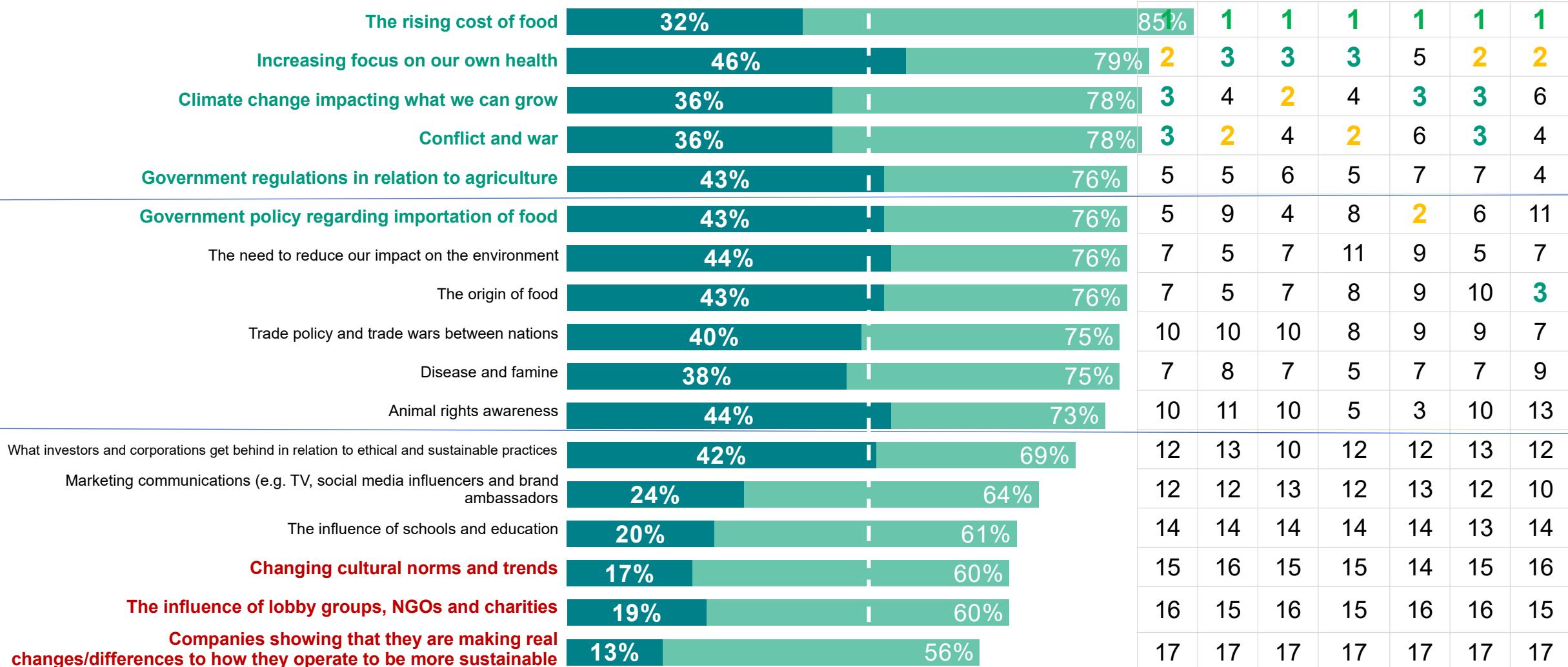
Macro Forces: Influences on future dietary choices

(Base: All Markets excluding China, n=6,077)

%
Big Impact

%
Any Impact

Impact Rank



Future- Proofing Food Systems

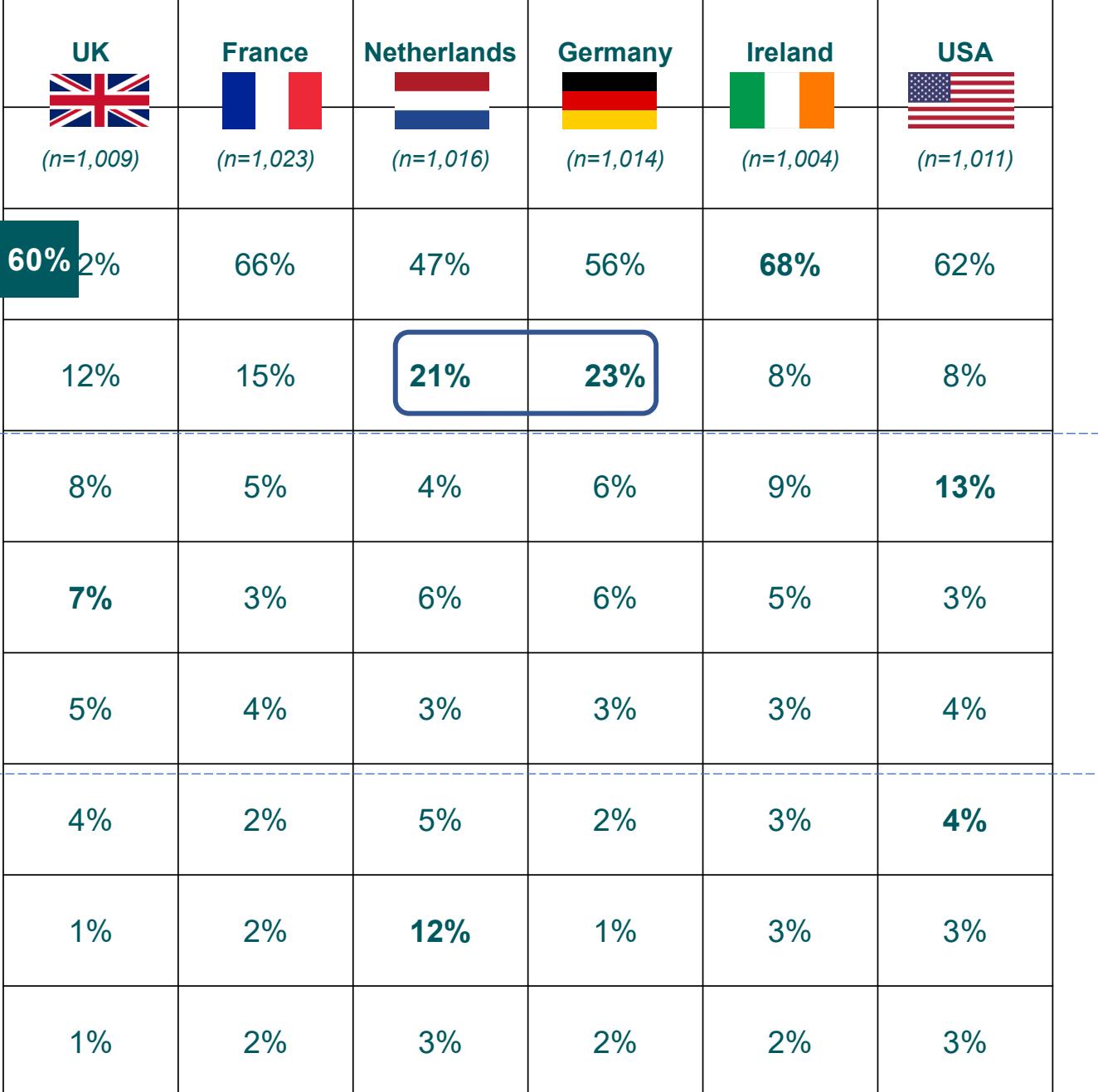


Dietary Choices

Setting the Scene

DIETARY PREFERENCES

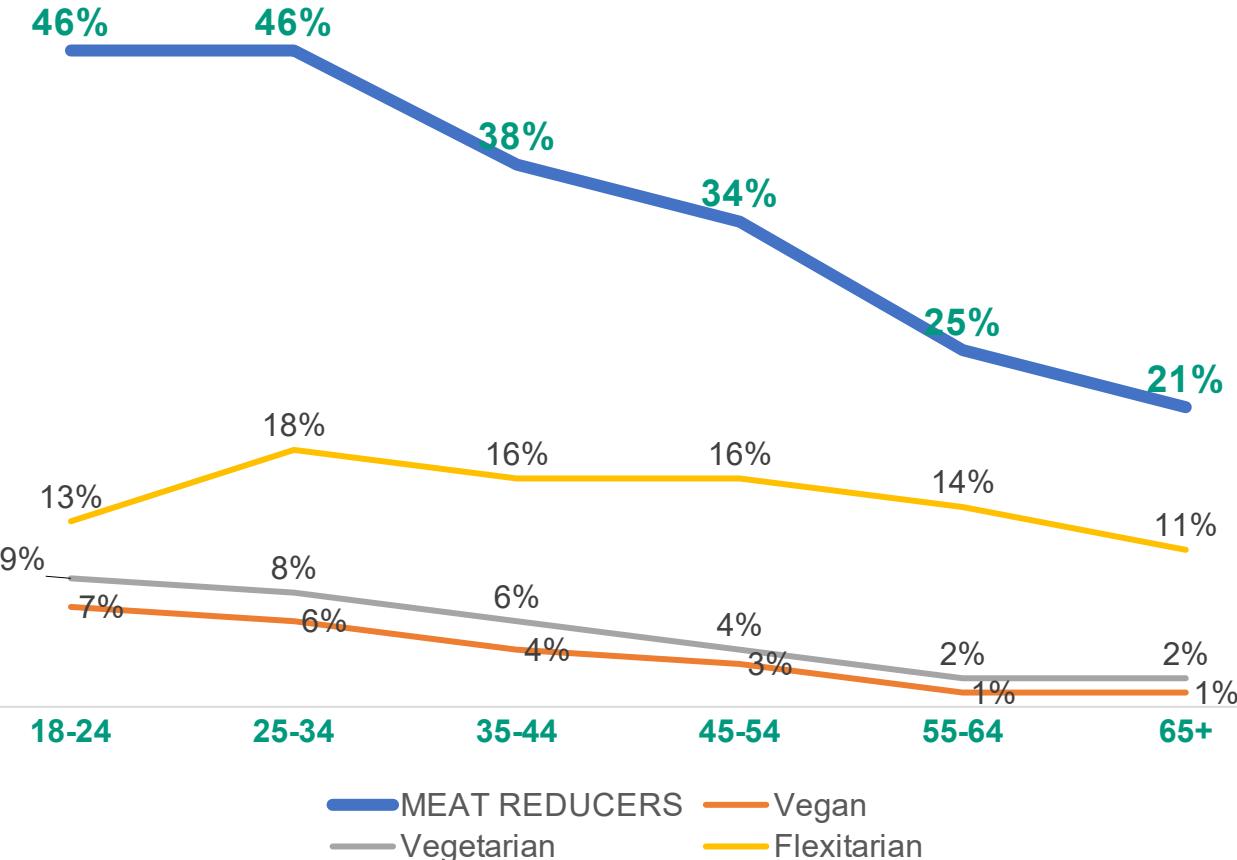
(Base: All Markets , n=6,077)



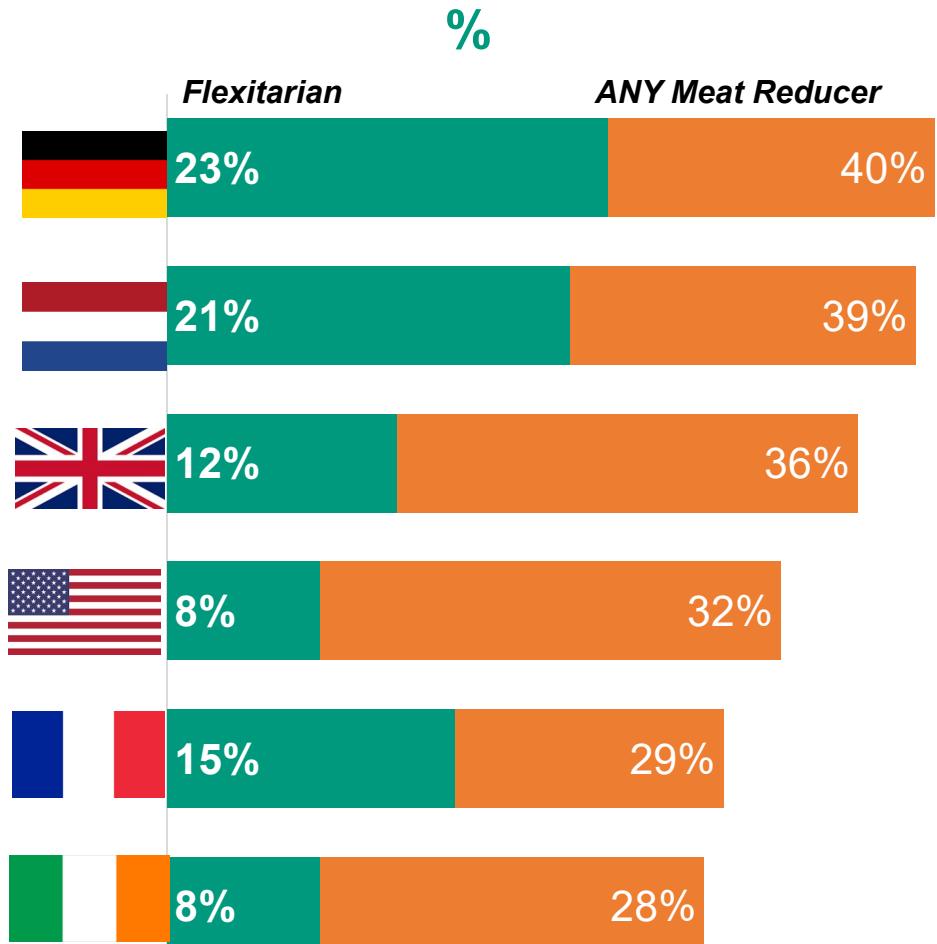
% ANY Reduced/No Meat Diet*

(Base: All Markets , n=6,077)

TOTAL: 34% Consciously Meat Reduced Diets



*Includes Pescatarian, Pollotarian, Flexitarian, Vegan and Vegetarian



“We used to be more anti-meat. But the flexitarian diet is rising.”

Aveen Bannon, Registered Dietician

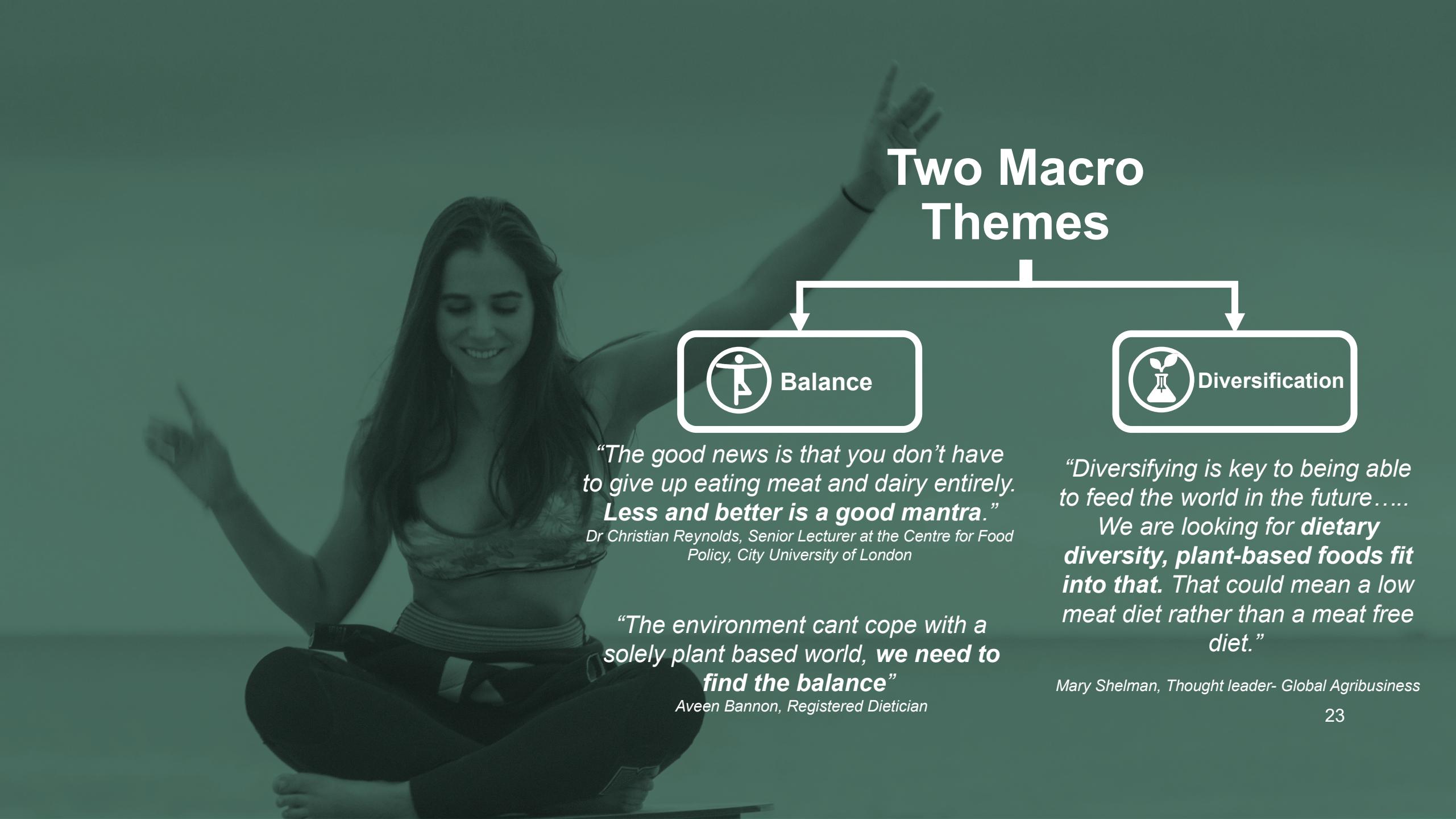
46% of European consumers are consuming less meat than a year ago.

(Innova Insights, for Smart Protein Project, 2021)

52% of consumers in Key Global Export Markets claim to be reducing red meat, 42% Dairy.

(Opinions, Global Sustainability Outlook 2021)





Two Macro Themes



Balance



Diversification

“The good news is that you don’t have to give up eating meat and dairy entirely. Less and better is a good mantra.”

Dr Christian Reynolds, Senior Lecturer at the Centre for Food Policy, City University of London

“The environment can’t cope with a solely plant based world, we need to find the balance”

Aveen Bannon, Registered Dietician

“Diversifying is key to being able to feed the world in the future.....

We are looking for dietary diversity, plant-based foods fit into that. That could mean a low meat diet rather than a meat free diet.”

Mary Shelman, Thought leader- Global Agribusiness

A woman with long brown hair is shown in profile, eating a meal with a fork. In the foreground, there is a bowl of soup and some vegetables. The background is blurred.

**86% of plant-based alternative buyers
(monthly) are neither vegan or
vegetarian....**

**26% are flexitarian
14% are vegan/vegetarian**

In the U.S., 98 percent of people who buy plant-based meat also purchase conventional meat (GFI, SPINs Data)

Appealing to the flexitarian market is key to driving growth

“A vegetarian restaurant would not survive with purely vegetarian customers, it also needs the flexitarians, a wonderful group of people who enjoy vegetarian food.”

Deirdre McCafferty, Cornucopia

“Food in a vegan restaurant must be delicious and appetising to compete- it should never be just worthy”

Deirdre McCafferty, Cornucopia

17 APRIL 2023

Innovation of the day

Concepts, campaigns and companies worth tracking. Selected by our experts, delivered daily.



BARILLA

Barilla's Open Carbonara brings inclusivity to the table by reinventing a classic

Carbonara may be one of the most familiar pasta recipes around, but since it's made with pork, eggs and dairy, it's off-limits to many eaters. Major pasta producer Barilla aims to remedy that issue with its latest project, [Open Carbonara](#). Barilla took the classic Italian dish and made it more inclusive by adapting the recipe to accommodate various dietary restrictions.

A team of chefs led by Marco Martini chose ingredients such as potatoes, soy flakes, saffron and celery root to preserve traditional carbonara's texture and flavor. Open Carbonara is the first offering in Barilla's upcoming Open Recipes platform, which will redesign beloved pasta dishes to make them accessible to a much wider audience. The company's Food Academy is working with culinary experts from various cultural backgrounds to ensure a truly inclusive dining experience.

Macro Themes

Dietary Futures



Macro Themes

Diversification

Supercharged Nutrition

Embracing the role of tech in improving nutritional outcomes for the planet



People Forward
Community, Nutrition

System Re-Reset

Going back to basics; local, organic. A focus on social, community and the planet

Food **security**
Food **sufficiency**
Food **suitability**
Food **sustainability**

Balance

Harm Mitigation: Minimised Impact

Embracing tech and new thinking to improve the environmental sustainability of our food systems



Planet Forward
Environment, Welfare

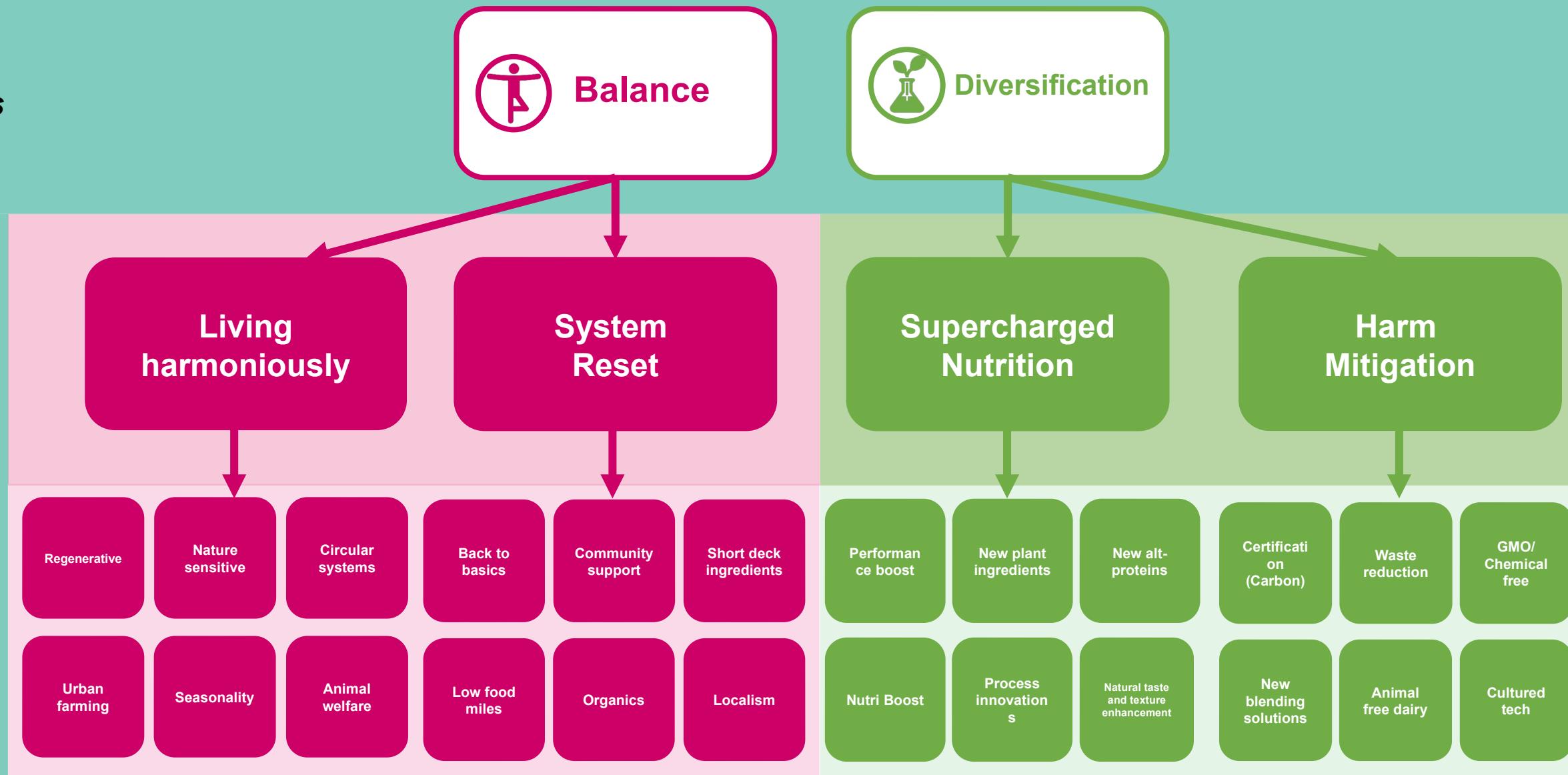
Adaptation: Living harmoniously

Working in collaboration with nature and not against; rethinking approaches

Themes

“Dig sites”

Expressions

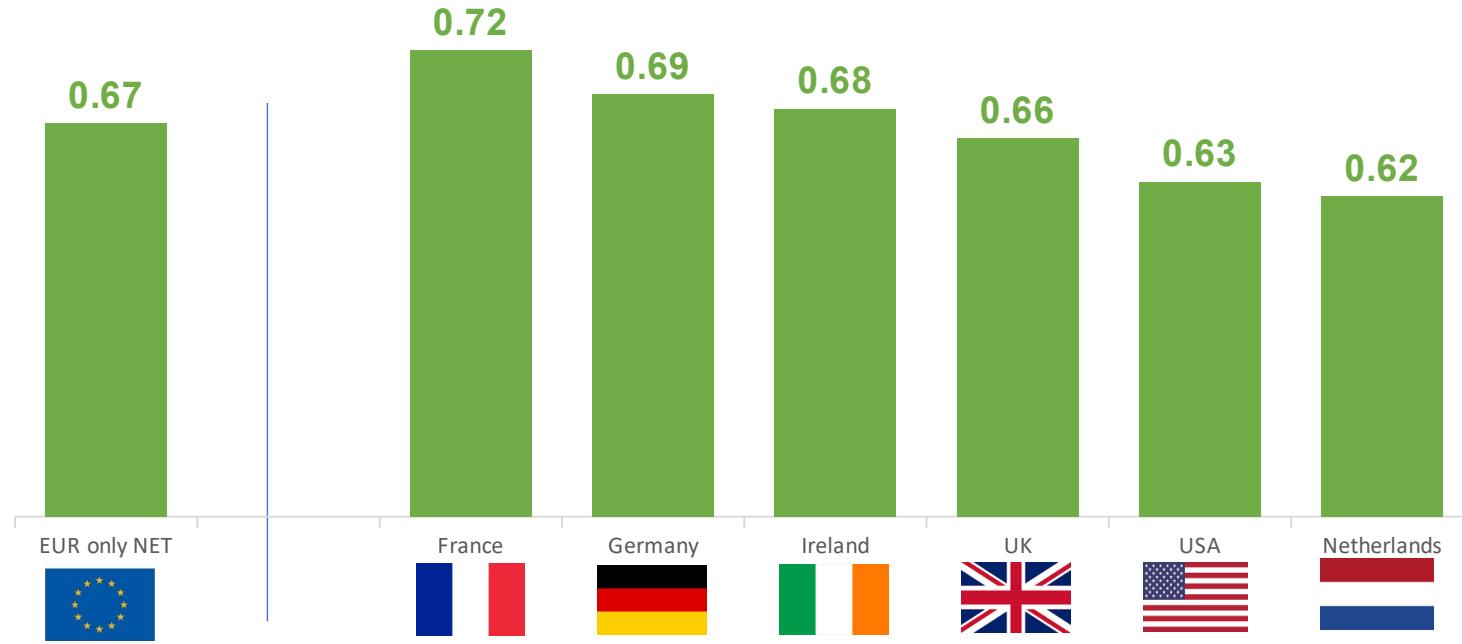
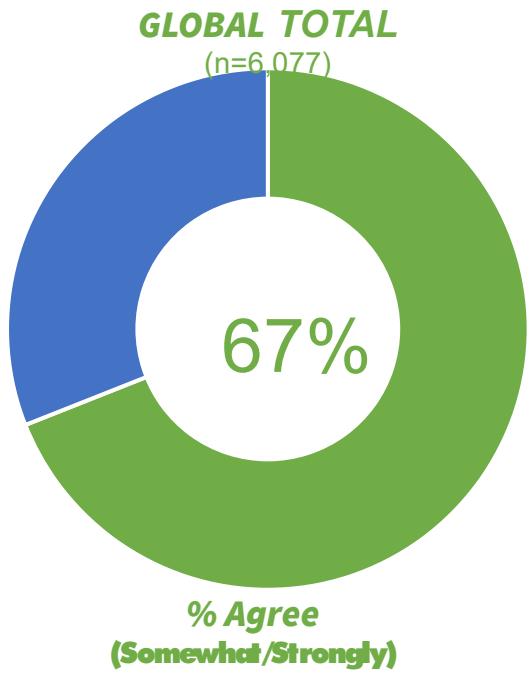


Evolution

Dietary Futures



“I am willing to change the foods I consume significantly to improve the environment”



There is a willingness to make changes to diets for the environment, but....

Climate Change Impacting Production

Changing temperatures and rainfall patterns have led to a disruption in food production across the globe.

Rising temperatures and droughts in Europe have decreased yield of grain maize, sunflowers and soybeans.

Flooding has been found to **significantly impact food security**, particularly in developing nations*. The recent flooding in Pakistan submerged 1/3 of the country and damaged 80% of their crops.

42% think climate change and what we can grow will impact what we eat in the future.

1



2



3



The Observer
Italian food and drink

Miranda Bryant

Sun 26 Feb 2023 11.00 GMT



Tomato-free pizza on UK menus as chefs choke on the price of fruit and veg

Italian restaurants are forced to replace classic dishes with 'white' versions as cost of their staple ingredient soars



© Margherita pizza, with basil, mozzarella and tomato, may become rarer in the UK. Photograph: Martin Prole/The Observer

The price of tomatoes has increased as much as fourfold in the past year, from £5 a case to £20 a case, according to the Federazione Italian Cuochi UK (FIC UK)

Photo by Genaro Servín on Pexels

The Impact of Conflict & War

Conflict is the biggest driver of hunger, with 60% of the world's hungry people living in areas affected by war*.

Russia's invasion of Ukraine in late February dramatically worsened the outlook for already **inflated global food prices**. This has disrupted supply of exports from the **“Breadbasket of Europe”**, which disproportionately affects developing markets around the world.

The resulting energy crisis and gas inflation has seen production of salads from Lea Valley in the UK half as it is too expensive to heat greenhouses!

42% think **conflict and war** will have a big impact on what we eat in the future.

1



2



3



Key crops affected by the invasion of Ukraine



Wheat



Sunflower



Corn

The Impact of Disease & Famine

Conflict, economic shocks, climate extremes and soaring fertilizer prices are combining to create a food crisis of unprecedented proportions. As many as 828 million people are unsure of where their next meal is coming from.

More than 900,000 people worldwide are living in famine-like conditions. This is ten times more than five years ago, an alarmingly rapid increase.*

37% think that **disease and famine** will have a **big impact** on what we eat in the future.

1



2



3



COVID-19 has worsened the food crisis, with over 150 million more people acted by hunger since the onset of the pandemic**.

Photo by Pixabay from Pexels



1. Over 1 in 3 consciously reducing red meat intake.
2. Contextually population pressure, food security and climate change are prevalent in consumer's minds.
3. Government policy, human health/nutrition and cost are critical influences on dietary decisions.

Sustainable diets need both balance and dietary diversification to meet the growing demands of our global population.



Balance



Diversification

These symbols will appear throughout the deck to highlight the macro trends

What now?

Making Informed Choices



Consumers want to know more!



Wish they knew more about
**how plant based alternatives
are made**

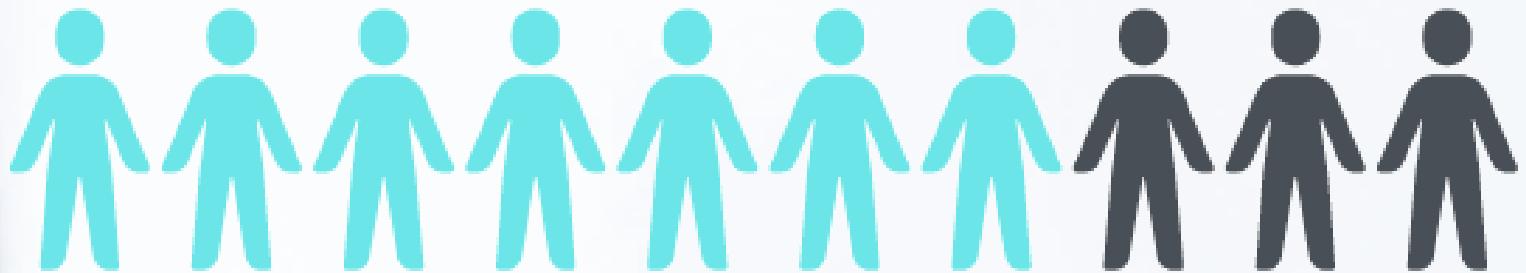


Wish they **better understood
the impact they have on the
environment**

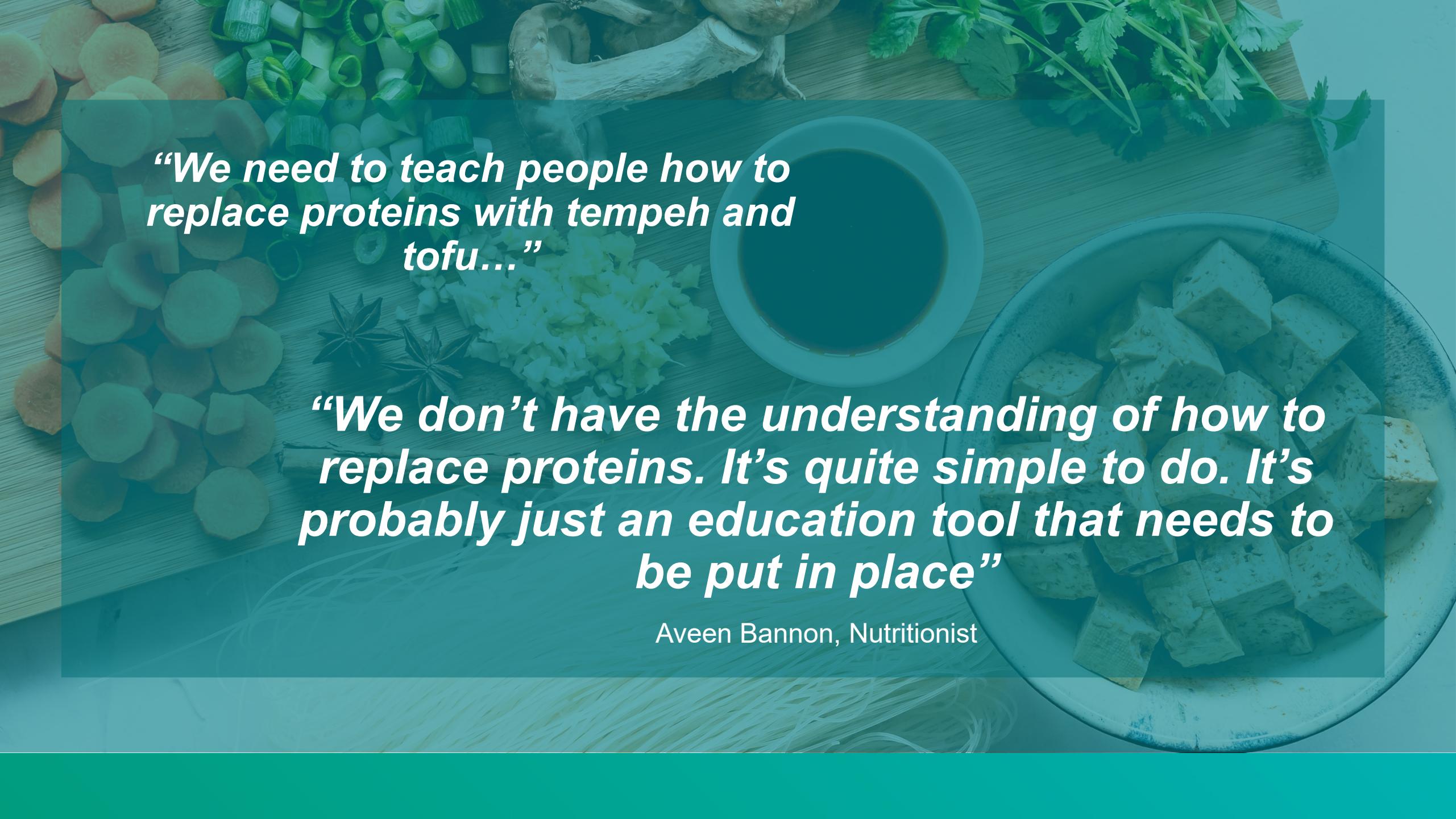
(Base: All Markets excluding China, n=6,077)



Education can play a role in the future of how we engage with different dietary lifestyles



Nearly 7 in 10 think that schools and education will have an impact on what we eat and drink in the future



“We need to teach people how to replace proteins with tempeh and tofu...”

“We don’t have the understanding of how to replace proteins. It’s quite simple to do. It’s probably just an education tool that needs to be put in place”

Aveen Bannon, Nutritionist

Understanding sustainability relating to food and drink



30%

claim they are **not confident** in their understanding

“In Germany they know a lot about sustainability relating to materials and packaging, in Ireland our knowledge is quite poor”

-Enda O'Dowd, Enda O' Dowd, Lecturer Product Design

“Schools need greater education in their curriculum about the environment.”

- Deirdre McCafferty, Cornucopia



69%

claim they would like to be **more educated** in this area



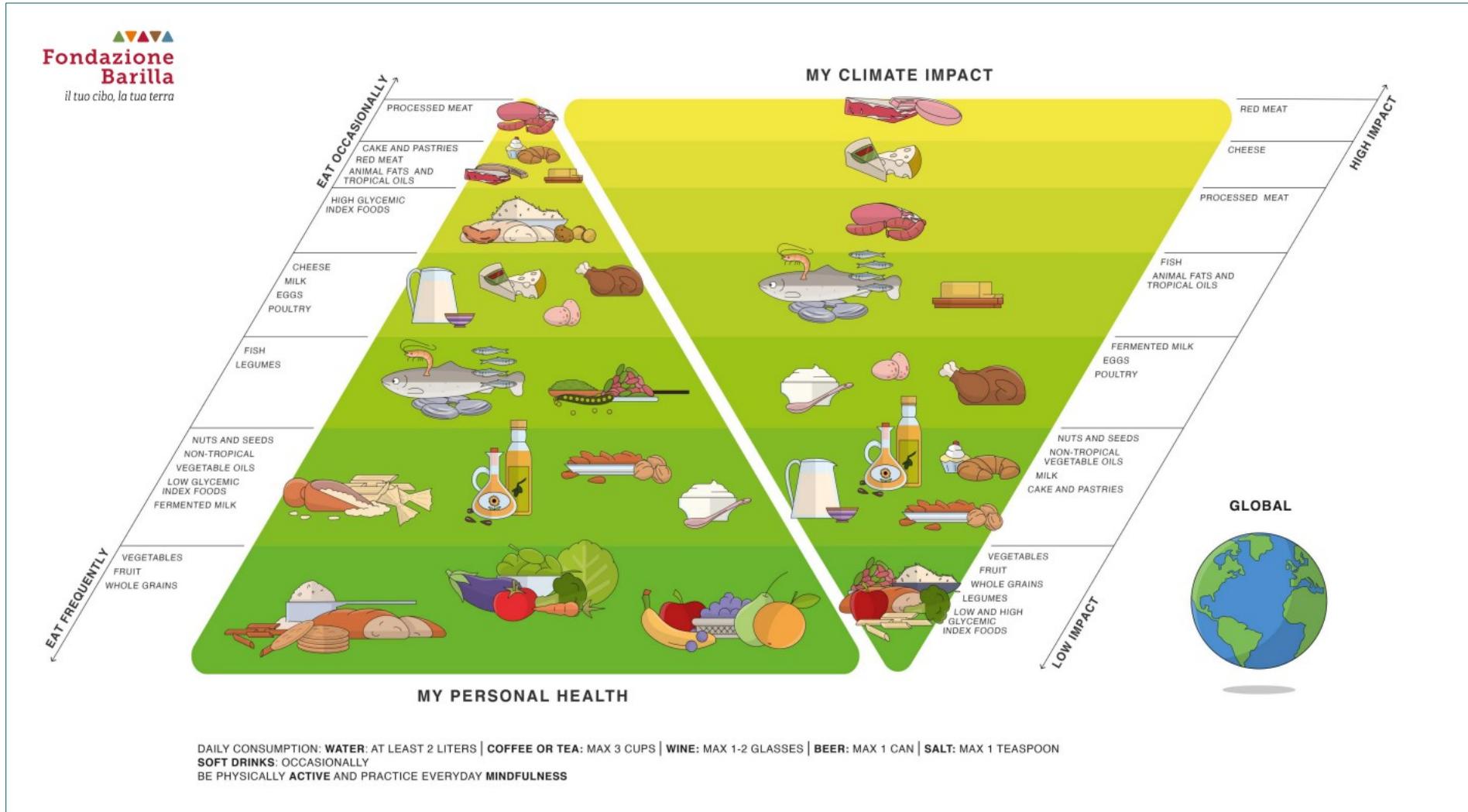
80%



71%

Particularly in Ireland and France we see a desire for more sustainability education

Sustainable Diets



The Barilla Double Pyramid

Launched by **Barilla & the University of Naples Federico II**, the Double Pyramid outlines how to achieve both personal and planetary health by adopting a **diverse and balanced** diet.



Balance



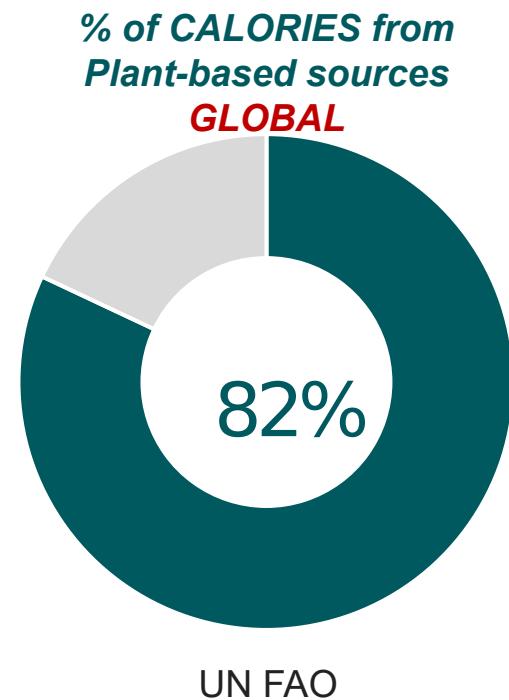
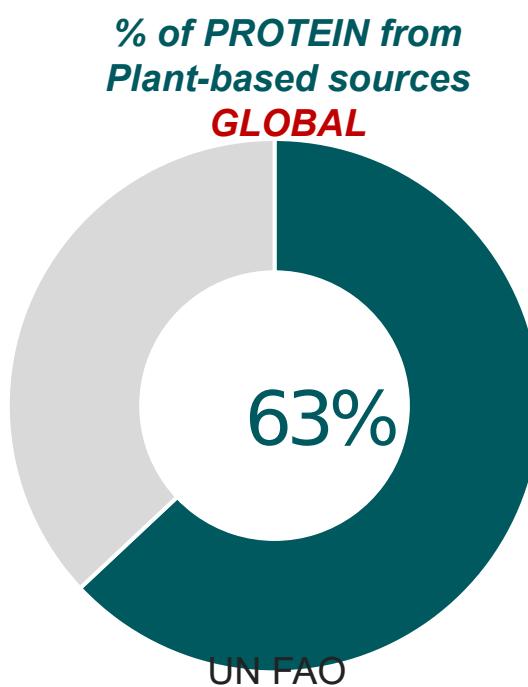
Diversification

Focus on Protein



Only about one-third of the protein eaten around the world comes from animals raised for food. Much of the protein consumed around the world comes from vegetarian sources, including grains, legumes, nuts and seeds. Three grains -- wheat, maize and rice -- provide 60 percent of the world's energy, as well as a good percentage of the protein consumed

Source of Nutrition



 37% meat approx.
British Nutrition Foundation

 40% meat approx.
National Adult Nutrition Survey TCD

PLANT IS NOT A NOVEL SOURCE OF PROTEIN!

Nutrition analyst at Euromonitor International, Sara Petersson, said: ***“Most of Ireland’s calories derive from meat, followed by baked goods, with bread being the primary source within that category.***

“In third place is dairy and confectionery in fourth. This pattern is similar to what we see in other Western Countries such as the UK, the US or Canada. It differs from Asian Pacific Countries, where rice, noodles or nuts, play a more significant role in the diet.

Not all proteins are created equal

Plant-based proteins do not have a complete amino acid sequence like most animal-based proteins. Eating a range of different plant-based proteins across the day will provide a complete amino acid profile in the diet.

Protein Combining is important for those who consume limited protein sources (eg due to poverty, crisis situations, geographical limitations, vegetarianism, veganism)



Balance



Diversification

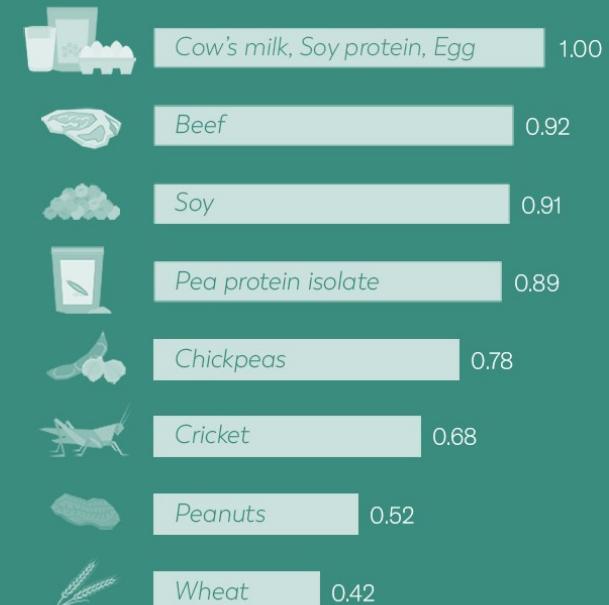
Bioavailability of Proteins

From which foods does our body absorb the most protein?

Even if the nutritional label of a product shows its amount of protein, it doesn't mean we can digest and absorb all of it.

The PDCAAS* is the best way to measure the nutritionally valuable content of protein sources.

*Protein Digestibility Corrected Amino Acid Score
(On this scoreboard, 1.00 is the highest value)



Bioavailability of Nutrients

Bioavailability is the proportion of a nutrient that is absorbed from the diet and used for normal body functions

European Food Information Council

Plant based sources of calcium, iron and zinc can be harder for the body to digest and absorb due to the presence of oxalic acid, phytic acid and polyphenols in the foods.

Nutrient bioavailability must be considered when consuming a plant-based diet. This can be counteracted by eating a wide variety of fruits and vegetables, using recommended cooking methods, or eating the foods in specific combinations (eg iron and vitamin C).

Example:

Boundless Activated Snacks are pre-soaked to remove phytic acid and other enzymes to increase the bioavailability of nutrients and make their products easier to digest.

Planetary Considerations

Eco Impact of Food





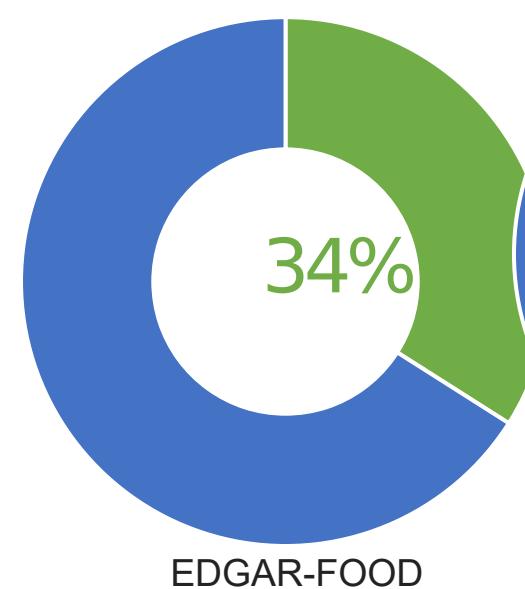
Despite the need for more education to encourage healthy diversification of diets, there is an awareness among many that our food and drink choices may be harming the environment..

4 in 10 consumers globally believe that their food choices have a significant negative impact on the environment.

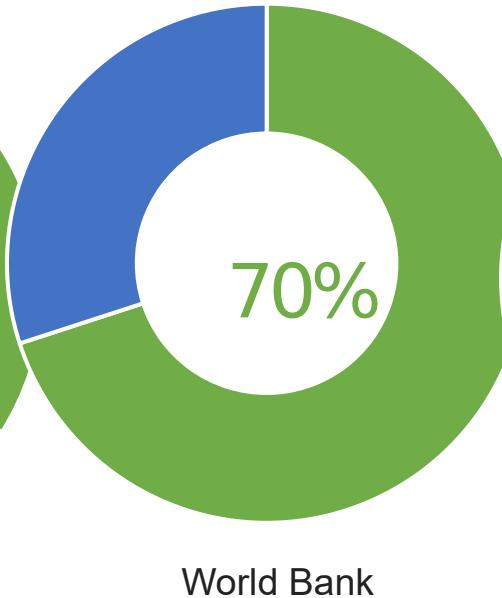
(Bord Bia/Opinions, Global Sustainability Outlook, 2021)

Agri-food Eco Impact

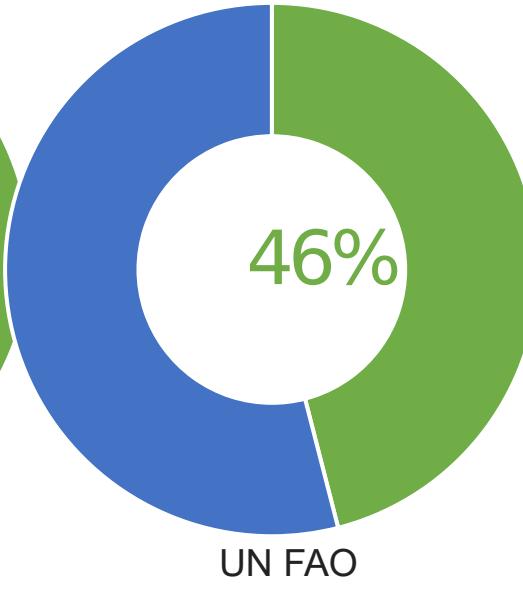
% of GHGs from Food Systems Globally



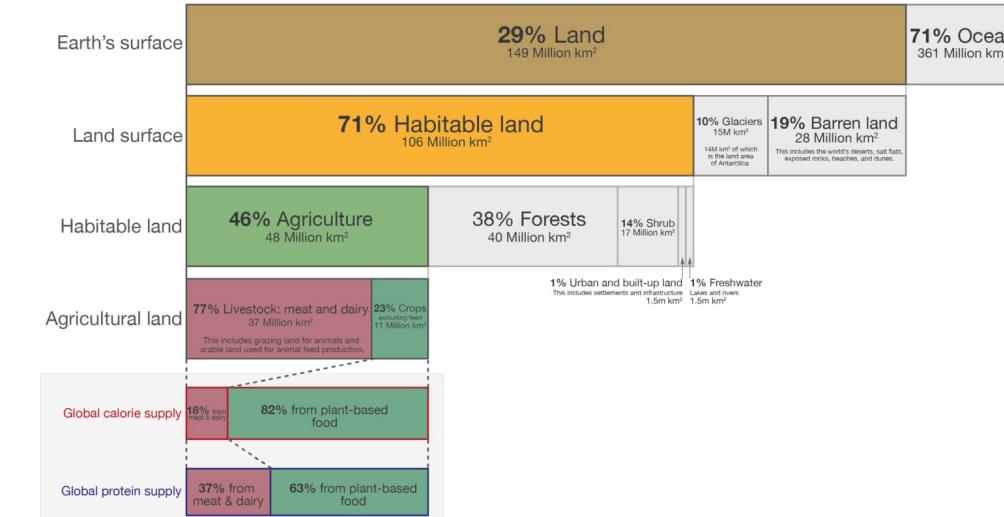
% of fresh water used by agriculture Globally



% of Habitable Land Globally



Global land use for food production



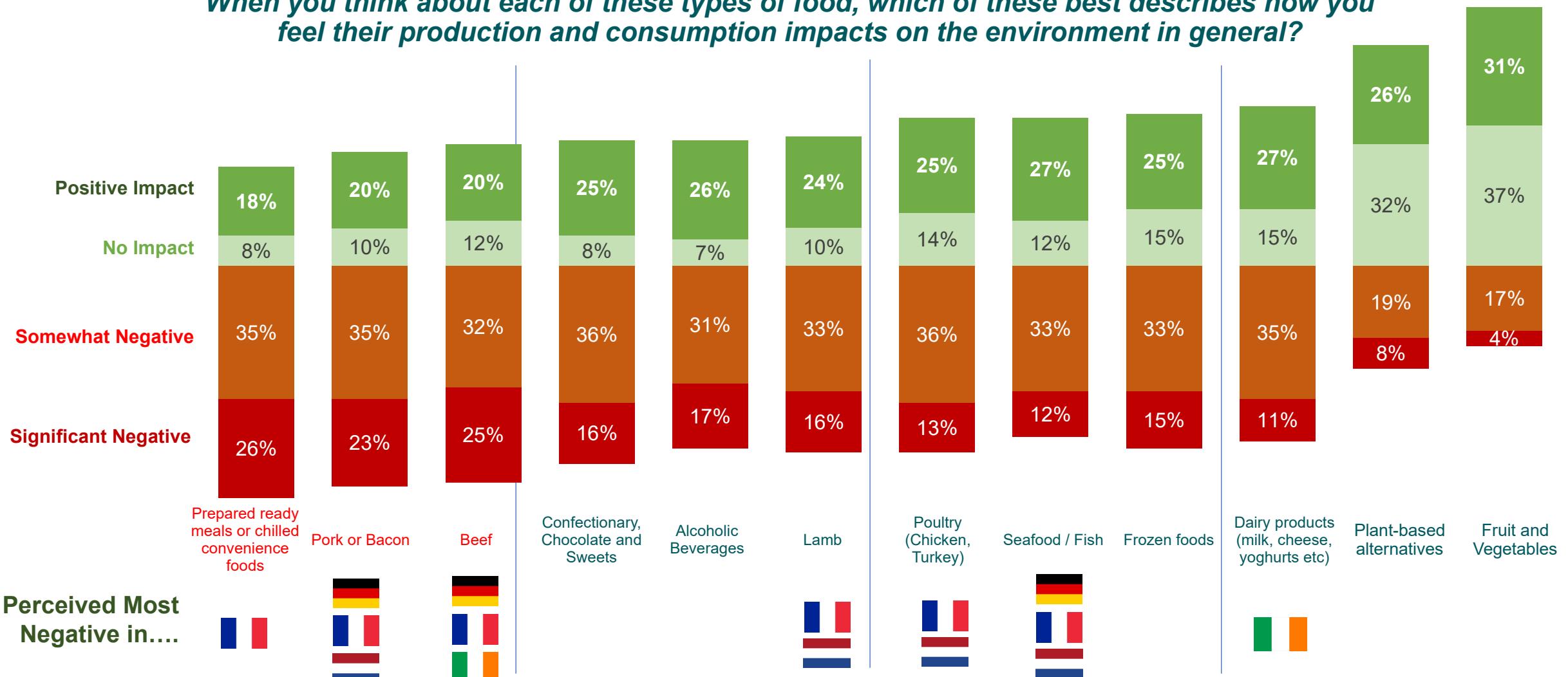
Data source: UN Food and Agriculture Organization (FAO)
OurWorldinData.org - Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the authors Hannah Ritchie and Max Roser
Date published: November 2018

Perceived Relative Impact of Protein Choices on Environment

(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR)

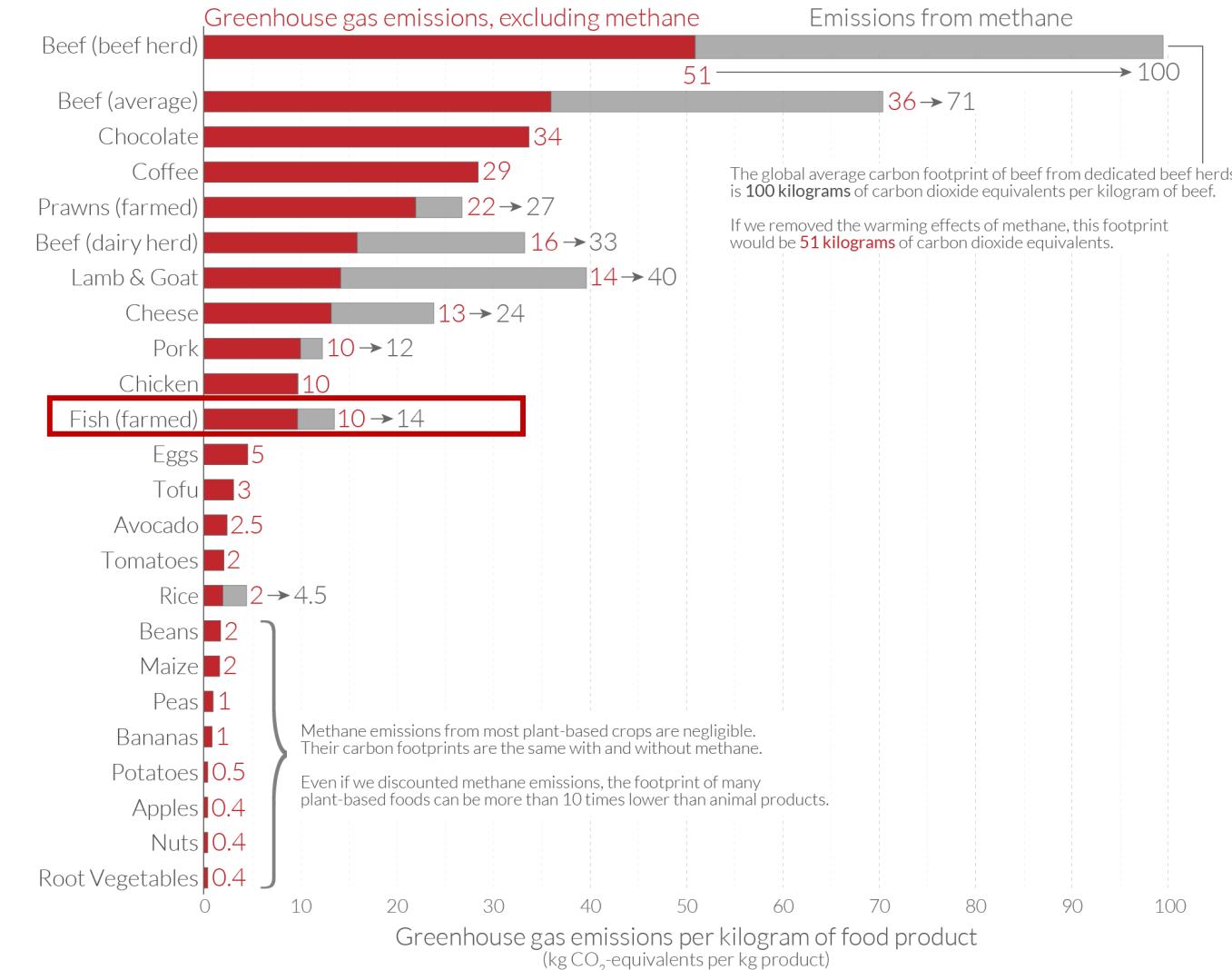
When you think about each of these types of food, which of these best describes how you feel their production and consumption impacts on the environment in general?



Greenhouse gas emissions from food, short vs. long-lived gases

Greenhouse gas emissions are measured in carbon dioxide-equivalents (CO₂eq) based on their 100-year global warming potential (GWP).

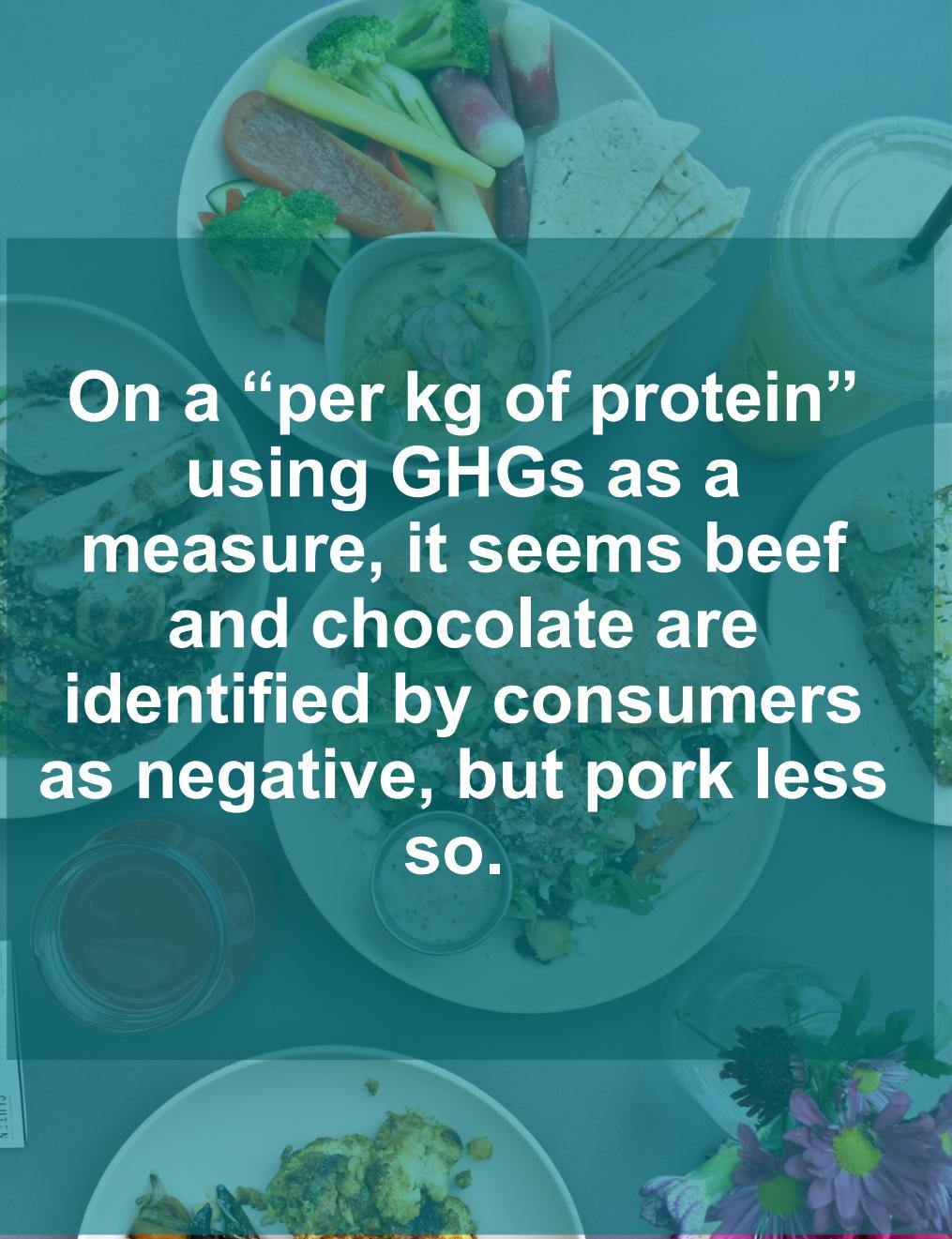
Global mean emissions for each food are shown with and without the inclusion of methane – a short-lived but potent greenhouse gas.



Note: Greenhouse gas emissions are given as global average values based on data across 38,700 commercially viable farms in 119 countries.

Data source: Poore & Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*.

OurWorldInData.org – Research and data to make progress against the world's largest problems. Licensed under CC-BY by the authors Joseph Poore & Hannah Ritchie.



Implications for Land Use

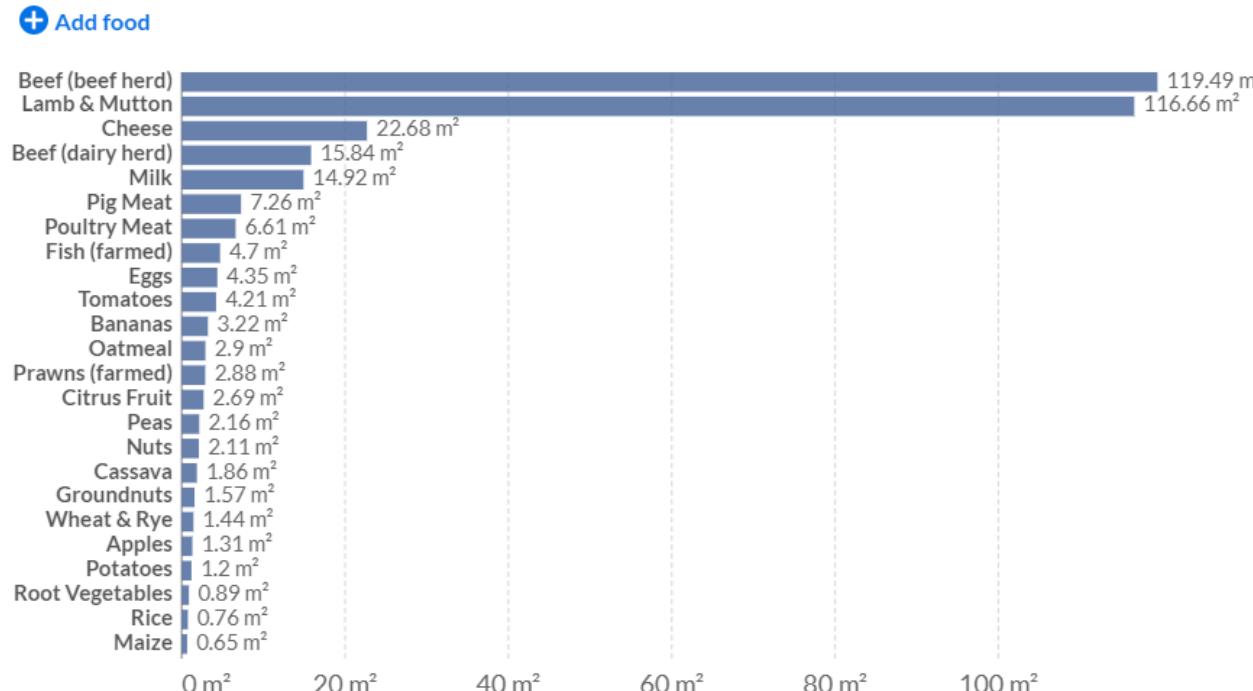
If everyone shifted to a plant-based diet **we would reduce global land use for agriculture by 75%.**

<https://ourworldindata.org/land-use-diets>

Our World
in Data

Land use of foods per 1000 kilocalories

Land use is measured in meters squared (m²) required to produce 1000 kilocalories of a given food product.

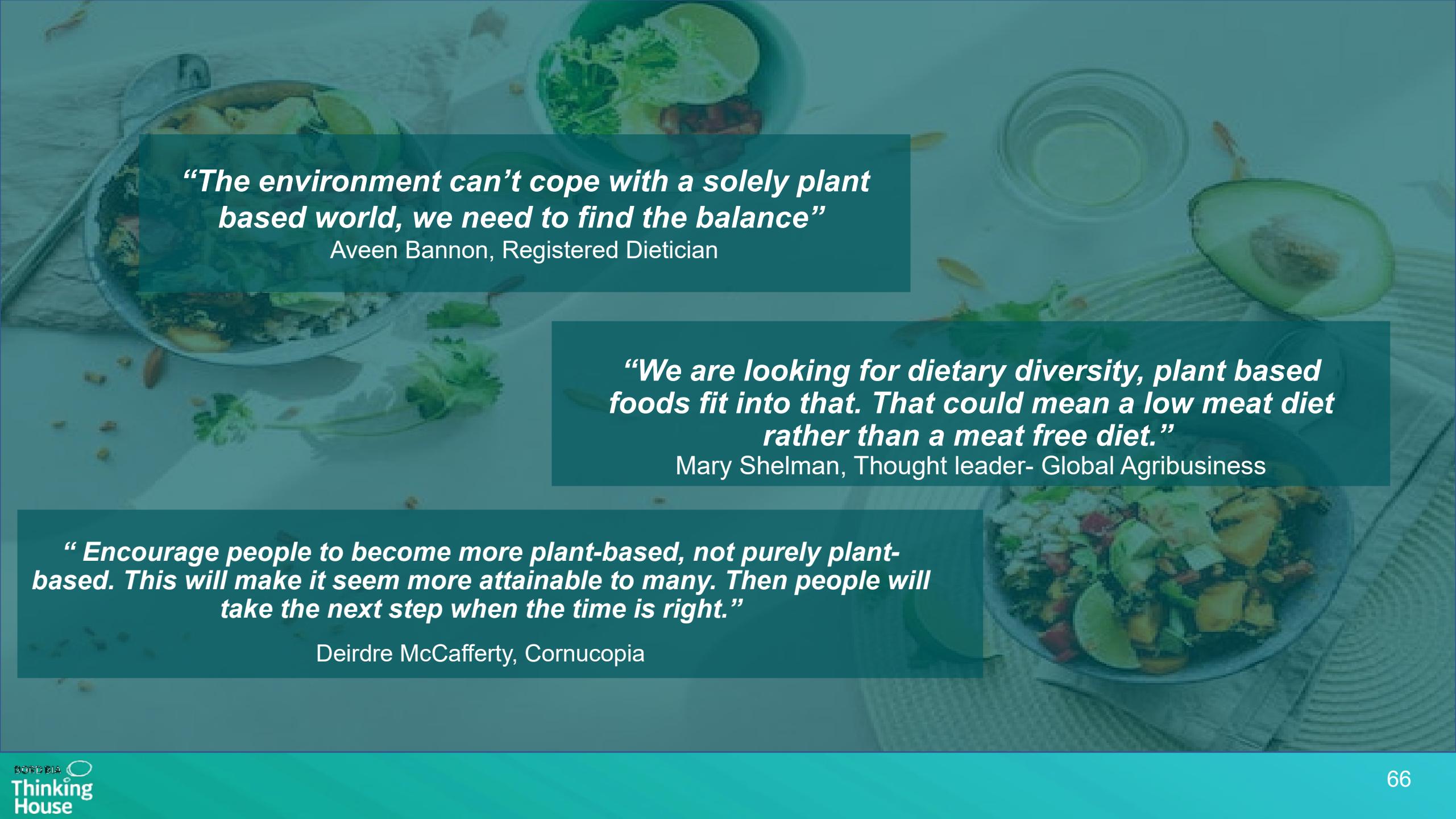


Source: Poore, J., & Nemecek, T. (2018). Additional calculations by Our World in Data.

Note: The median year of the studies involved in this research was 2010.

OurWorldInData.org/environmental-impacts-of-food • CC BY





“The environment can’t cope with a solely plant based world, we need to find the balance”

Aveen Bannon, Registered Dietician

“We are looking for dietary diversity, plant based foods fit into that. That could mean a low meat diet rather than a meat free diet.”

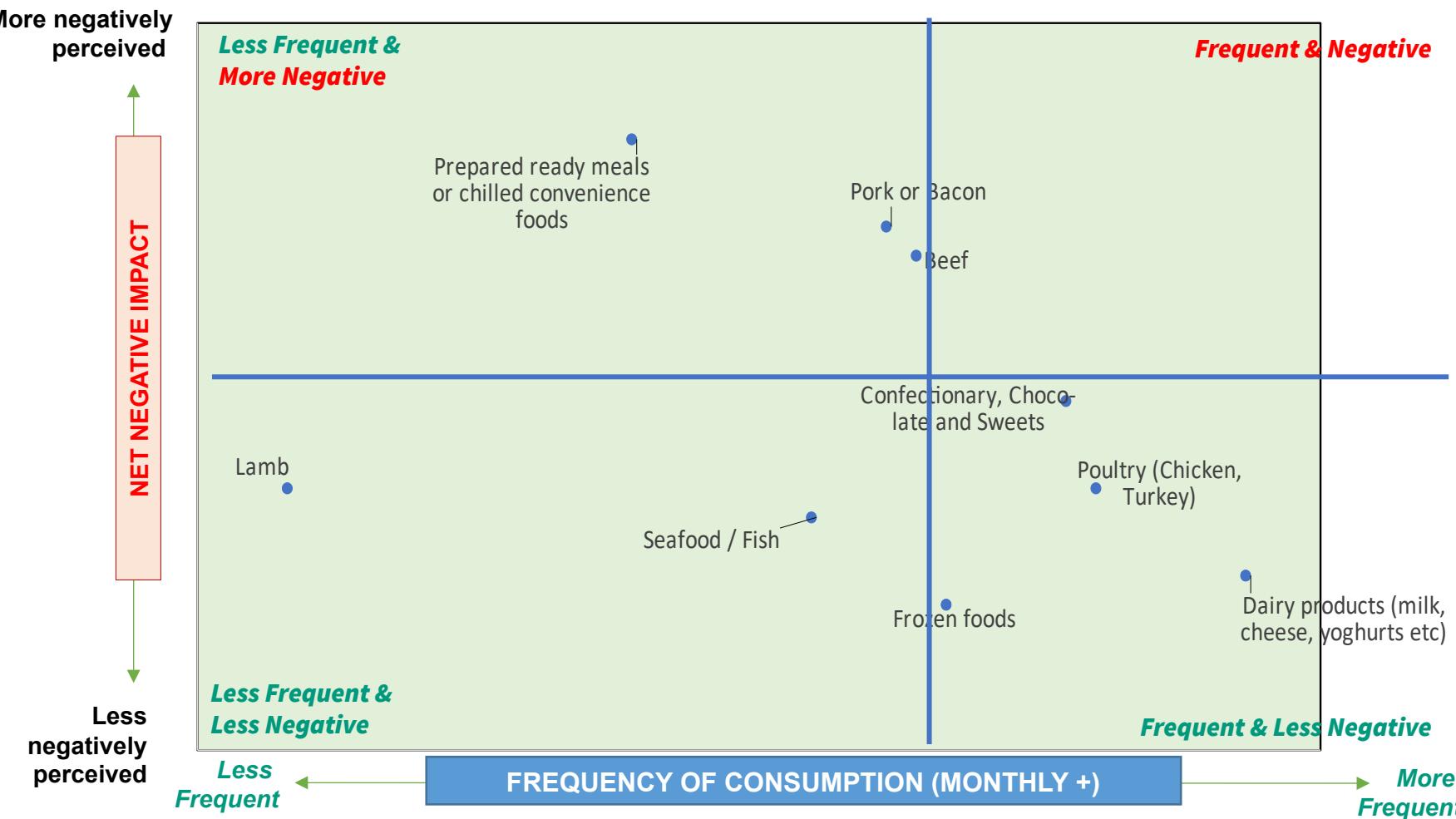
Mary Shelman, Thought leader- Global Agribusiness

“Encourage people to become more plant-based, not purely plant-based. This will make it seem more attainable to many. Then people will take the next step when the time is right.”

Deirdre McCafferty, Cornucopia

Relative Perceived Impact of Protein Choices x Frequency of Consumption (excluding Plant and Vegetables)

(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR – EXCLUDING CHINA)

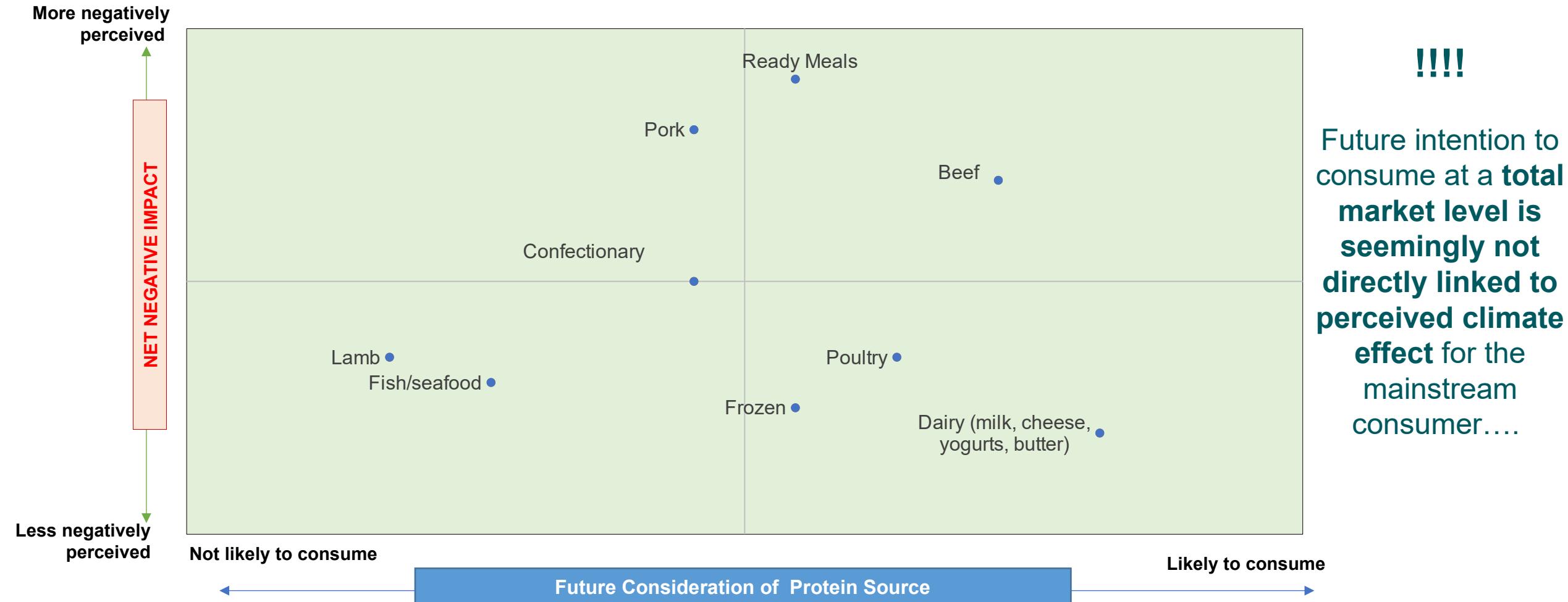


When we view options (excluding vegetables and plant-based alternatives), **Prepared Meals, Pork and Beef** are considered the most sizable “problem proteins”....

Fish is interesting as it is considered to be relatively low impact; Dairy doesn't register either as significantly injurious to the planet in relative terms

Future consideration of proteins x perceived impact on the environment

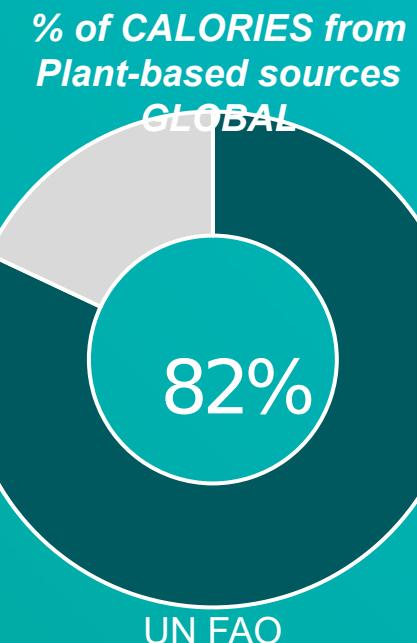
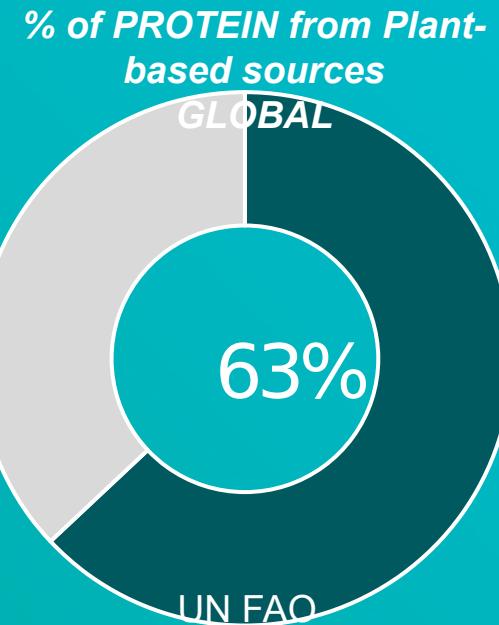
(Base: Total Sample, n=6,077)



H4: Negative Summary - When you think about each of these types of food, which of these best describes how you feel their production and consumption
F1. Summary - Which of the following statements best describes your expected future consumption levels of each of the following products?



1. There is significant **interest in knowing more about the impact of food choices on the world.**
2. **Beef, PCF and Pork** are perceived to have the most negative effect....
3. Dairy and seafood seen to be much less impactful.
4. And naturally fruit, veg and plant-based are relatively benign in this regard.
5. So climate effects are real and consumers are generally aware of this, but the evident **impact on the choices they make is not always aligned with these facts.**



Consumer Mood

Attitudes to the challenge ahead



Climate crisis

World risks descending into a climate 'doom loop', warn thinktanks

Report says simply coping with escalating impacts of climate crisis could override tackling root cause

Damian Carrington
Environment editor

Twitter @dpcarrington



■ The research said an example of the impact of the climate crisis complicating climate the debate over whether a global temperature rise below 1.5C was still possible. Photog Fassbender/AFP/Getty Images

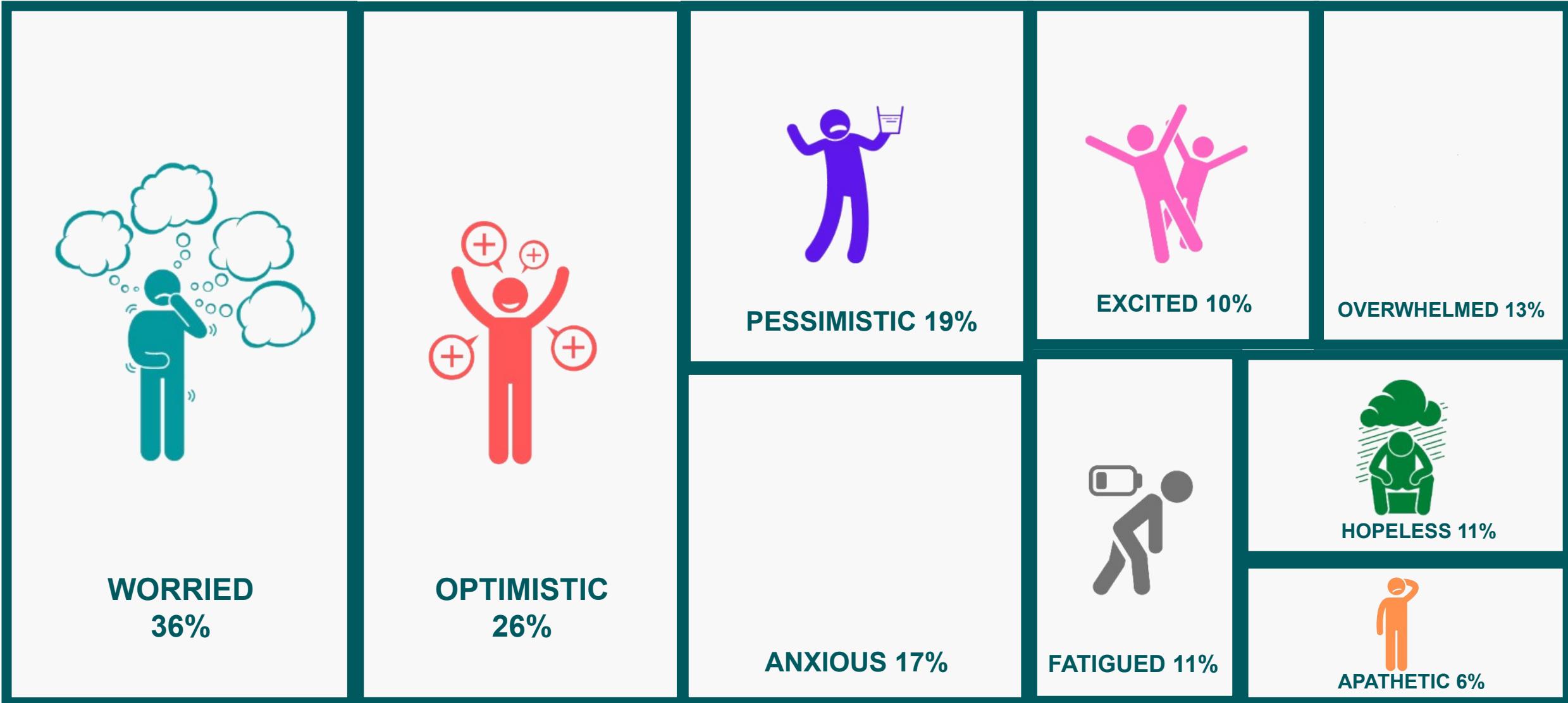
Continued urgent action needed to prevent food and nutrition crisis from worsening



© Roberto Villanueva | A Food Bank agent collects food at a wholesale market in Lima (mercado de mayoristas), Peru.

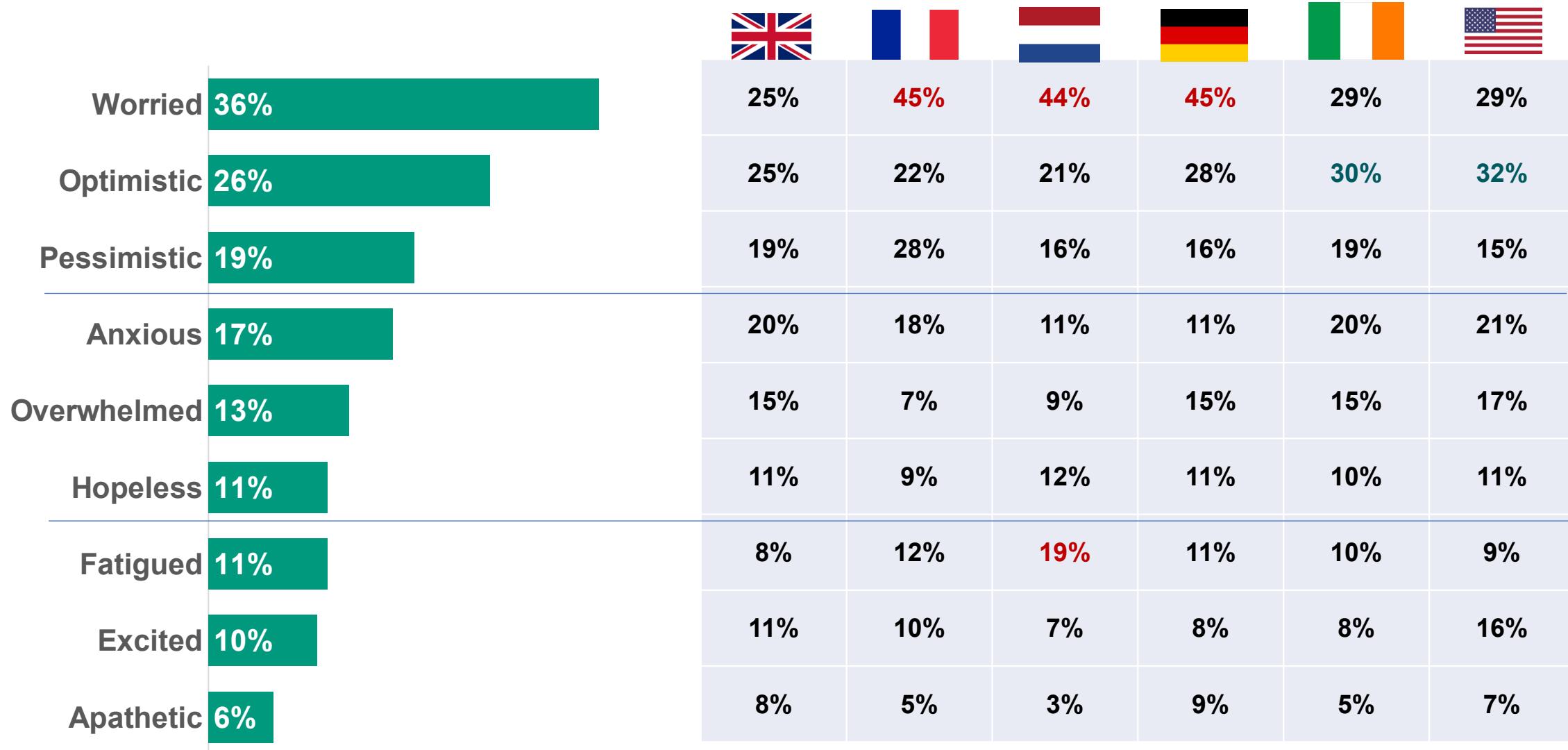
How we feel about the future of food sustainability?

(Base: All Markets excluding China, n=6,077)



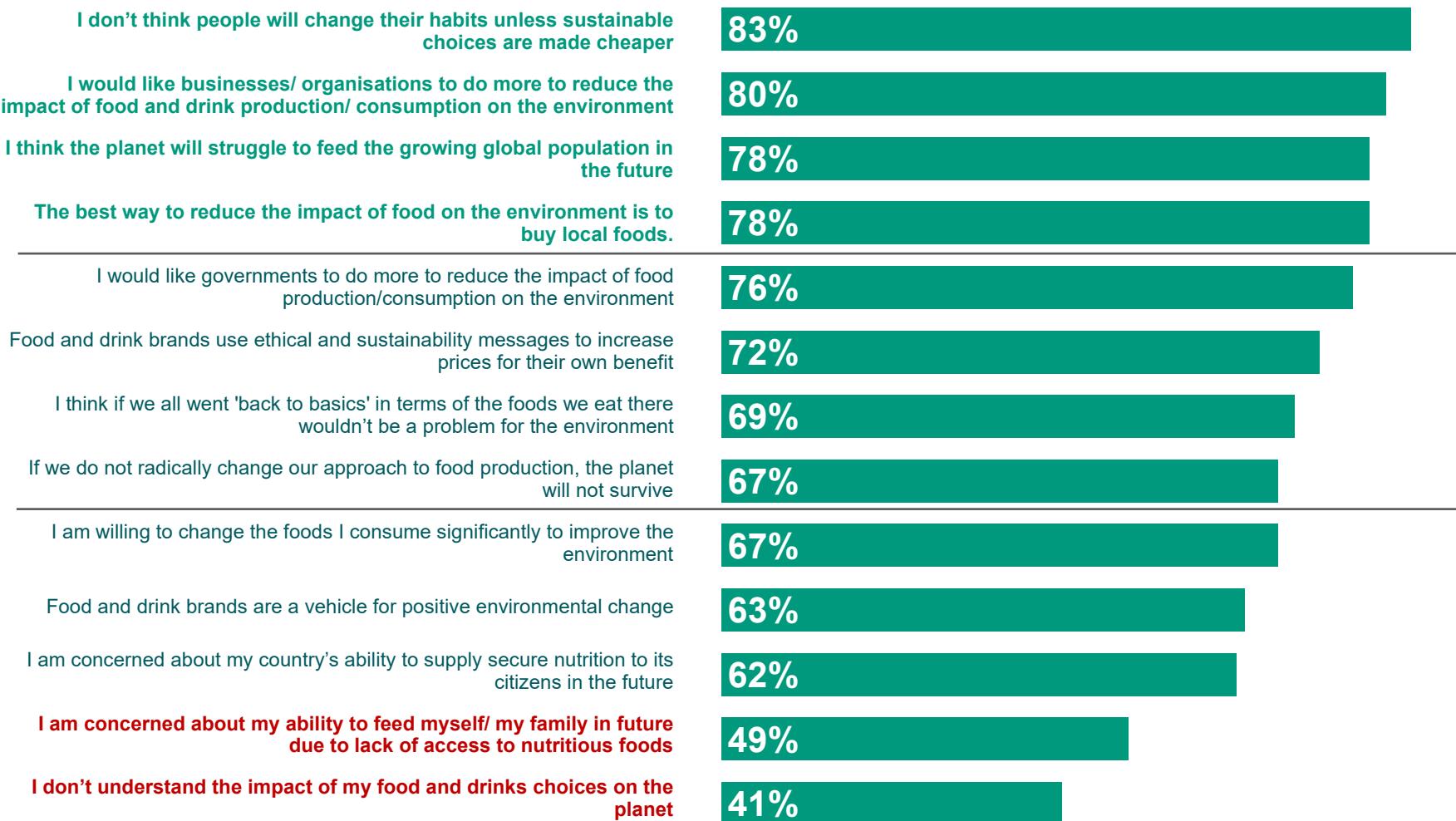
How we feel about the future of food sustainability?

(Base: All Markets excluding China, n=6,077)



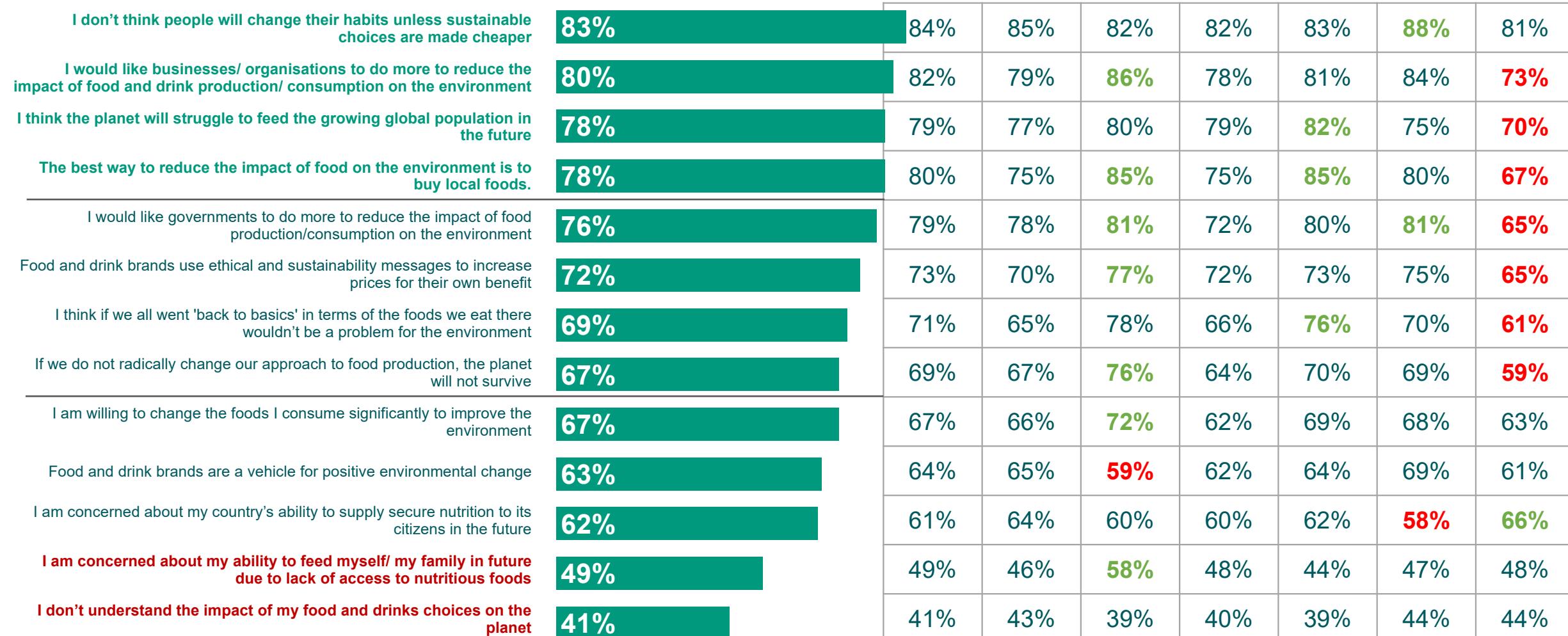
Macro Attitudinal Response.....

(Base: All Adults n=6,076, Market Sample n=1,000 approx.)



Macro Attitudinal Response.....

(Base: All Adults n=6,076, Market Sample n=1,000 approx.)



Three Prevailing Perspectives Emerge....

1. I am concerned about my country's ability to supply secure nutrition to its citizens in the future
2. If we do not radically change our approach to food production, the planet will not survive
3. I am concerned about my ability to feed myself/ my family in future due to lack of access to nutritious foods
4. I don't understand - the impact of my food and drinks choices on the planet
5. Food and drink brands use ethical and sustainability messages to increase prices for their own benefit
6. Food and drink brands are a vehicle for positive environmental change
7. I think the planet will struggle to feed the growing global population in the future
8. I would like governments to do more to reduce the impact of food production/consumption on the environment
9. I would like businesses/ organisations to do more to reduce the impact of food and drink production/ consumption on the environment
10. I am willing to change the foods I consume significantly to improve the environment
11. I think if we all went "back to basics" in terms of the foods we eat there wouldn't be a problem for the environment
12. The best way to reduce the impact of food on the environment is to buy local foods.
13. I don't think people will change their habits unless sustainable choices are made cheaper

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)

Photo by Isabela Drasovean on Unsplash
Photo by Clem Onojeghuo on Unsplash
Photo by Alexander Grey on Unsplash



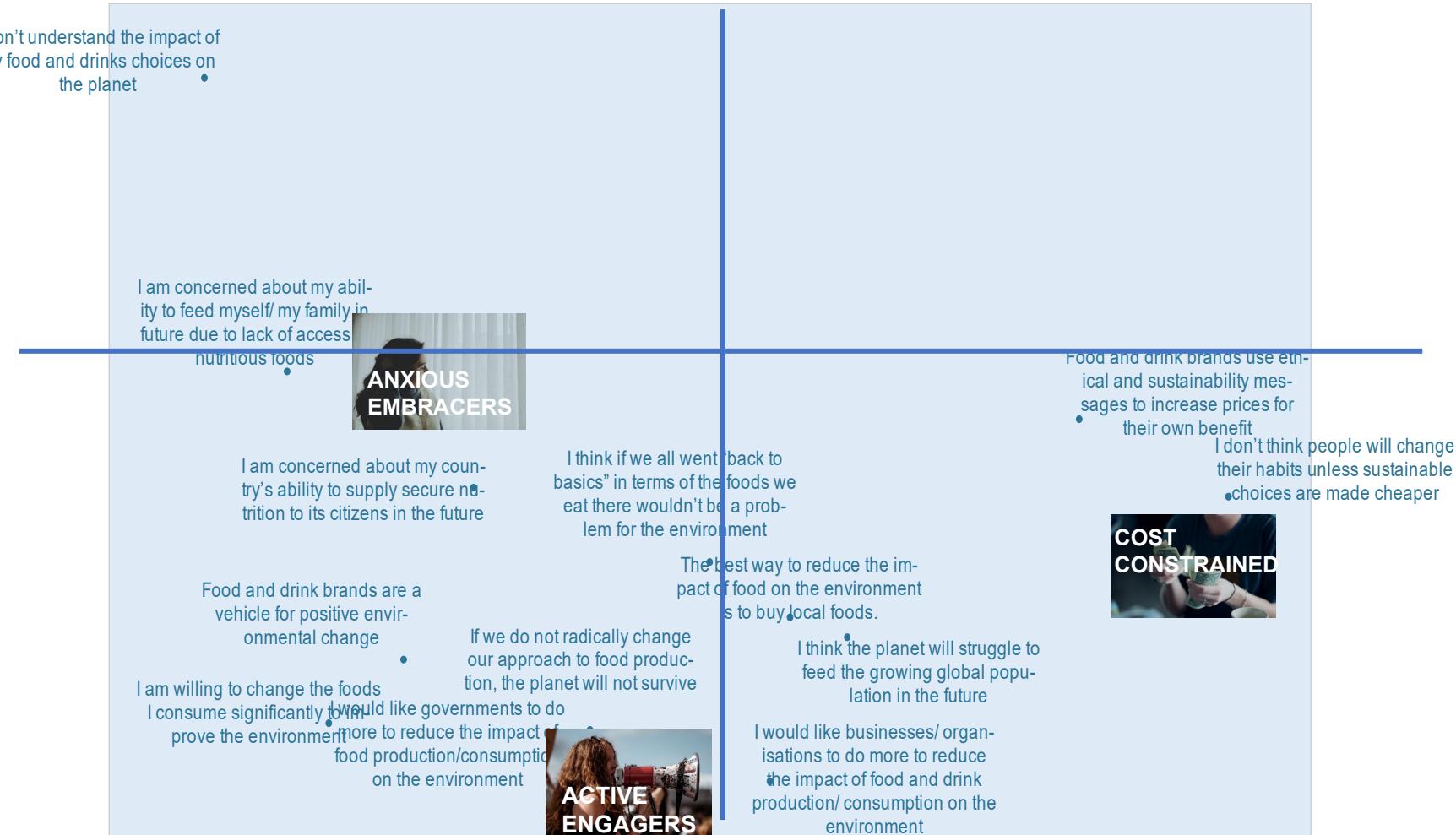
Appreciate the gravity of the challenge in feeding themselves and family into the future, but **lack confidence in understanding** and the impact that they can make despite **doing what they can**.

Are **committed to change** and support more significant interventions by business, governments and consumers like themselves to make it happen.

Recognise the challenge, but feel **hindered by the cost** of more sustainable choices and often feel business is capitalising on the fears of consumers.

Mind Mapping

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)



ACTIVE ENGAGERS

Highest in....



ANXIOUS EMBRACERS

Highest in....



COST CONSTRAINED

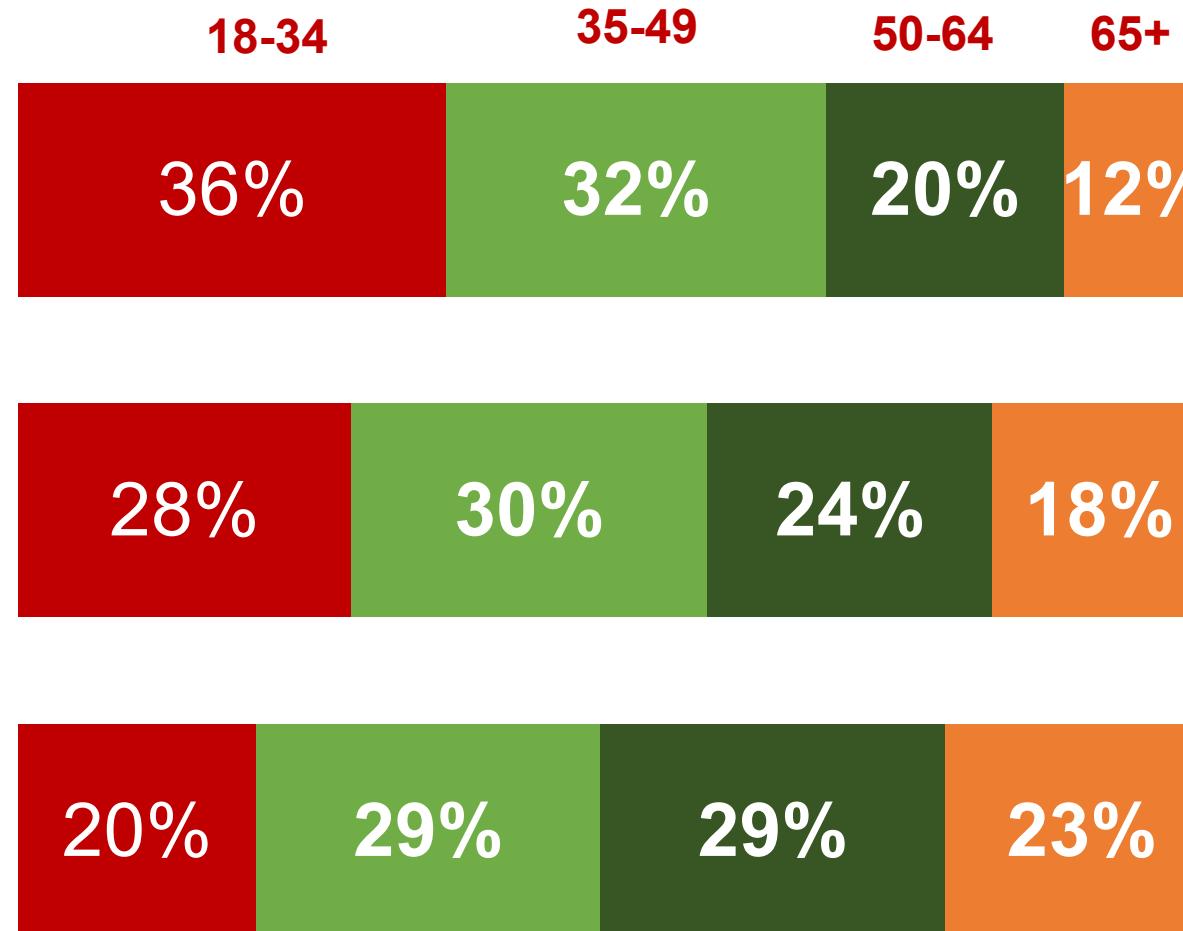
Highest in....



Photo by Isabela Drasovean on Unsplash
Photo by Clem Onojeghuo on Unsplash
Photo by Alexander Grey on Unsplash

Who are they?

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)



Those who feel less empowered to act and in many ways, most despairing are the youngest cohort.

The more cynical “cost constrained” group are much more likely to be older

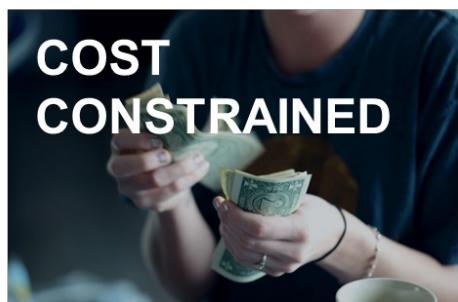
* Red Meat Free includes Vegan, Vegetarian, Pescatarian, Pollotarian

Which of the following do you feel best describes your dietary preferences in general?

Photo by [Isabela Drasovean](#) on [Unsplash](#)
Photo by [Clem Onojeghuo](#) on [Unsplash](#)
Photo by [Alexander Grey](#) on [Unsplash](#)

And what about their diets?

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)



NO RESTRICTIONS FLEXITARIAN RED MEAT FREE*



Our “Active Engager” group have a more extensive dietary repertoire and are equally inclined to incorporate plant-based as PART of their diet.... Arguably the most interesting target

* Red Meat Free includes Vegan, Vegetarian, Pescatarian, Pollotarian

Which of the following do you feel best describes your dietary preferences in general?

Photo by [Isabela Drasovean](#) on [Unsplash](#)
Photo by [Clem Onojeghuo](#) on [Unsplash](#)
Photo by [Alexander Grey](#) on [Unsplash](#)

So, what about Plant- Based?

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)



**% Weekly+
Plant-based
consumers**

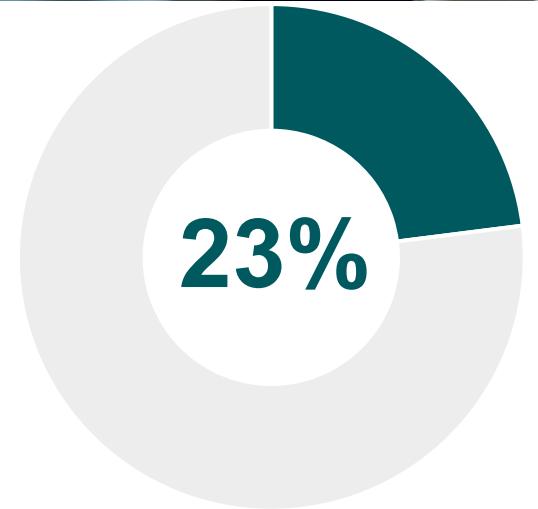
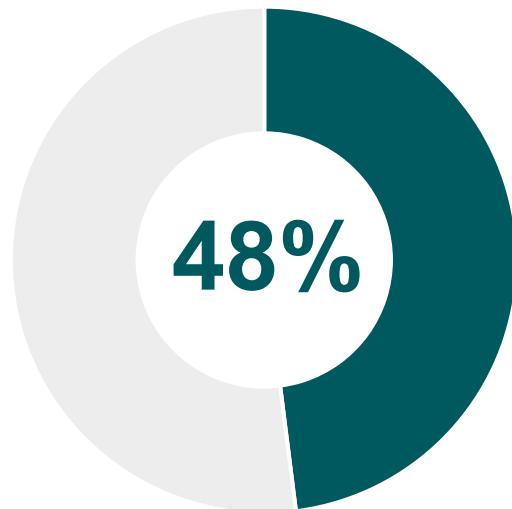
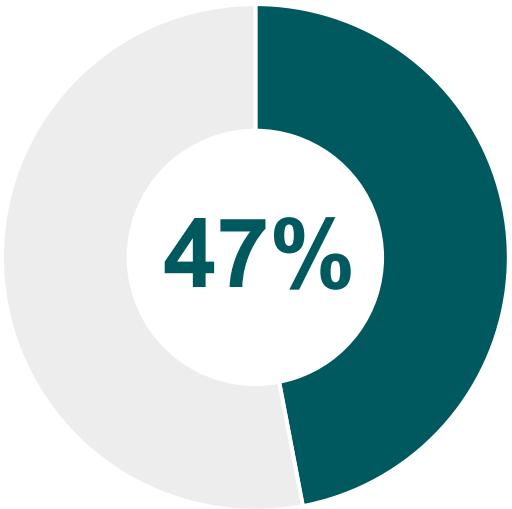
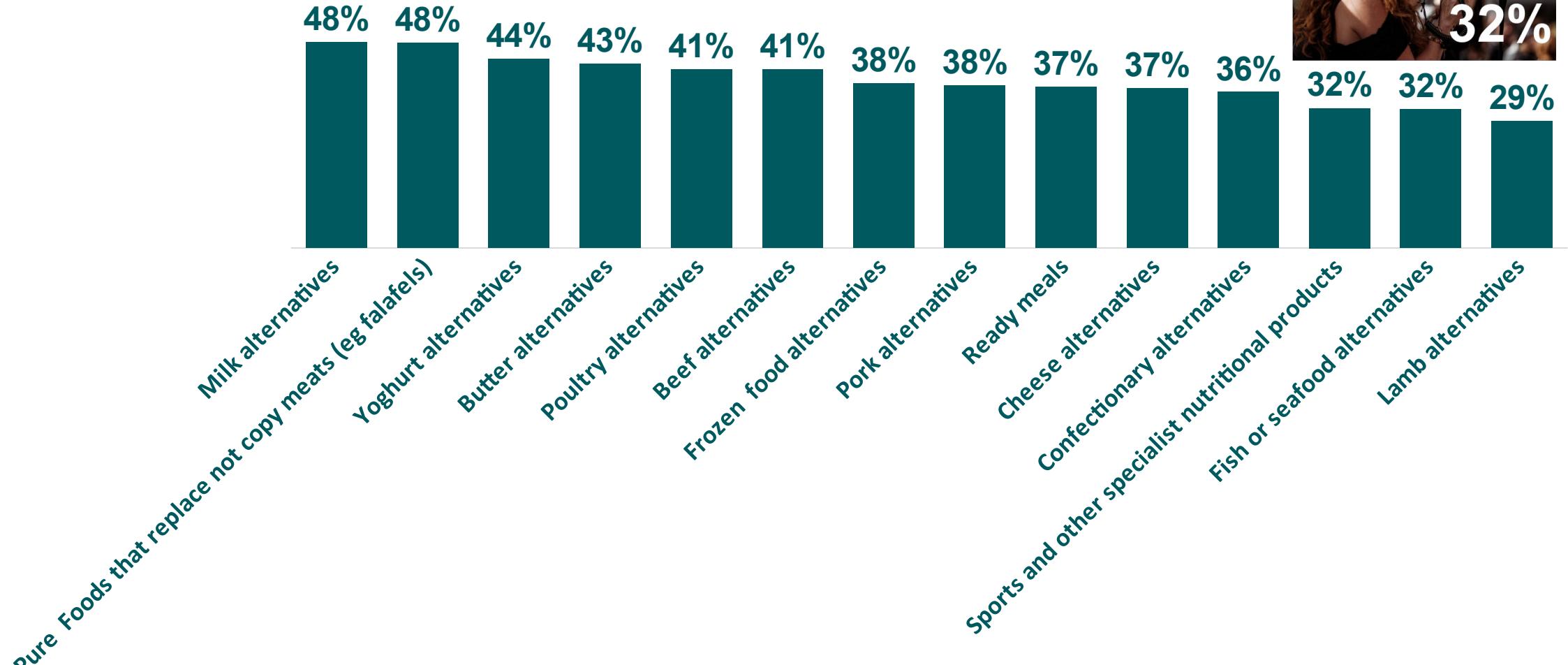


Photo by [Isabela Drasovean](#) on [Unsplash](#)
Photo by [Clem Onojeghuo](#) on [Unsplash](#)
Photo by [Alexander Grey](#) on [Unsplash](#)

And how often do you consume each of the following types of food/drinks on average?

What type of plant based foods do **ACTIVE ENGAGERS** plan on eating more in the future?

(Base: All Activists; n=2,690)



Knowing What Matters

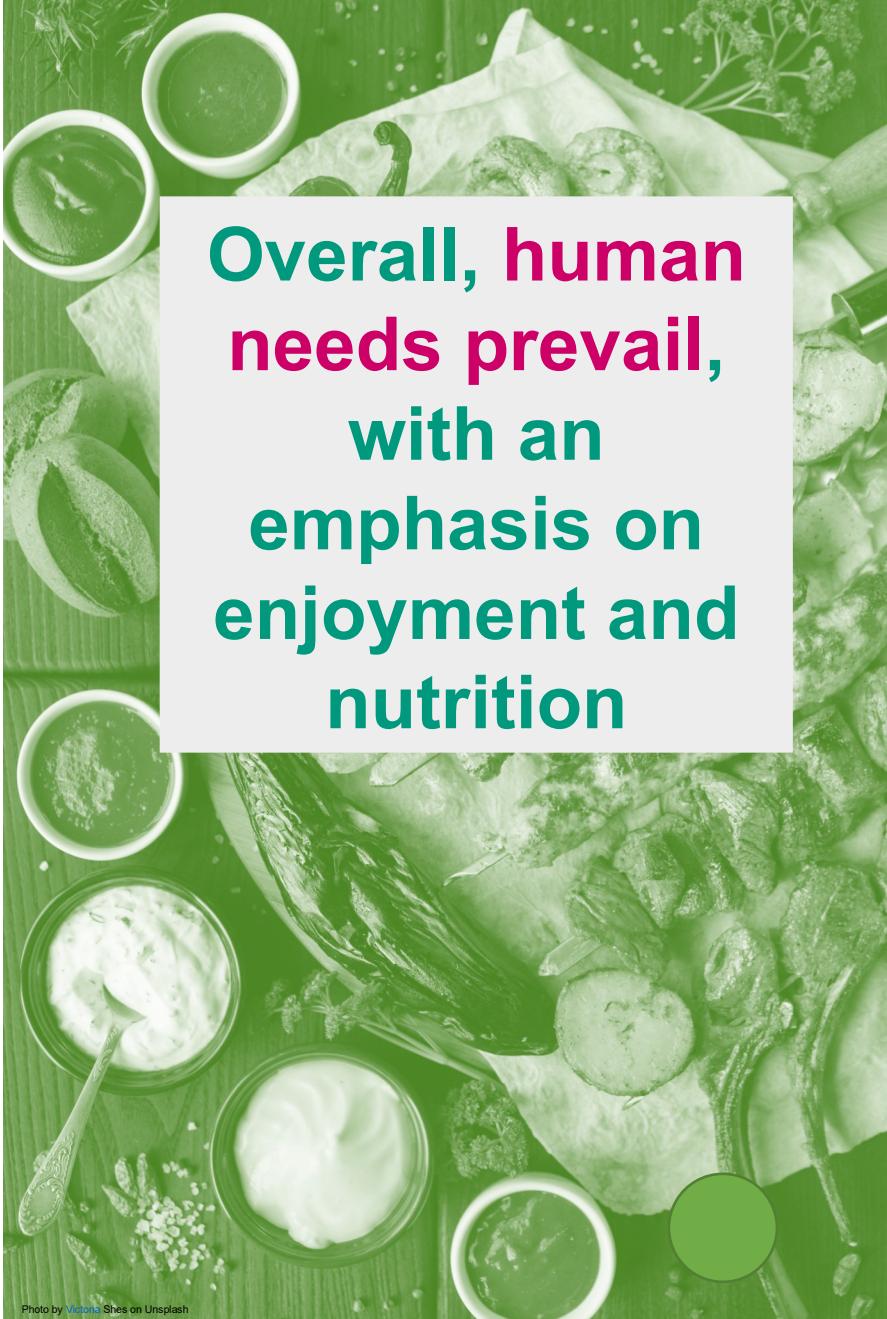
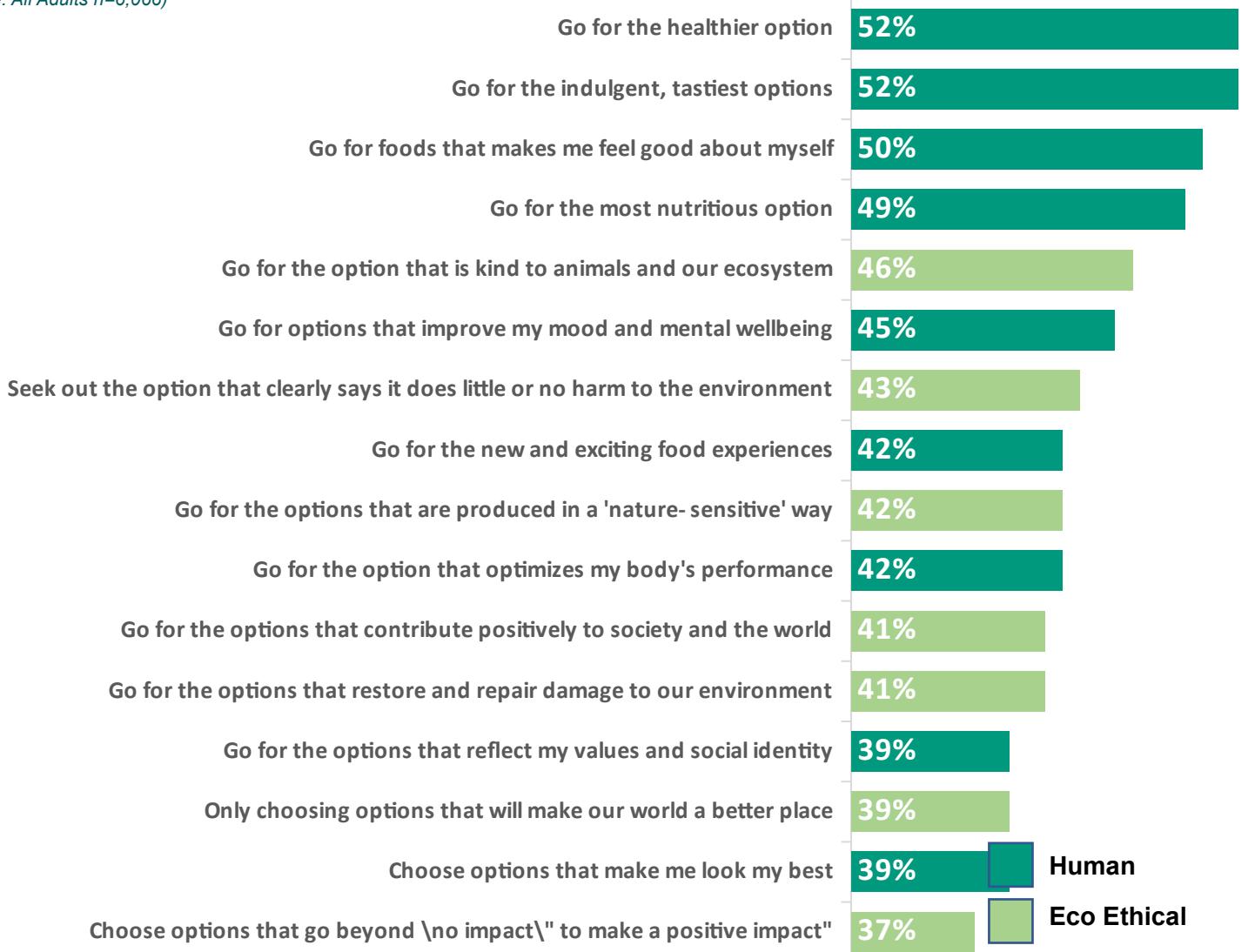
Influences on Choice



Choice Drivers in General (Not just PB)

% Aspire to or do now

(Base: All Adults n=6,066)

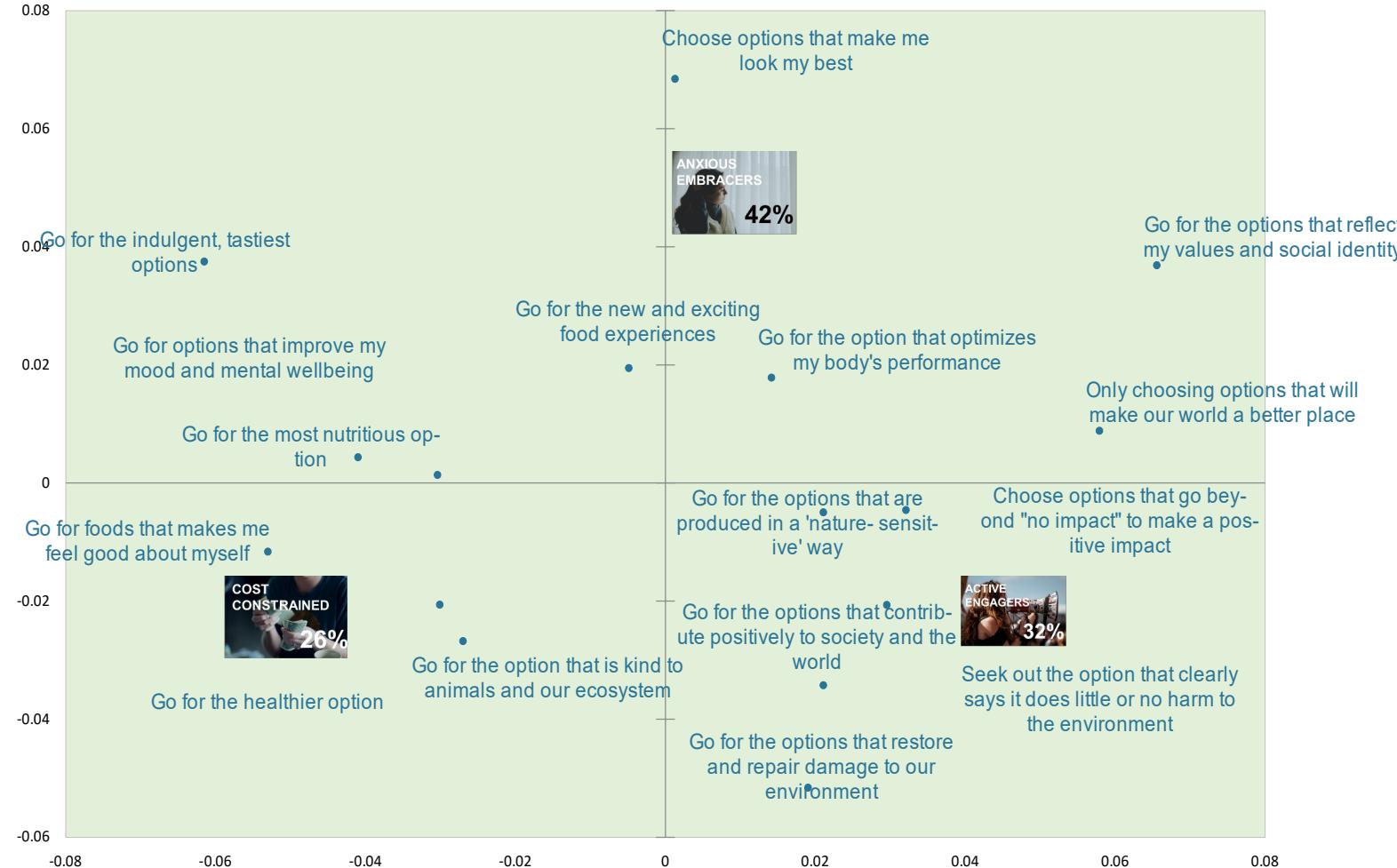


When it comes to choosing what you eat and drink, to what extent do you tend to do or aspire to do each of the following?

Choice Drivers

% aspire or do

(Base: All Adults n=6,066)



Active engagers are clearly striving for more positive choices, Cost Constrained are more focussed on internal drivers, while our “ANXIOUS EMBRACERS” group are driven by novelty and identity

When it comes to choosing what you eat and drink, to what extent do you tend to do or aspire to do each of the following?

What are their Priorities?

(Base: All Adults n=7,096, Market Sample n=1,000 approx.)

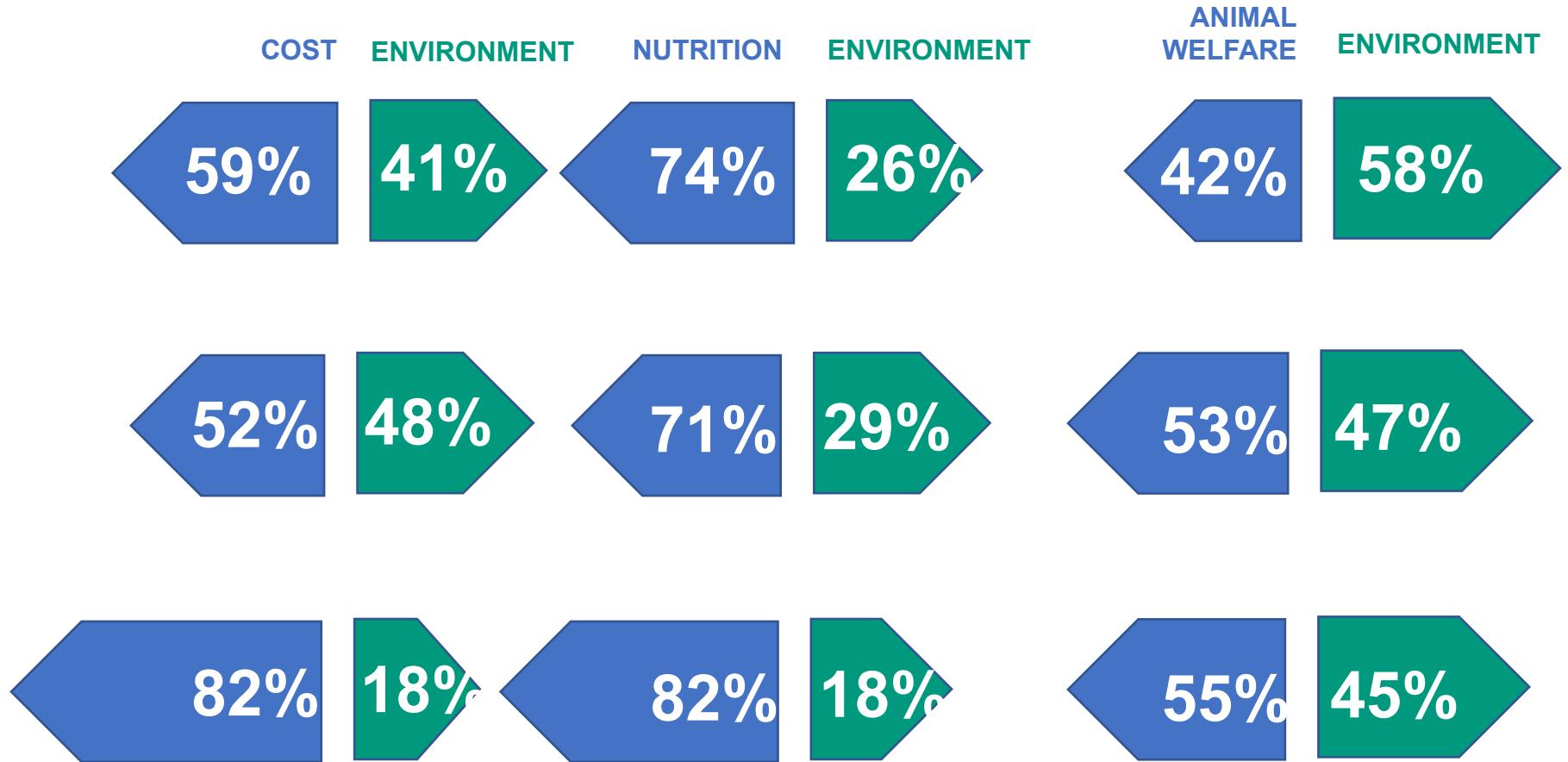
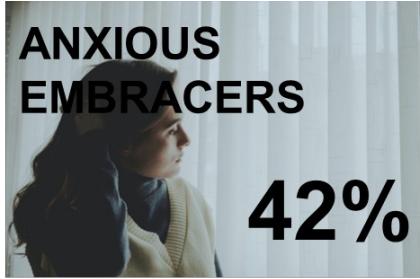
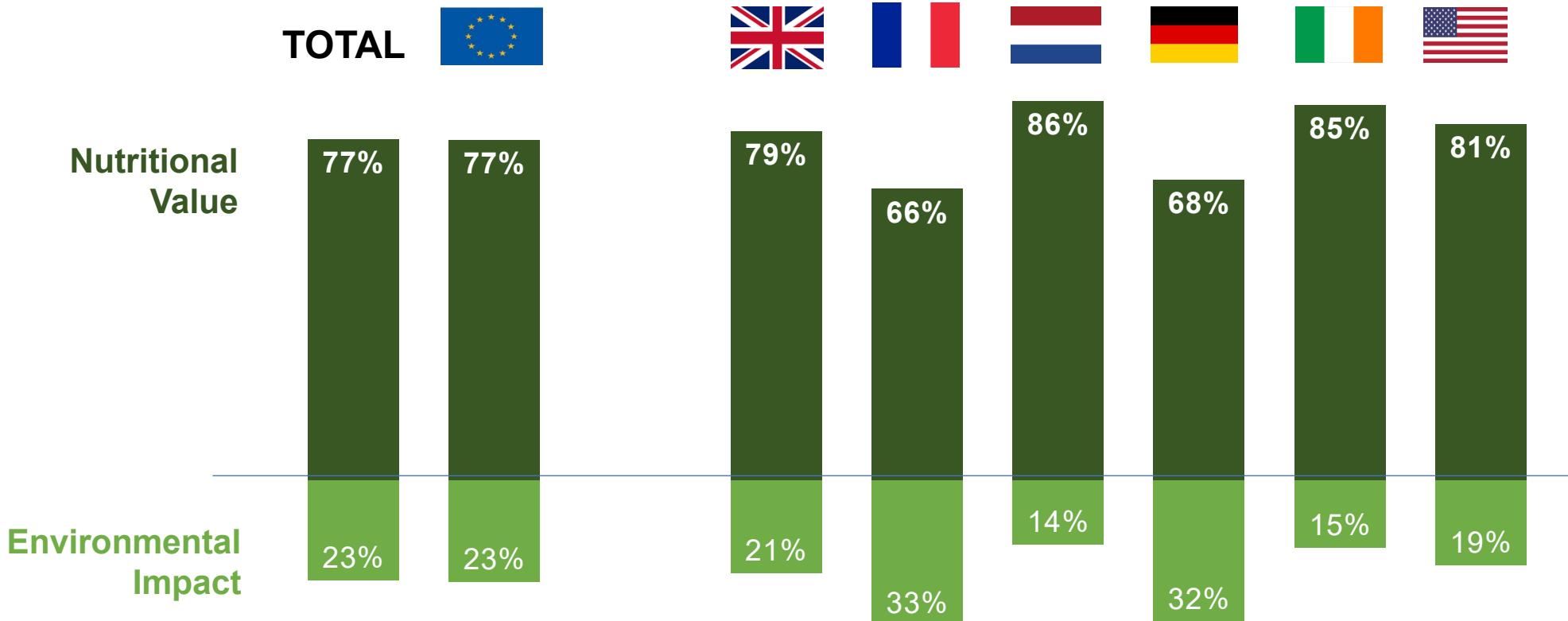


Photo by [Isabela Drasovean on Unsplash](#)
Photo by [Clem Onojeghuo on Unsplash](#)
Photo by [Alexander Grey on Unsplash](#)

When you think about food and drink which one of these two things are most important to you?

Drivers of Food and Drink Choices

(Base: All Markets excluding China, n=6,077, IE, UK, DE, NL, US, FR)



When you think about food and drink which one of these two things are most important to you?

In all markets it is clear that (while the environment matters), nutritional value trumps it every time.

Drivers of Food and Drink Choices

(Base: All Markets excluding China, n=6,077, IE, UK, DE, NL, US, FR)

TOTAL



The Cost of Food and Drink

72%

71%

77%

59%

71%

80%

79%

79%

Environmental Impact

28%

29%

23%

41%

29%

20%

21%

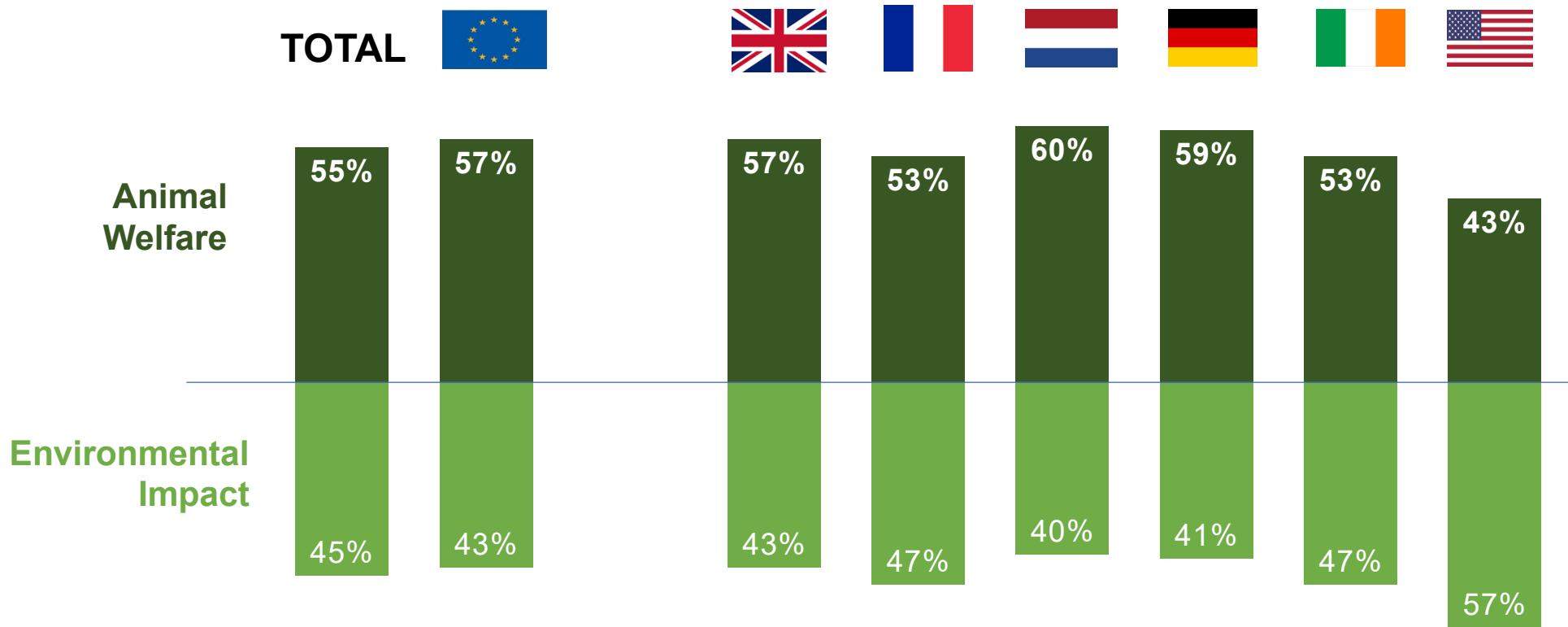
21%

... And indeed in a forced choice in all markets, cost prevails over the environment.

When you think about food and drink which one of these two things are most important to you?

Drivers of Food and Drink Choices

(Base: All Markets excluding China, n=6,077, IE, UK, DE, NL, US, FR)



When you think about food and drink which one of these two things are most important to you?

Perspectives are a little more balanced when forced to choose between welfare and the environment, with the US least likely to choose animal welfare.

Choosing Plant-Based Alternatives (PBAs)

What's Happening out there?



Direction of travel

Should companies aim to mimic animal products or take a veg forward approach?

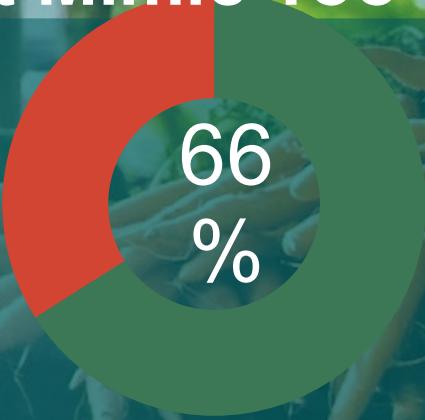


Tesco's plant-based pioneer celebrated as next phase of strategy begins

17 January 2023

- Derek Sarno to leave retailer after helping to establish plant-based food in the UK and developing two innovative plant-based brands
- Tesco commits to drive innovation on plant-based alternatives and hero 'veg led' options

Veg forward Trumps Meat Mimic, but there is Demand for Meat Mimic Too



2 in 3 (66%) consumers would prefer to just have vegetables than a product that is trying to provide the meat experience

However 59% wish that they made plant-based food and drink that was just like (taste!) its meat or dairy equivalent



Pure plant- based foods that replace, not copy meats are ranked #1 in terms of future consumption momentum

(among 14 plant-based alternative options tested)

“Sometimes it seems like it is easier to get people to change religion than change their diet”

Deirdre McCafferty, Cornucopia



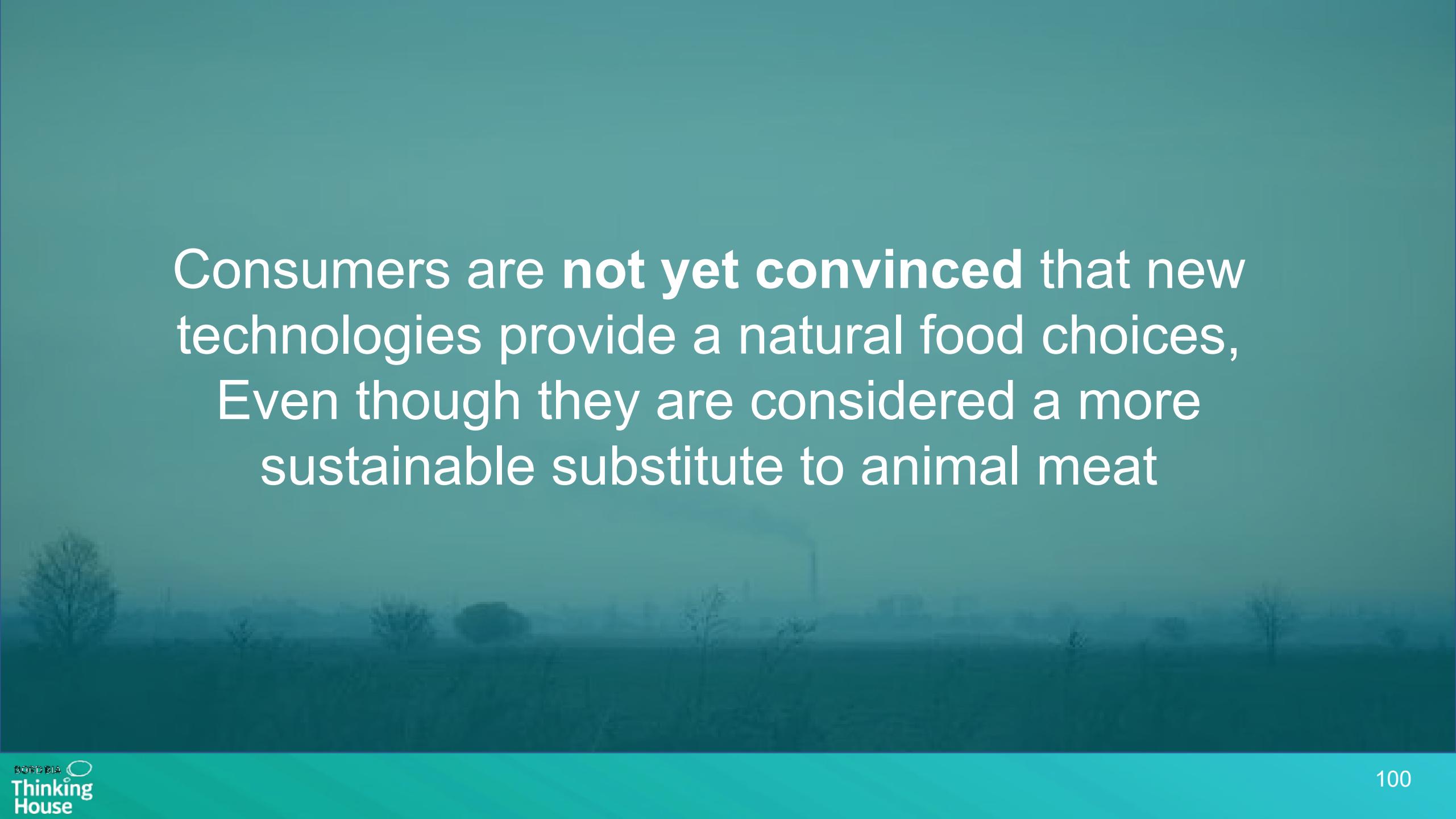


“We are so nervous to try something new. It’s a very intimate thing”

Deirdre McCafferty, Cornucopia

“Consumers wonder, how is my food built? What ingredients are used in its fabrication?”

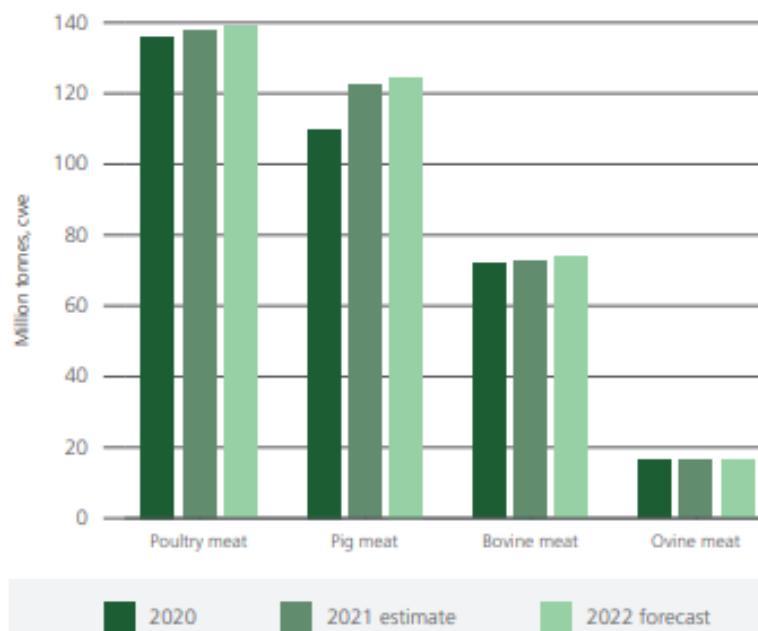
MBio



Consumers are not yet convinced that new technologies provide a natural food choices, Even though they are considered a more sustainable substitute to animal meat

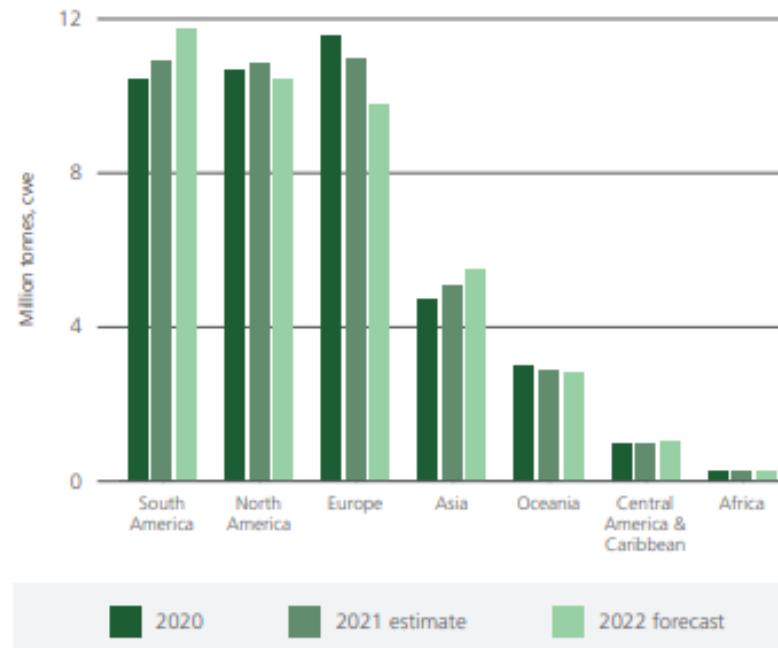
Change takes time....

Figure 3. Global meat production by type



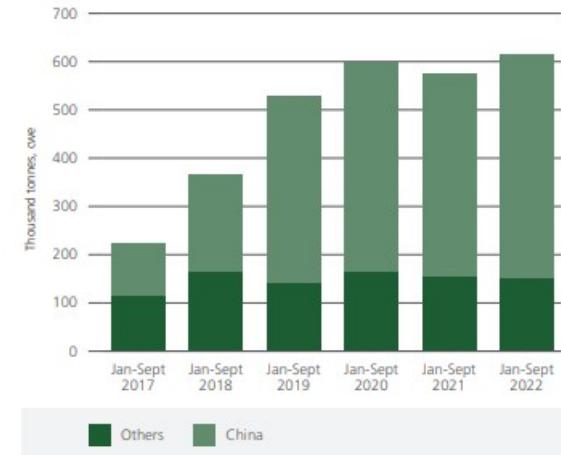
Source: FAO.

Figure 6. Global meat trade by region



Source: FAO.

Figure 8. Argentina bovine meat exports

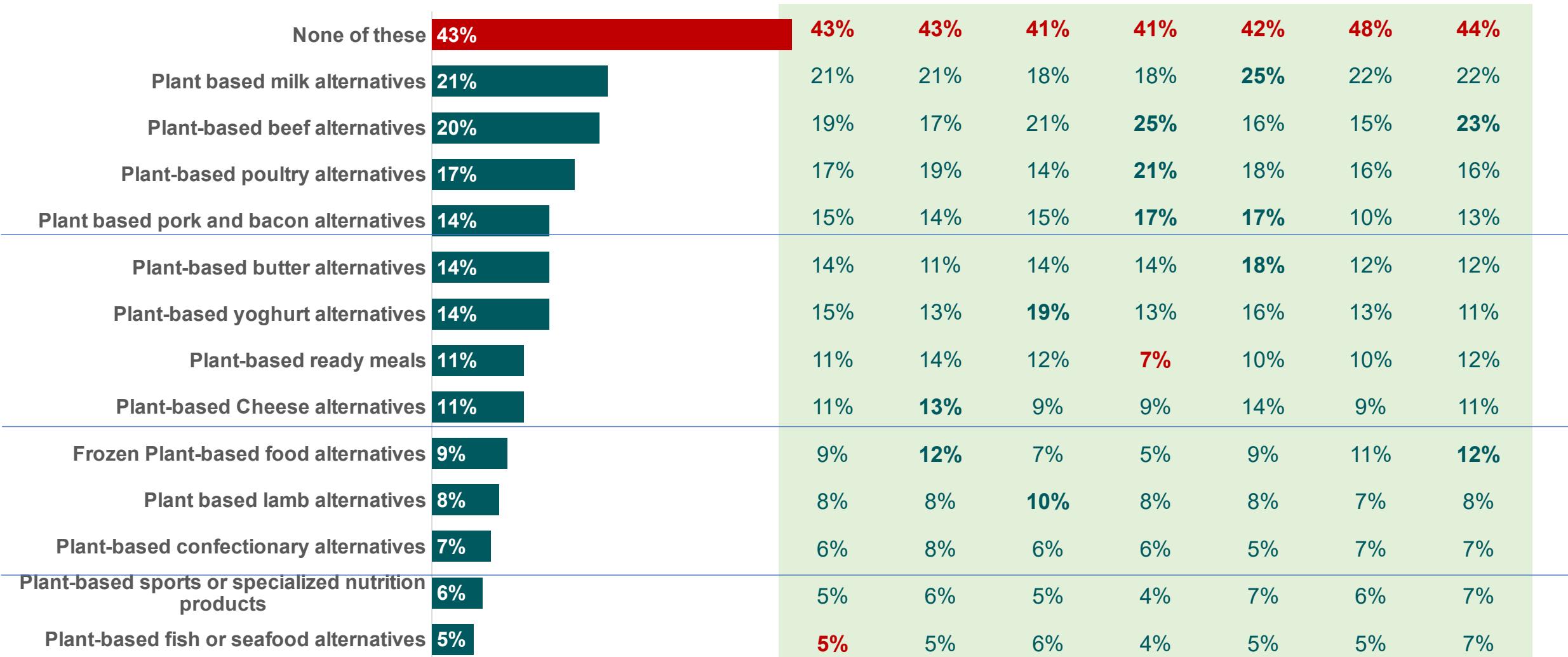


Source: FAO, based on Trade Data Monitor (TDM).

Bovine meat output in the world is forecast at 73.9 million tonnes in 2022, up by 1.4 percent from last year. Expected production increases in Brazil, China, India and Argentina will likely be partially offset by declines in Colombia, the European Union and New Zealand, whereas output in the United States is likely to remain largely unchanged compared to 2021. FAO

% consuming each of these monthly+

(Base: All Markets excluding China, n=6,077)



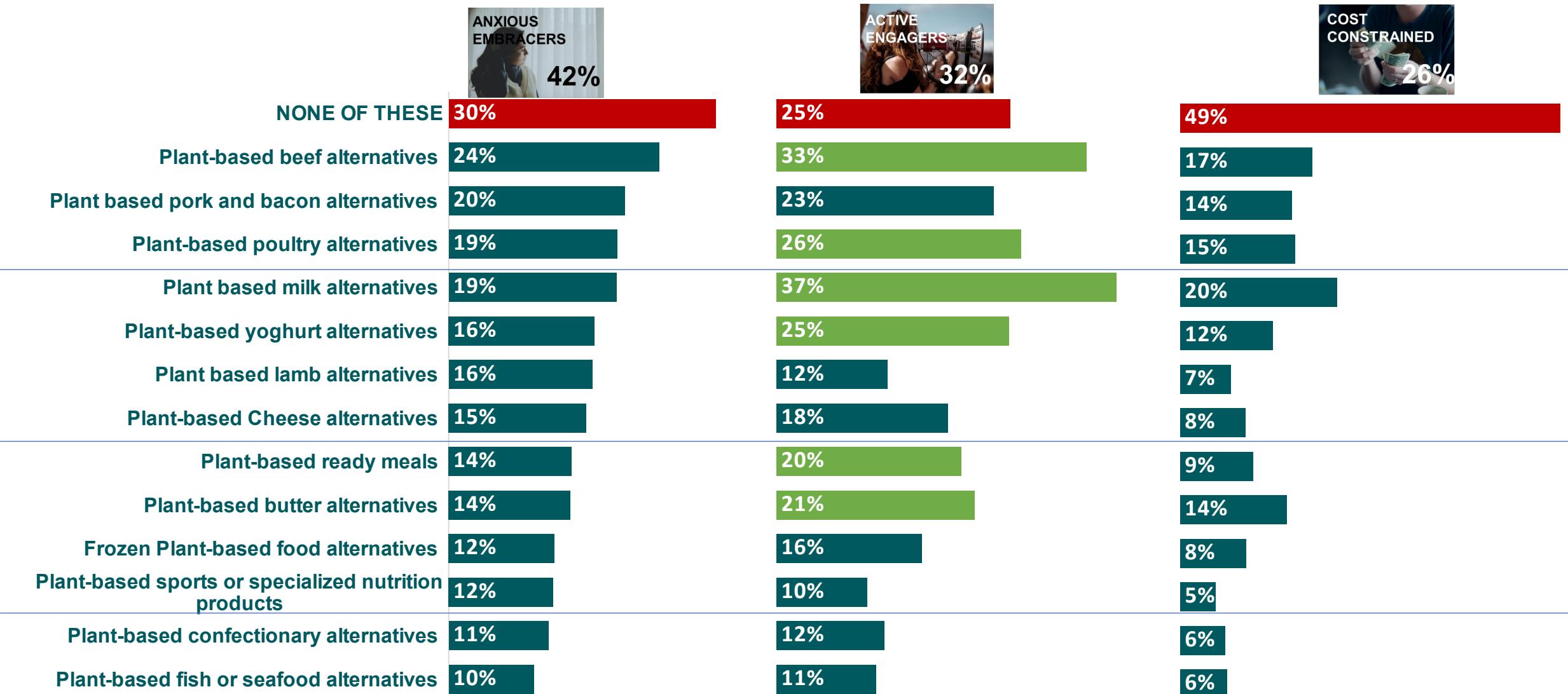
A photograph of a field filled with cows grazing in a green pasture under a blue sky with some clouds. The cows are primarily black and white, and the field is lush and green.

“Ireland is a significantly agricultural country. There is not much attempt to move away from the massive dairy industry. So meat is going to continue to be an important part of the Irish diet”

-Ted Dinan, Professor of Psychiatry

% consuming each of these monthly+

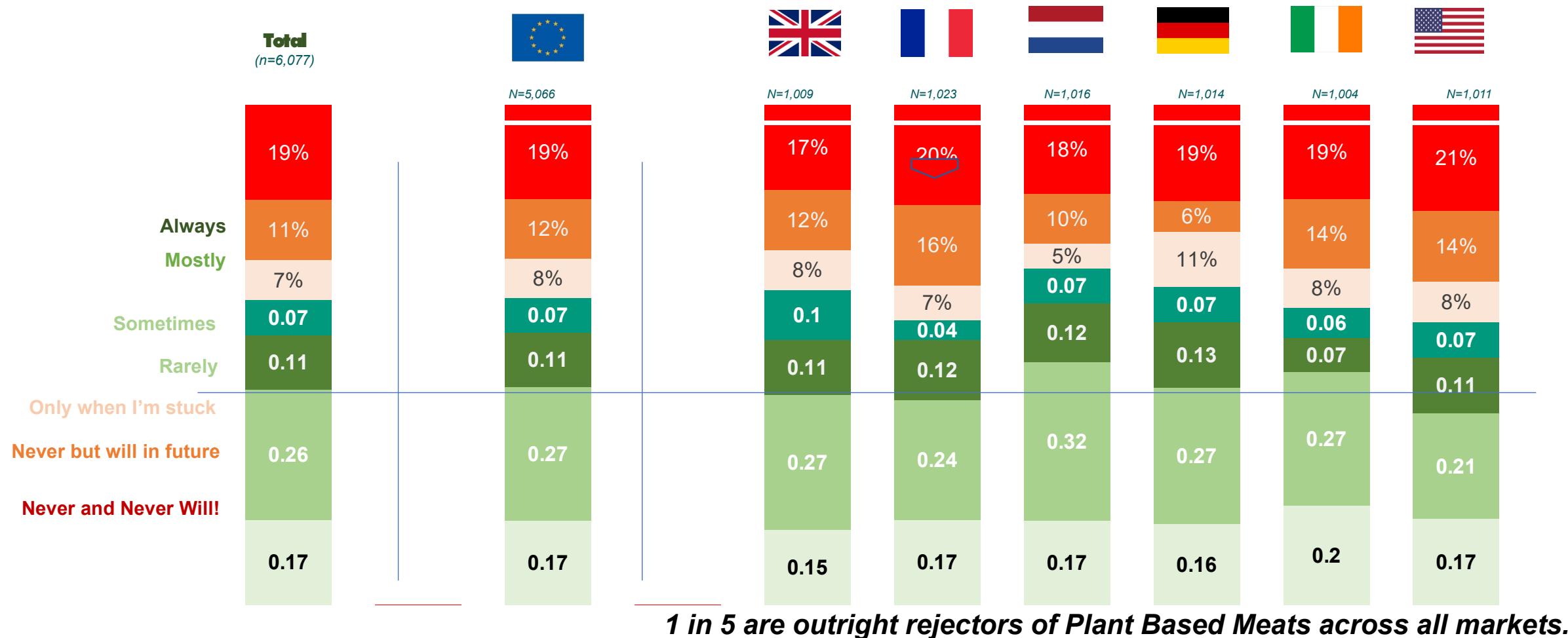
(Base: All Adults n=7,096, Market Sample n=1,000 approx.)



Thinking about types of plant-based alternative protein-rich food and drinks, which of these do you currently consume monthly or more often, if any?

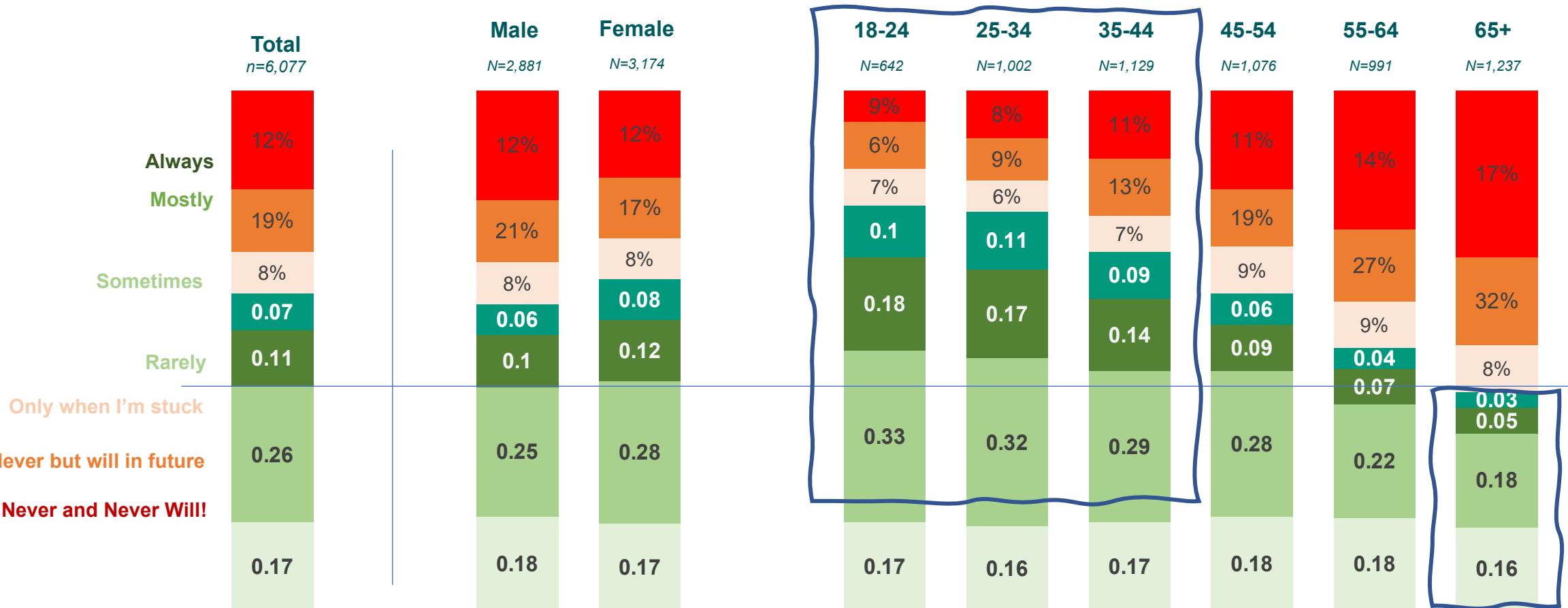
Plant based meat alternatives consumption

(Base: All Markets excluding China, n=6,077)



Plant based meat alternatives consumption

(Base: All Markets excluding China, n=6,077)



Meat alternatives are currently driven by younger cohorts

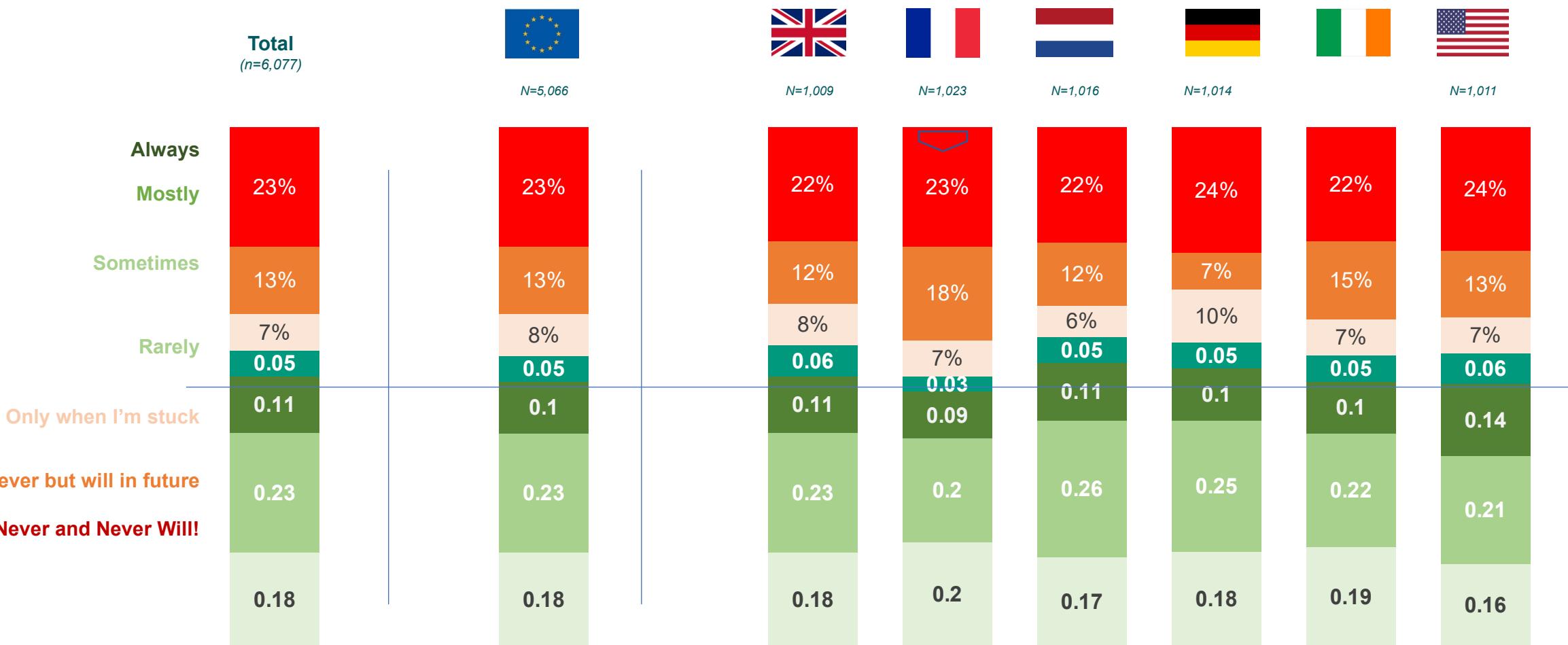
A photograph of several cows grazing in a lush green field under a clear blue sky. The cows are of various colors, including black, white, and brown. They are scattered across the frame, some facing the camera and others grazing. The background shows rolling hills and a line of trees.

*“Cow based dairy may just need to **become more premium, not a commodity**. We see animals as more of a commodity these days.”*

*“I see **farmers really playing a role in establishing a substantial niche for cow based products**”*

Plant-based dairy alternatives consumption

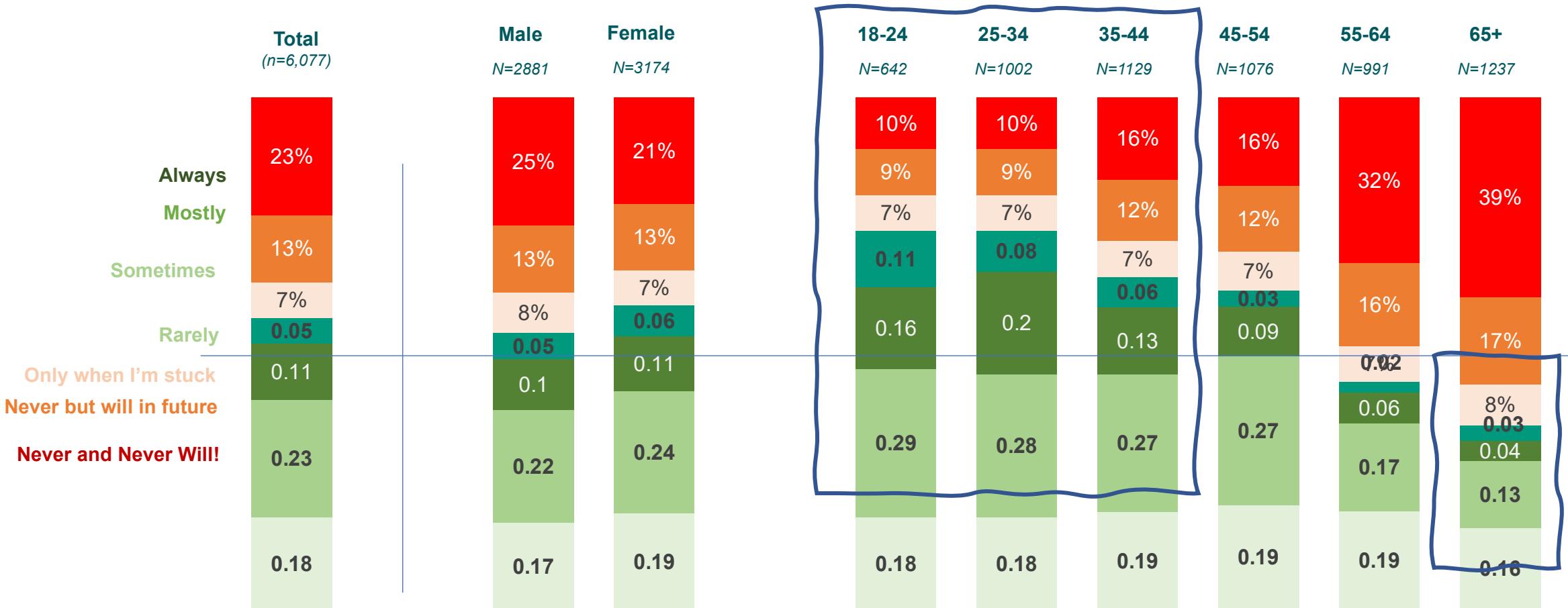
(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR)



Rejection is higher for dairy alternatives than meat alternatives; almost 1 in 4 overall

Plant-based dairy alternatives consumption

(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR – EXCLUDING CHINA)



As with Meat alternatives, Dairy alts are also currently driven by younger cohorts



1. When it comes to food and drink choices, **personal human needs predominate**; health, nutrition, taste and the joy of food.
2. Despite apparent attitudinal commitment to sustainable choices, in a “forced choice”, **both nutrition and cost are three times more important than the environment**.
3. In fact, over **4 in 10 in every market have not consumed any plant-based alternative (PBA)** in the past month.
4. About **1 in 5 are committed rejectors of PBA meat!** This is much lower among younger cohorts who are more inclined have adopted PBA options.
 1. Interestingly, there is seemingly **a little more openness to PBAs that are veg-forward rather than meat-mimics**; but this is not definitive and is driven by concerns around naturalness and taste of meat mimics.... More later!
5. Despite greater adoption to date, **rejection is higher for PB dairy alternatives**; 1 in 4 across these key markets.

Looking Ahead

Growth Expectations



Investments in Plant-Based Alternatives

- \$1.2 billion was invested in plant-based meat, seafood, eggs and dairy in 2022, representing 15% of the all time investment (1997-2022).
- 2022's largest investment was \$135.6 million raised by Redefine Meat.*



Headwinds to Growth

However, despite forecasted positive CAGRs for the majority of markets in the meat and dairy free categories, **there are some headwinds** that could hamper growth into the future. Amid the bullish projections forecasted by some commentators, there are others who report that meat and dairy free are struggling to gain traction among consumers.

News | March 27, 2023

New Age Eats founder Brian Spears winds up US cultivated meat start-up

CEO Brian Spears said that "with recent capital market turmoil, we have been unable to attract investment".

By Simon Harvey



Meat being cultured in laboratory.

New Age Meats, a cultivated pork start-up in the US has shut down due to difficulty in securing additional funding.



Oatly reported losses of \$107.9m in November 2022 when losses of €62m were expected by the market.



Beyond Meat, who manufacture the McPlant burger for McDonald's, reported a sales slump with net revenue down 22.5% for the third quarter of 2022 to \$82.5m

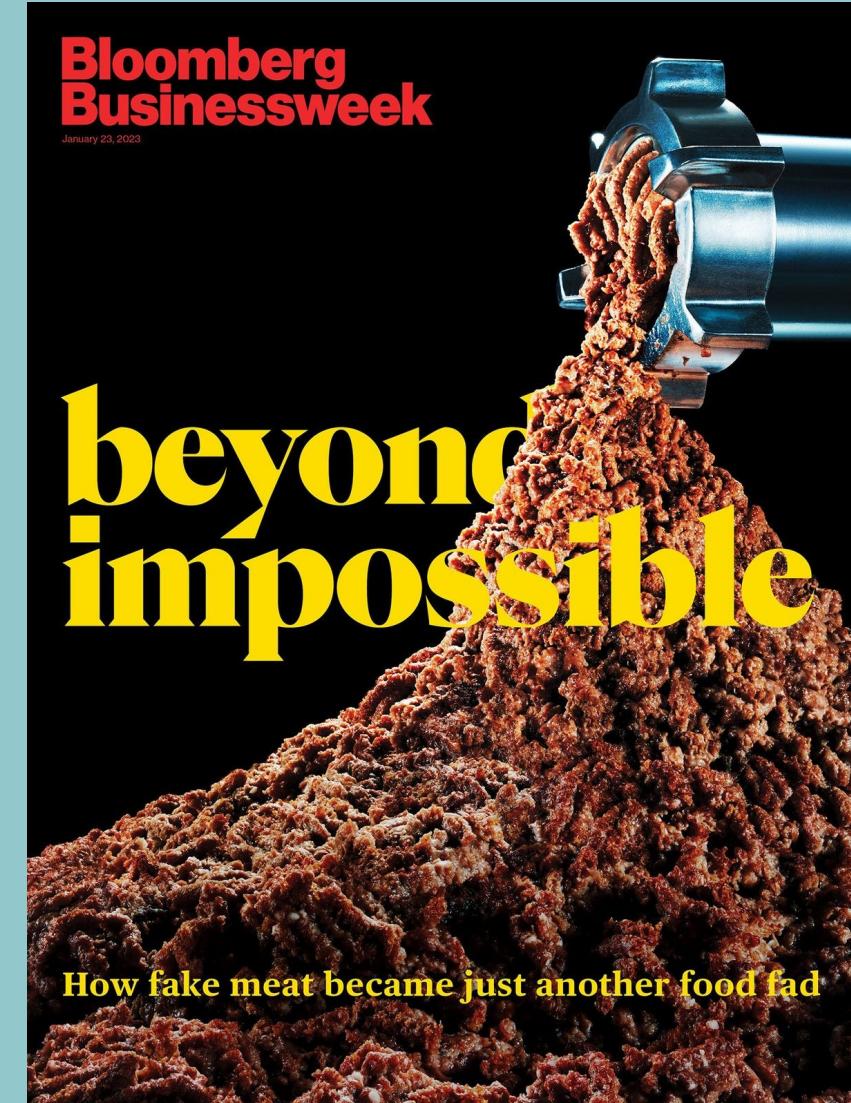


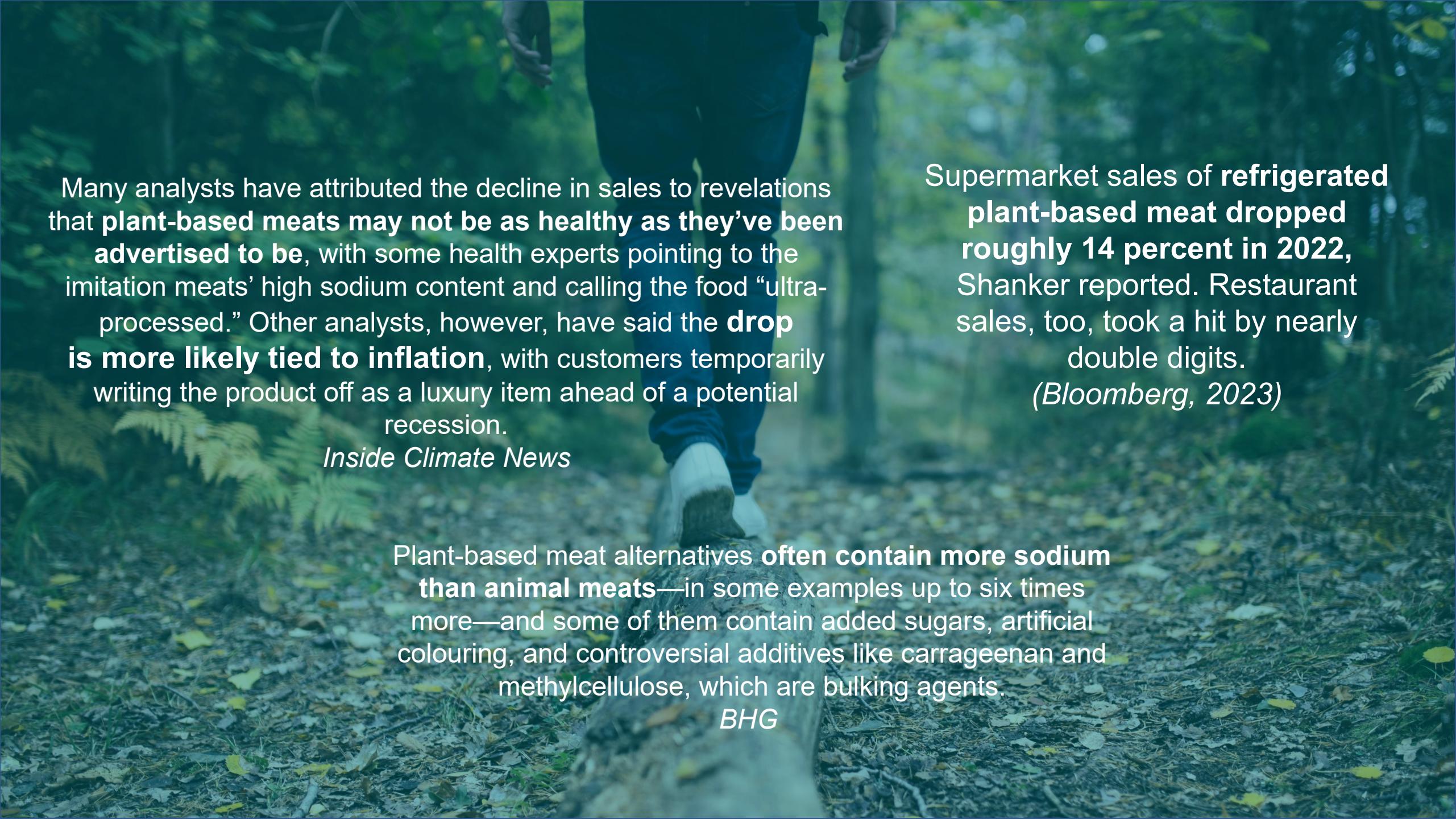
.... there is some backlash against lab grown meat ..

When it comes to so-called “fake meats”, many are highly processed. Ultra-processed foods (UPFs), most produced by a handful of powerful multinational companies, have increasingly taken the space in our shopping basket.

These are complex foods with long lists of ingredients, many of which we may not recognise, sourced from across the globe, making their impact harder to quantify.

*Ruth Hegarty, director of egg&chicken consulting,
Irish Times*





Many analysts have attributed the decline in sales to revelations that **plant-based meats may not be as healthy as they've been advertised to be**, with some health experts pointing to the imitation meats' high sodium content and calling the food "ultra-processed." Other analysts, however, have said the **drop is more likely tied to inflation**, with customers temporarily writing the product off as a luxury item ahead of a potential recession.

Inside Climate News

Plant-based meat alternatives **often contain more sodium than animal meats**—in some examples up to six times more—and some of them contain added sugars, artificial colouring, and controversial additives like carrageenan and methylcellulose, which are bulking agents.

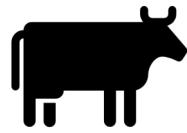
BHG

Supermarket sales of **refrigerated plant-based meat dropped roughly 14 percent in 2022**, Shanker reported. Restaurant sales, too, took a hit by nearly double digits.

(Bloomberg, 2023)

Plant-Based Alternatives

Global Market Size



Meat Alternatives
(Meat & Seafood)
\$6.1 billion (+8%)

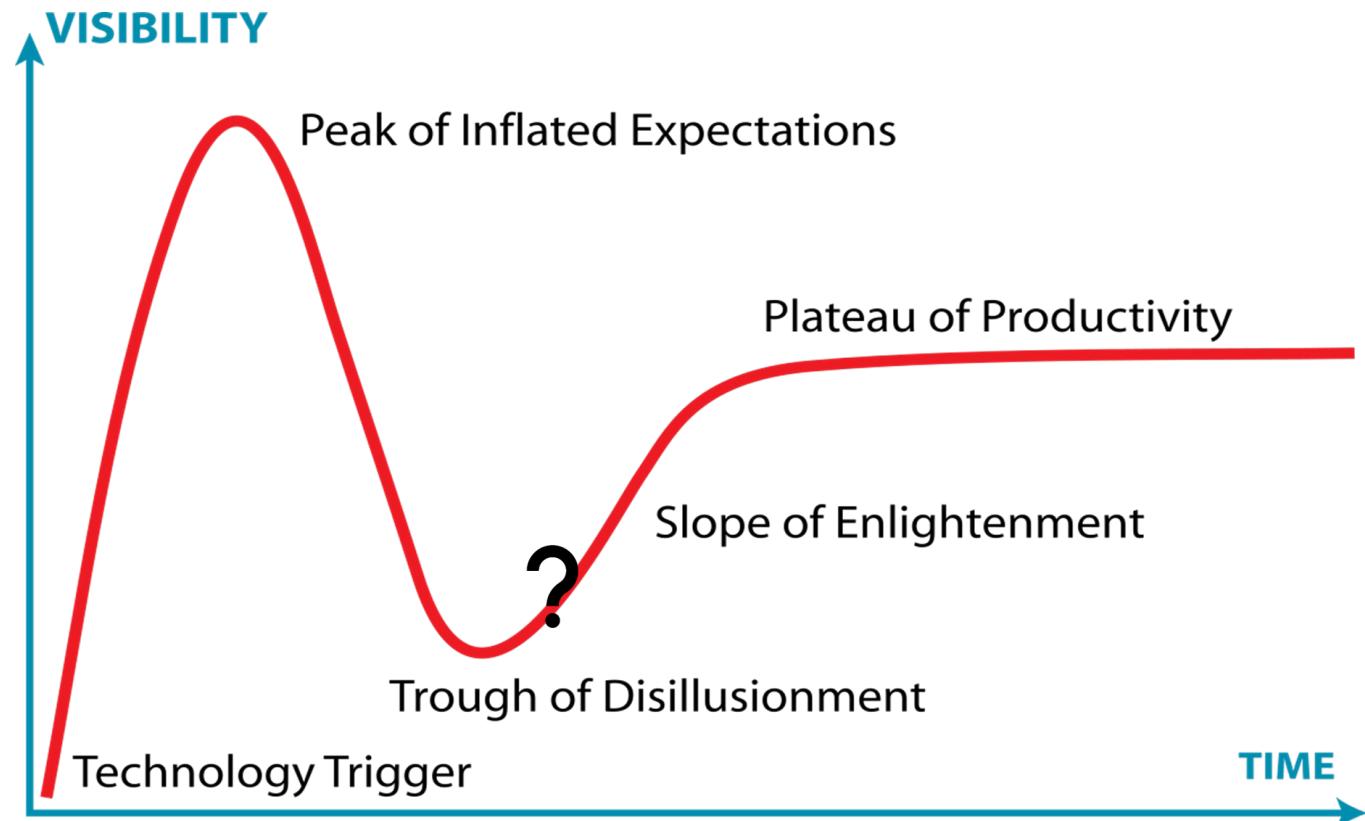


Dairy Alternatives
(Milk, Cheese, & Yogurt)
\$21.6 billion (+7%)

	Dollar sales	1-yr. dollar growth	3-yr. dollar growth	Dollar share	Unit sales	1-yr. unit growth	Unit share	Household penetration	Repeat rate
Total plant-based foods	\$8.0 B	7%	44%	1.4%*	1.9 B	-3%	1.2%*	60%	80%
Plant-based meat	\$1.4 B	-1%	43%	1.3%**	255 MM	-8%	1.7%**	18%	63%
Plant-based milk	\$2.8 B	9%	36%	15.3%	749 MM	-2%	14.7%	41%	76%

*U.S. Retail plant-based food sales metrics, 2022
Custom GFI categories created using SPINS Data ending
01/01/2023*

The Gartner Hype Cycle



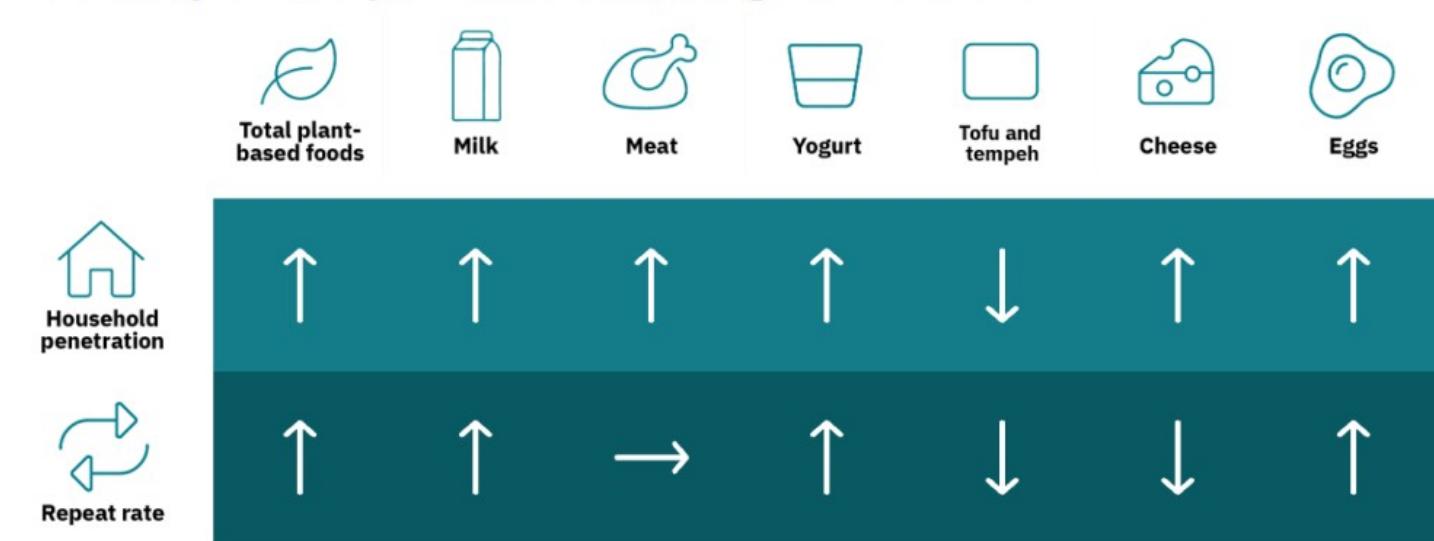
The Gartner Hype is a graphical representation to represent the **maturity**, **adoption** and **social application** of specific innovations.

According to the cycle, once a new technology has been triggered, it reaches **peak visibility** and experiences '**Inflated Expectations**'. When the challenges and issues associated with the technology are realised, the innovation moves along the cycle to '**The Trough of Disillusionment**'. Assuming that the innovation can improve on or solve these issues, it moves along '**The Slope of Enlightenment**' and will eventually reach '**The Plateau of Productivity**'

Source: Libelium One

Alternative dairy

Purchase dynamics of plant-based foods, Change from 2020 to 2021



Source: NCP, All Outlets, 52 weeks ending 12-26-21.

https://gfi.org/wp-content/uploads/2022/10/2021-U.S.-retail-market-insights_Plant-based-foods_GFI-1.pdf

National Consumer Panel data (> 100,000 homes in US) shows a stagnation in meats in a number of ways:

- Value Sales Flat
- Repeat Rates Poor

Irish dairy companies diversifying into plant-based alternatives

 **Kerry**
418,977 followers
5d • 

The only thing better than a Beyond Meat burger? A Beyond Meat burger with ooey-gooey vegan cheeze! See it for yourself.



PLANT-BASED
CHEEZE GOES
BEYOND...

0:02 / 0:20

Tirlán customers looking for plant offerings - Bergin

Dairy leaders have suggested that plant-based and traditional dairy product offerings go hand in hand.



Tirlán CEO Jim Bergin says the co-op is in a position to sell plant-based products alongside its dairy offering.

Market Sizing

Commercial Expectations

Market Sizing- Free From Meat

Optimistic GAGR Rates Continue

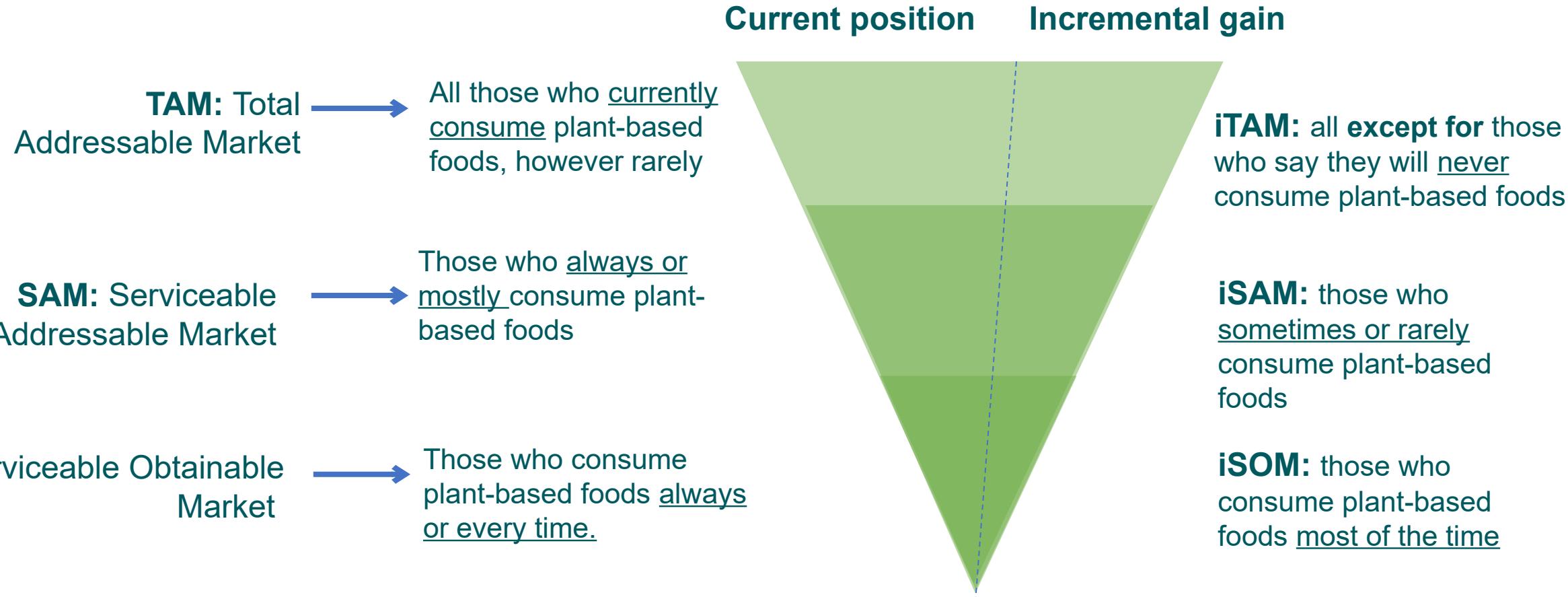
2021 Sales Value Actual (Millions)	¥77,007	\$956	£314	€231	€156	€20	€16
2026 Forecast Value (Millions)	¥87,779	\$1,069	£498	€466	€271	€37	€51
CAGR	2%	2%	8%	12%	10%	11%	21%



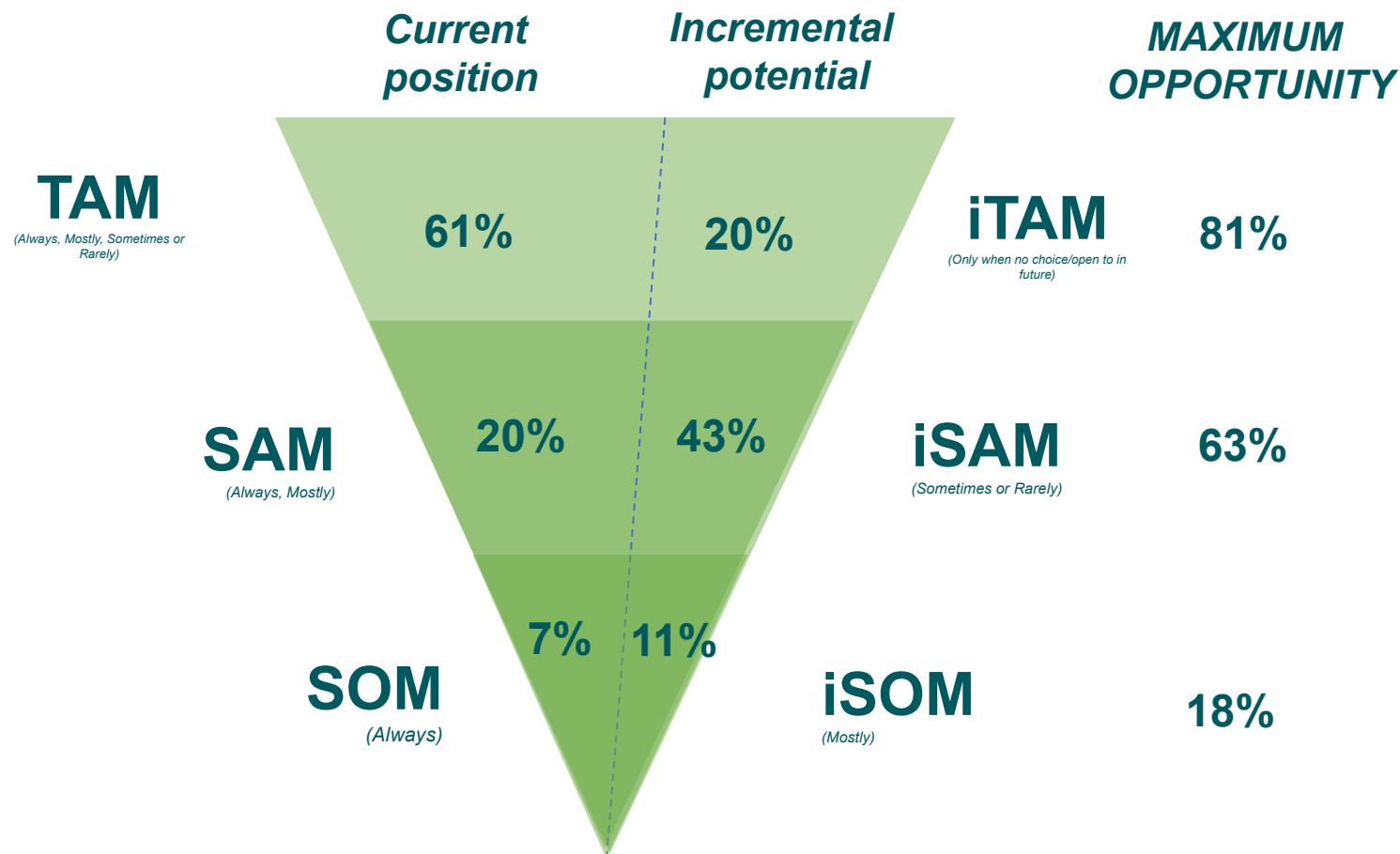
Source: Euromonitor International

Introduction: Market size and trajectory

TAM, SAM and SOM are used in market sizing exercises to define the potential size of prize.



Market size and trajectory for meat alternatives



If also “mostly” users switched to “always”, it would mean 18% of consumers becoming exclusively meat PBA.

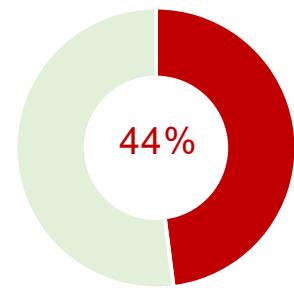
This figure is highest in the UK (21%), followed by Germany (20%).

P1. How often, if ever, do you intentionally choose plant-based alternatives in place of regular meat products?

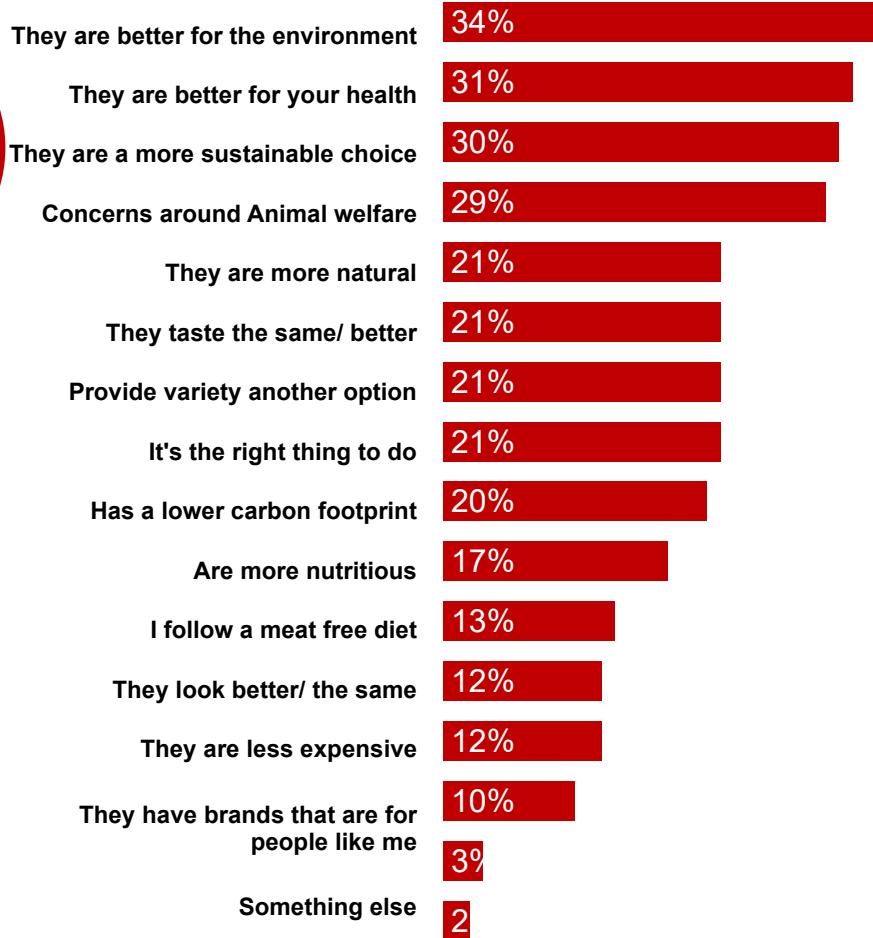
Why plant-based alternatives are chosen

(Base: All Markets excluding China, n=6,077, IE, UK, DE, NL, US, FR)

OFTEN/ALWAYS



Meat alternatives

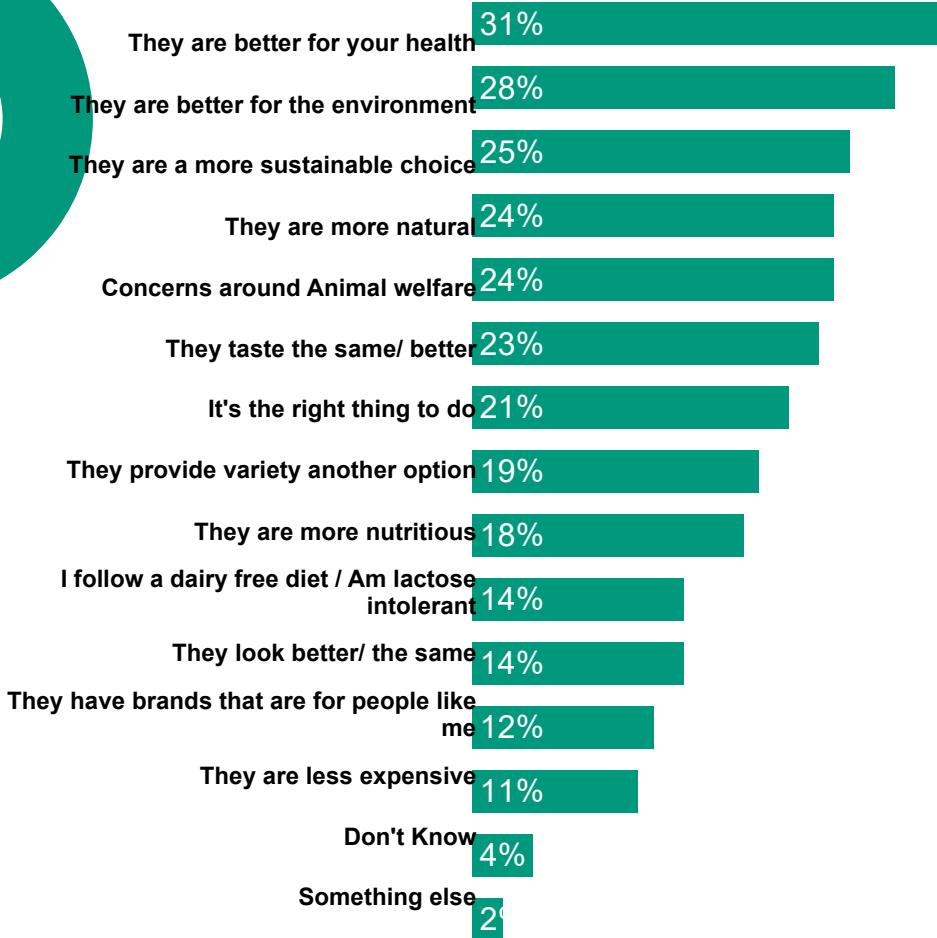


And why do you choose plant-based alternatives to meat?

OFTEN/ALWAYS



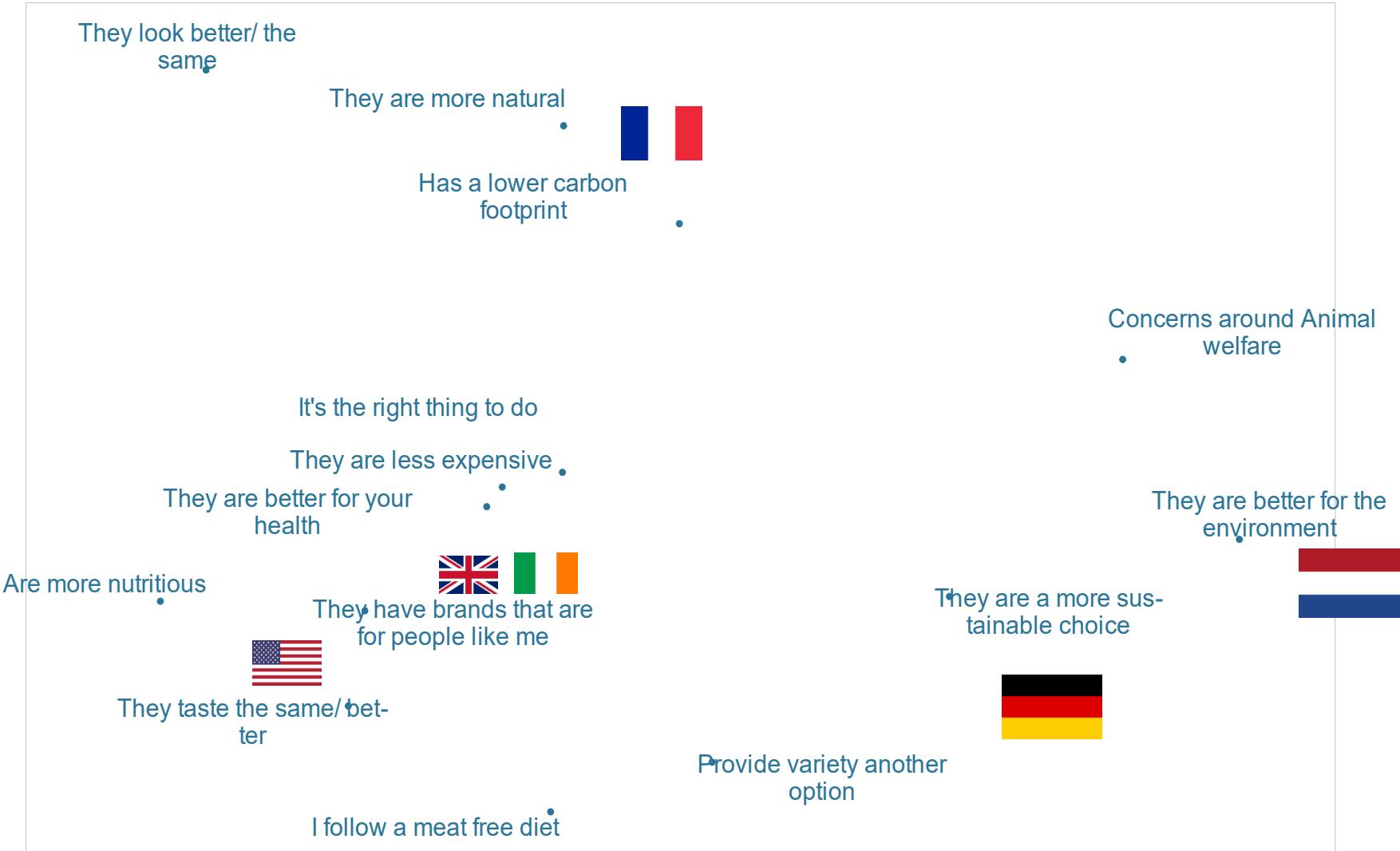
Dairy alternatives



And why do you choose plant-based alternatives to dairy?

Why choose plant- based meat alternatives?

(Base: All plant based meat consumers, n=1,945)



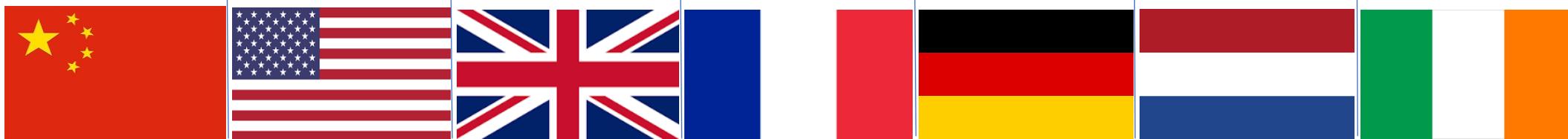
In Western European markets the prevailing drivers revolve around eco-ethical concerns, while taste and nutrition and are more relevant and in Ireland, UK and the US

Market Sizing: Dairy Alternatives



Market Sizing- Free From Dairy

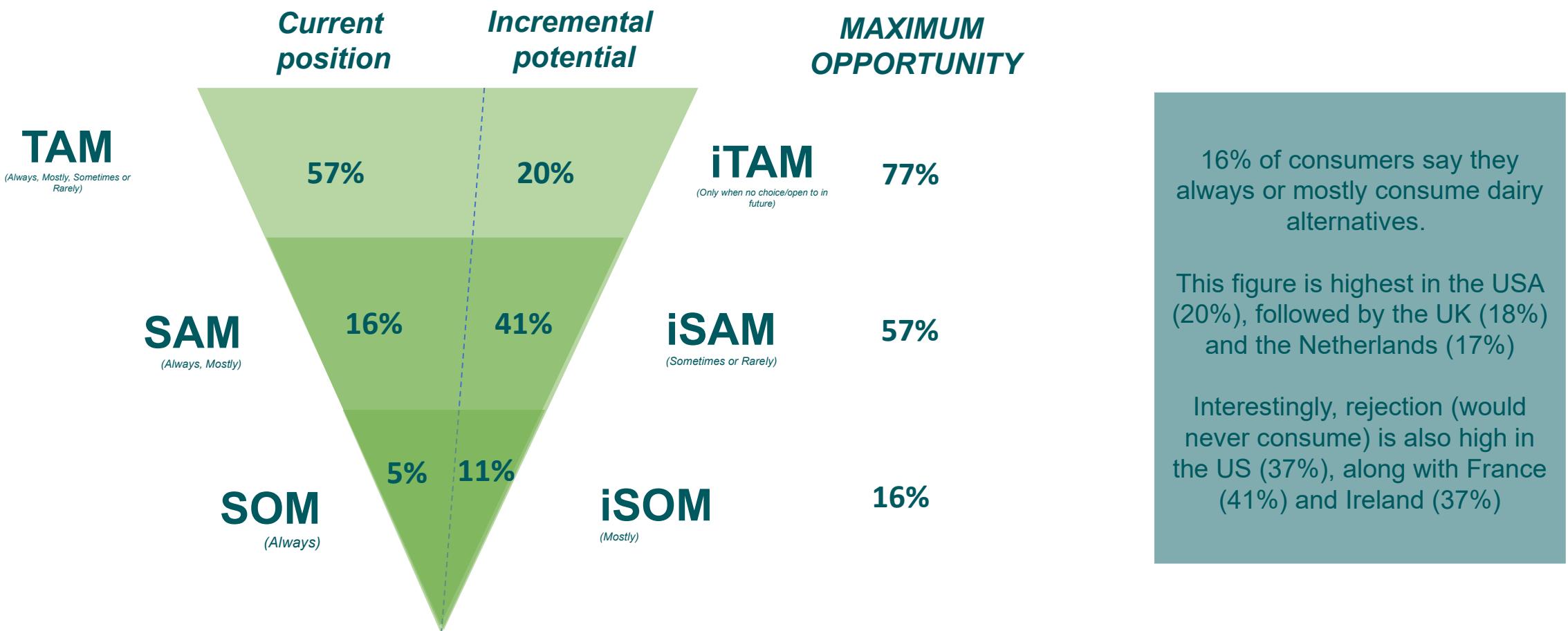
2021 Sales Value Actual (Millions)	¥37,216	\$2,433	£549	€406	€266	€37	€34
2026 Forecast Value (Millions)	¥31,769	\$3,785	£669	€507	€756	€42	€63
CAGR	-3%	8%	3%	4%	19%	2%	11%



Source: Euromonitor International

Market size and trajectory for dairy alternatives

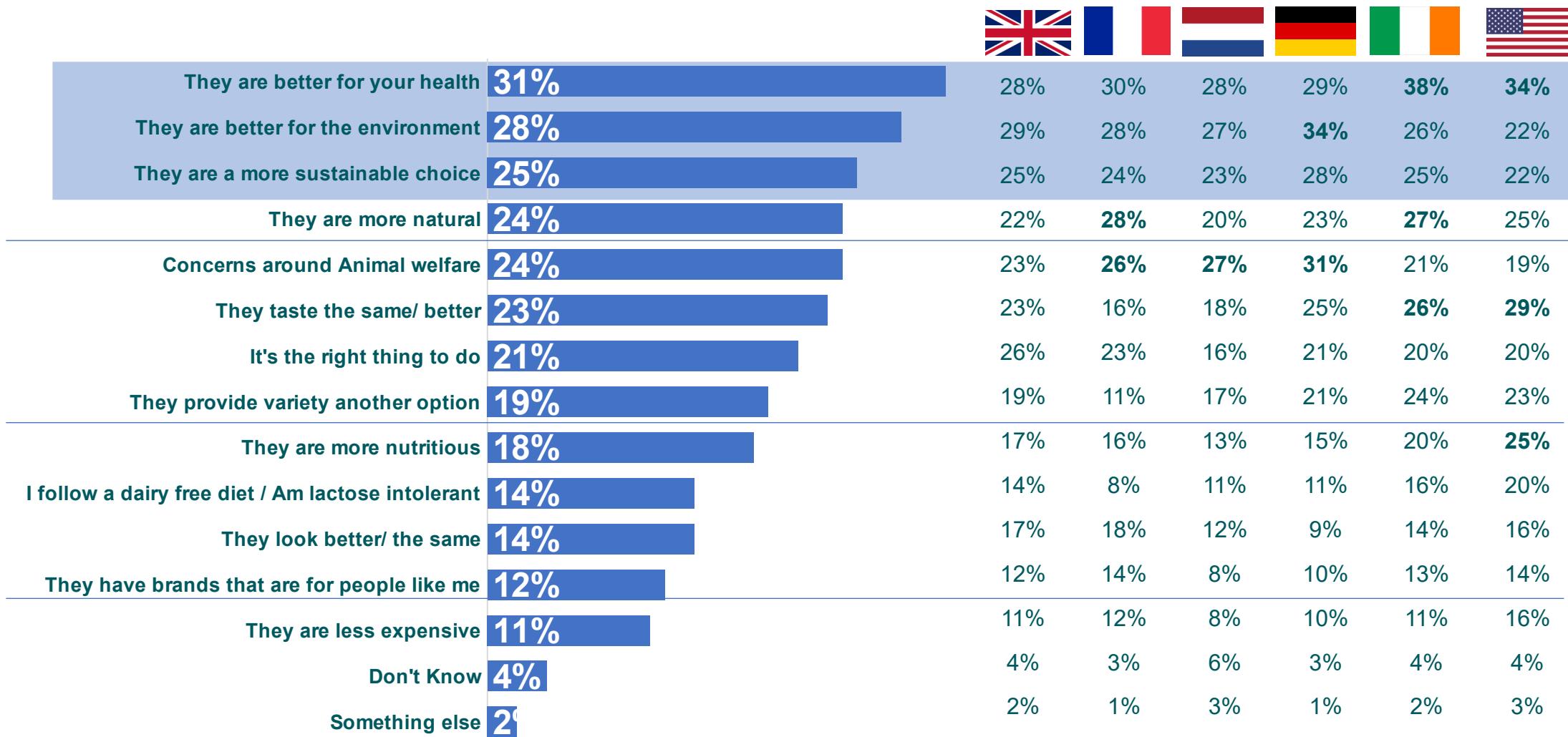
(Base: All Markets excluding China, n=6,077)



P2. How often, if ever, do you intentionally choose plant-based alternatives in place of regular dairy products?

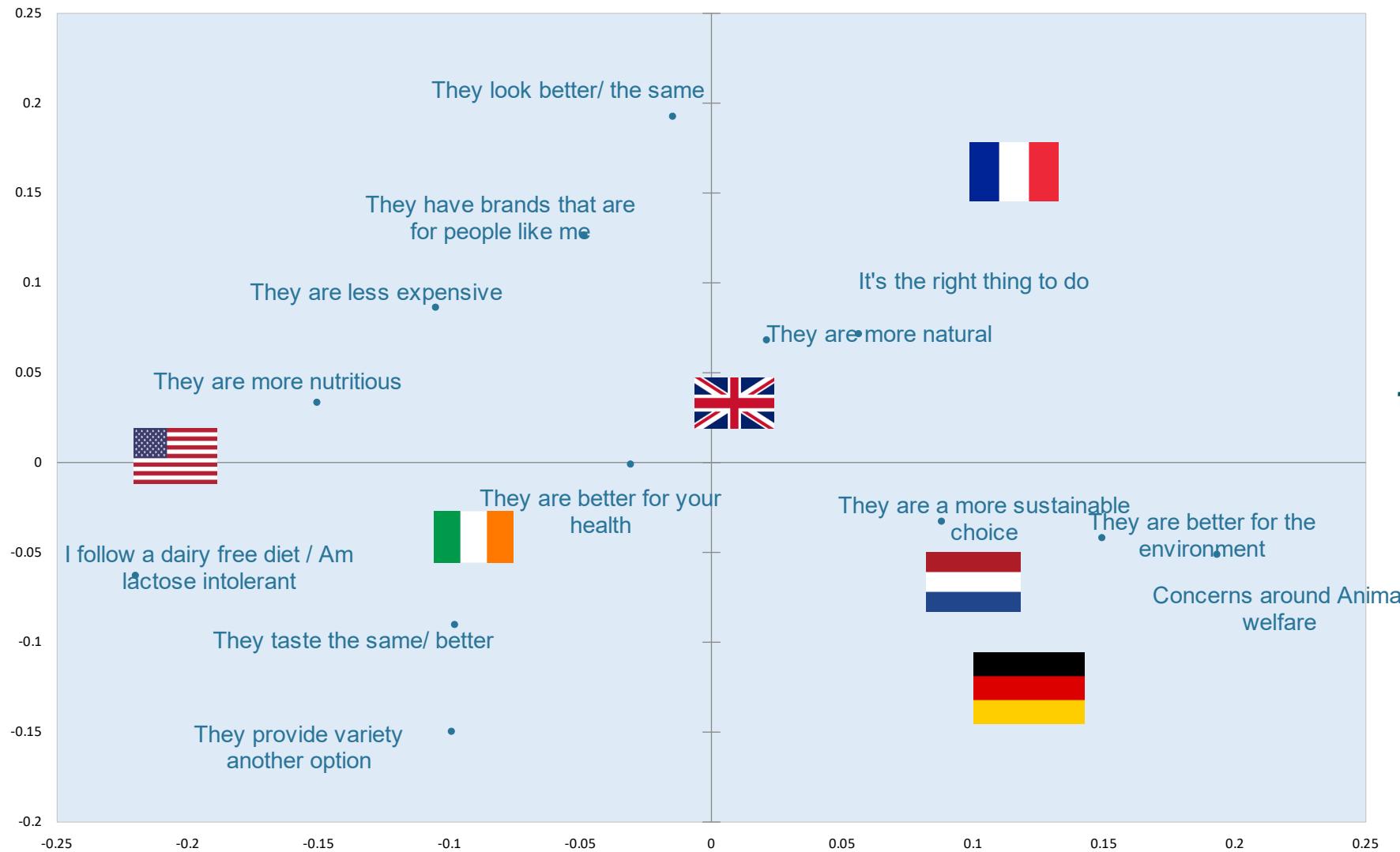
Reasons for choosing plant-based dairy alternatives

(Base: Plant-based dairy consumers (excluding China) n=2,360



Why choose plant- based dairy alternatives?

(Base: All plant based dairy consumers, n=1,487)



We can see the disproportionate impact of the environment in Western European markets when it comes to choosing plant based dairy alternatives

Interestingly, parents are more likely to be open to plant-based alternatives..



Dairy alternatives

23% currently consume dairy alternatives (vs 13% no kids)

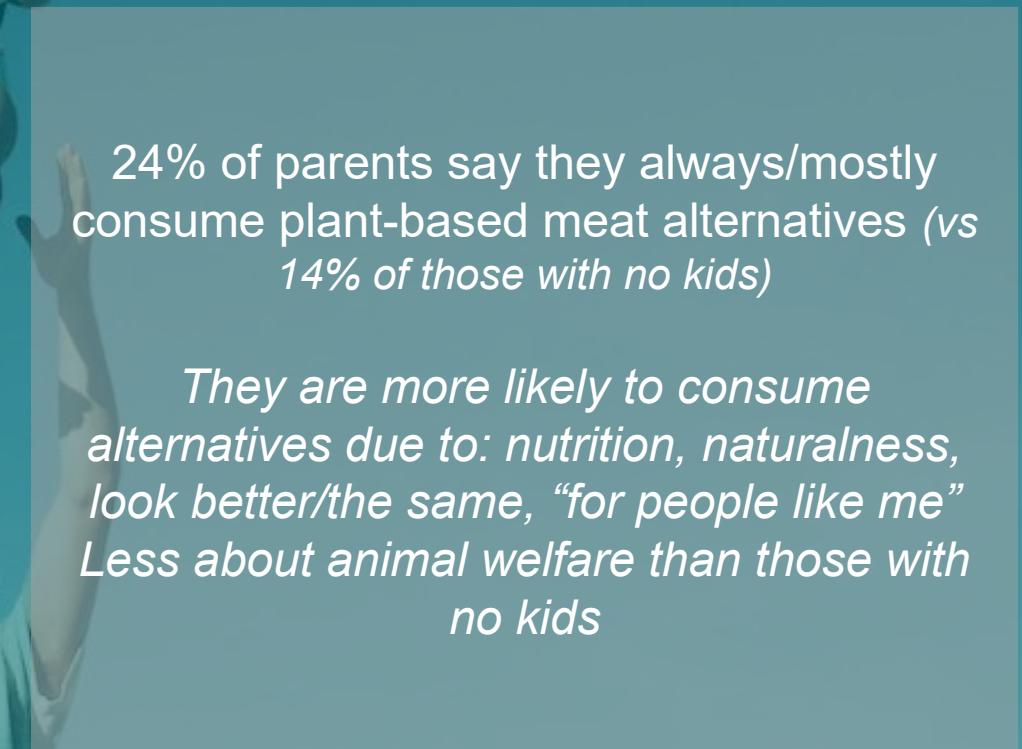
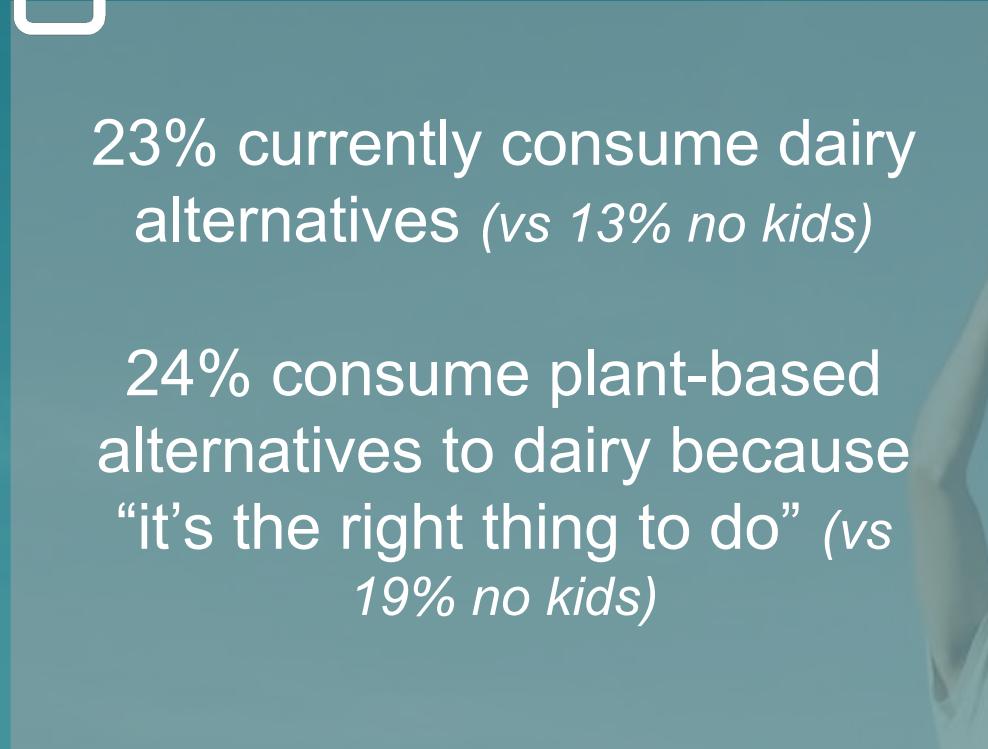
24% consume plant-based alternatives to dairy because “it’s the right thing to do” (vs 19% no kids)



Meat alternatives

24% of parents say they always/mostly consume plant-based meat alternatives (vs 14% of those with no kids)

They are more likely to consume alternatives due to: nutrition, naturalness, look better/the same, “for people like me” Less about animal welfare than those with no kids



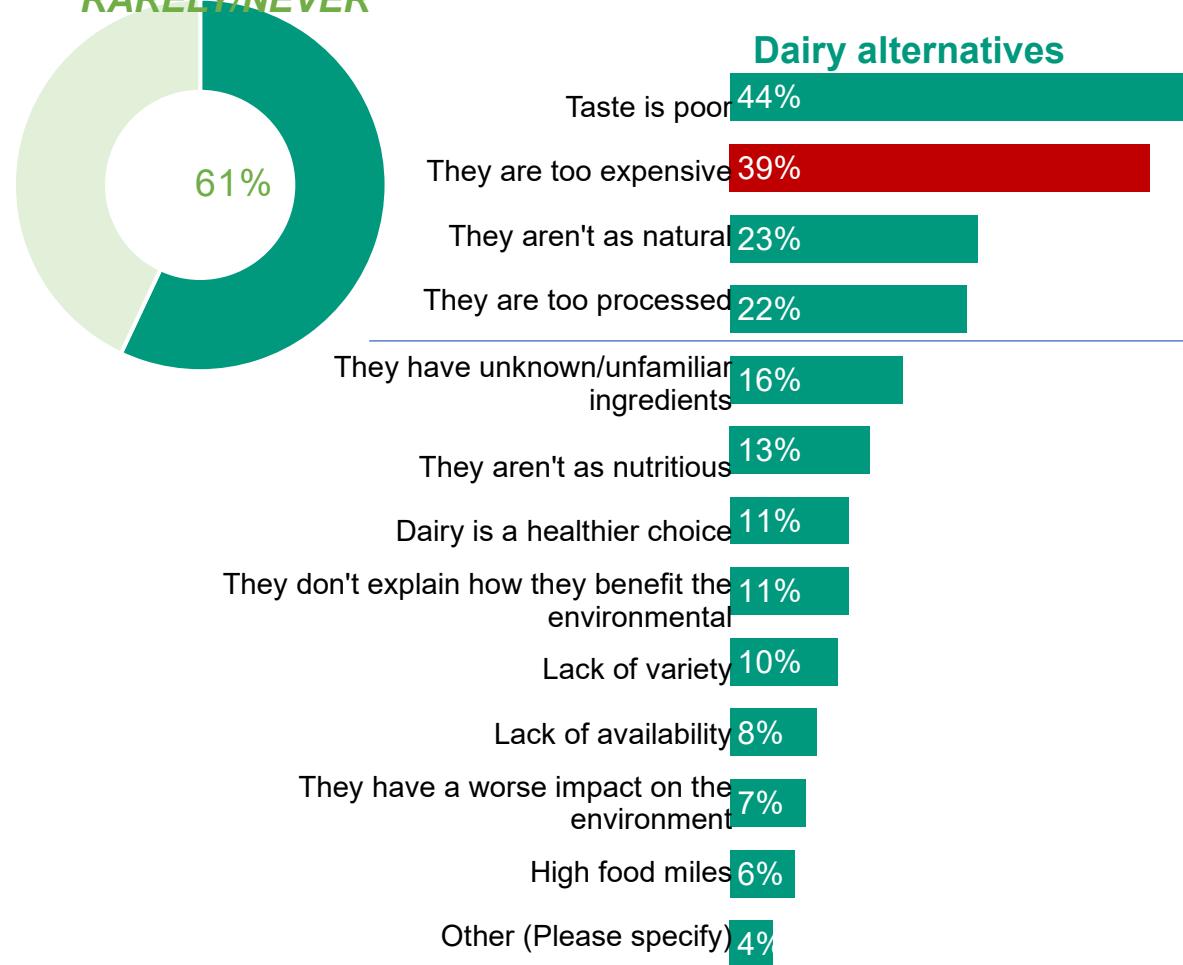


What is stopping non-users
consuming plant based meat
and dairy alternatives?

Barriers

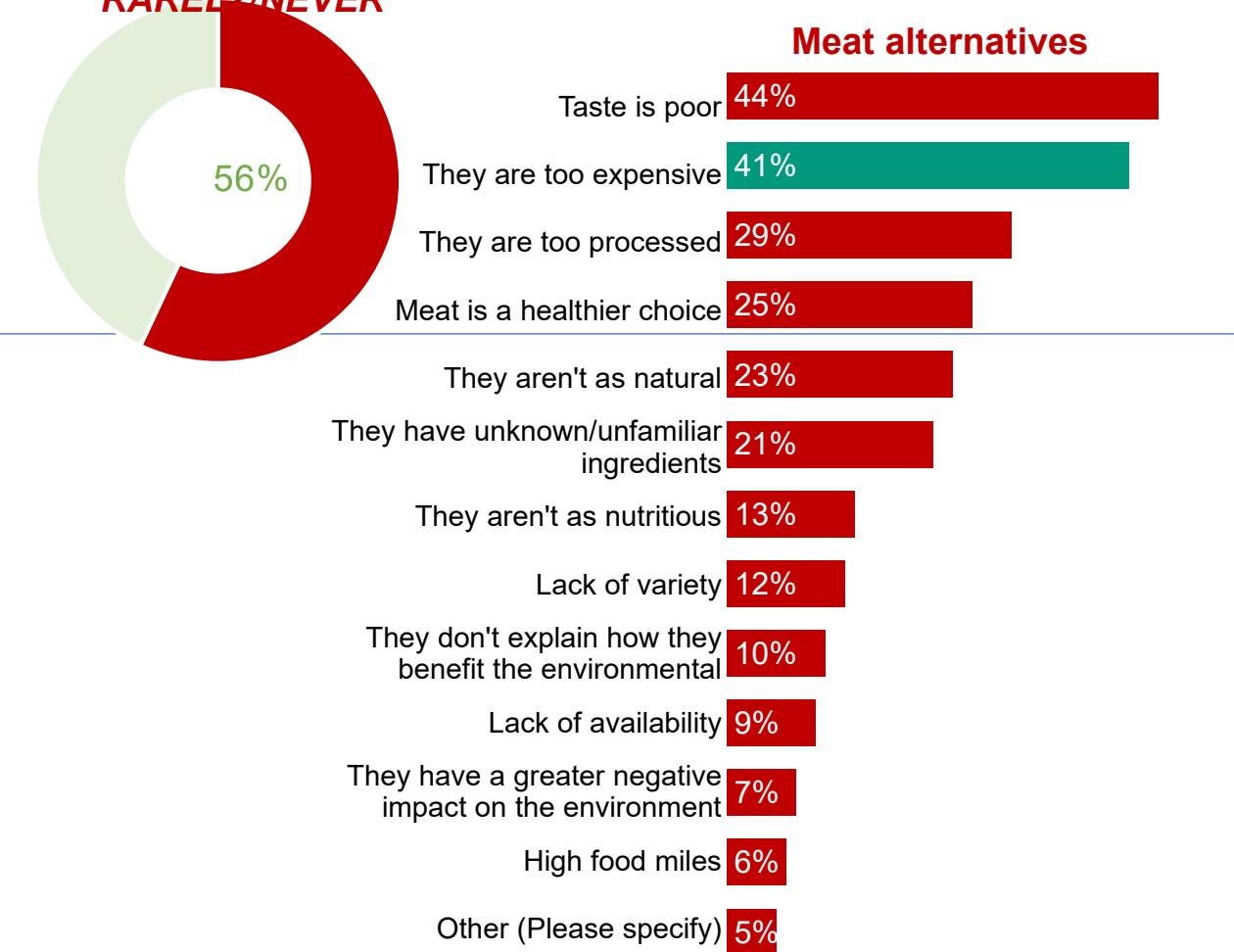
(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR – EXCLUDING CHINA)

RARELY/NEVER



You say that you don't consume plant- based alternatives to dairy products often. Which of these reasons best describe why you do not eat these products?

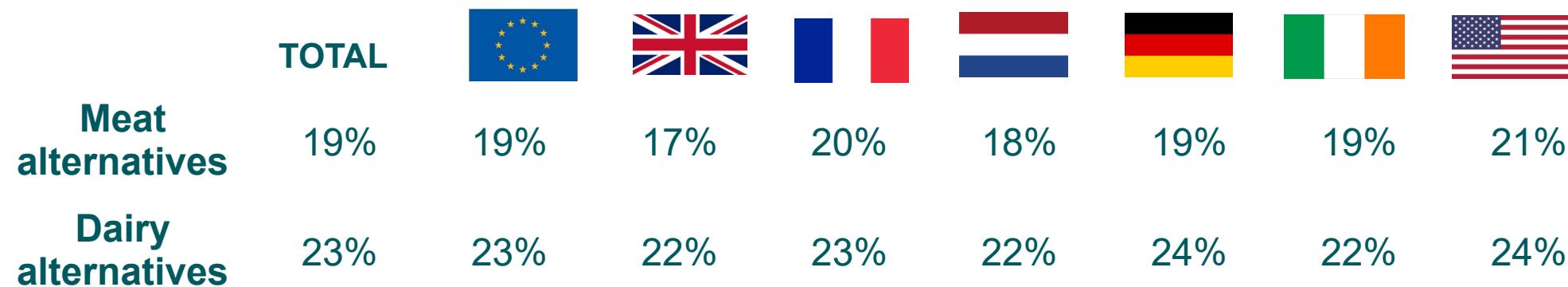
RARELY/NEVER



You say that you don't consume plant- based alternatives over meat products often. Which of these reasons best describe why you do not eat these products?

Consumers are marginally more likely to outrightly reject dairy alternatives than meat alternatives (23% vs 19%)

“I never choose them and I won’t in the future”

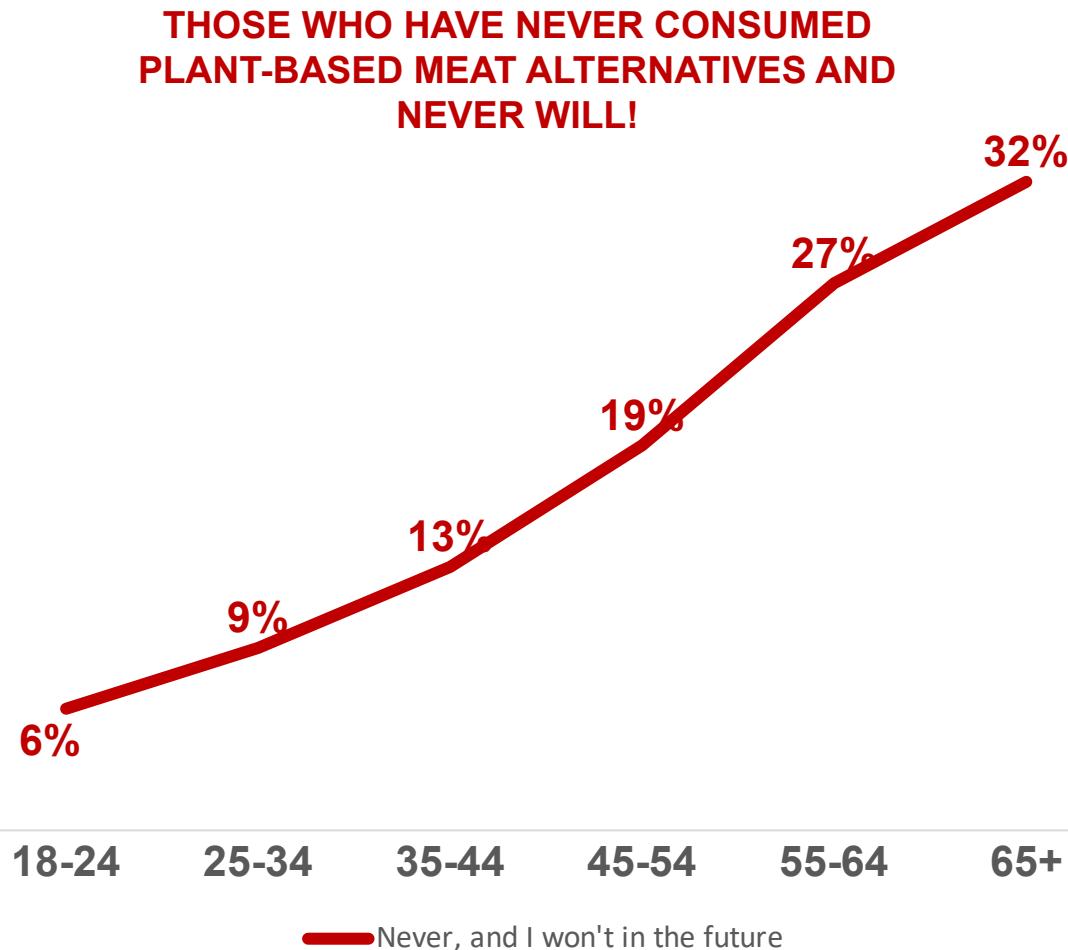


P1. How often, if ever, do you intentionally choose plant-based alternatives in place of regular meat products?

P2. And how often, if ever, do you choose plant-based alternatives in place of regular dairy products?

Rejectors of Plant-Based Meat Alternatives

(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR – EXCLUDING CHINA)



19% of the total sample say they have never consumed meat alternatives, and won't in the future.

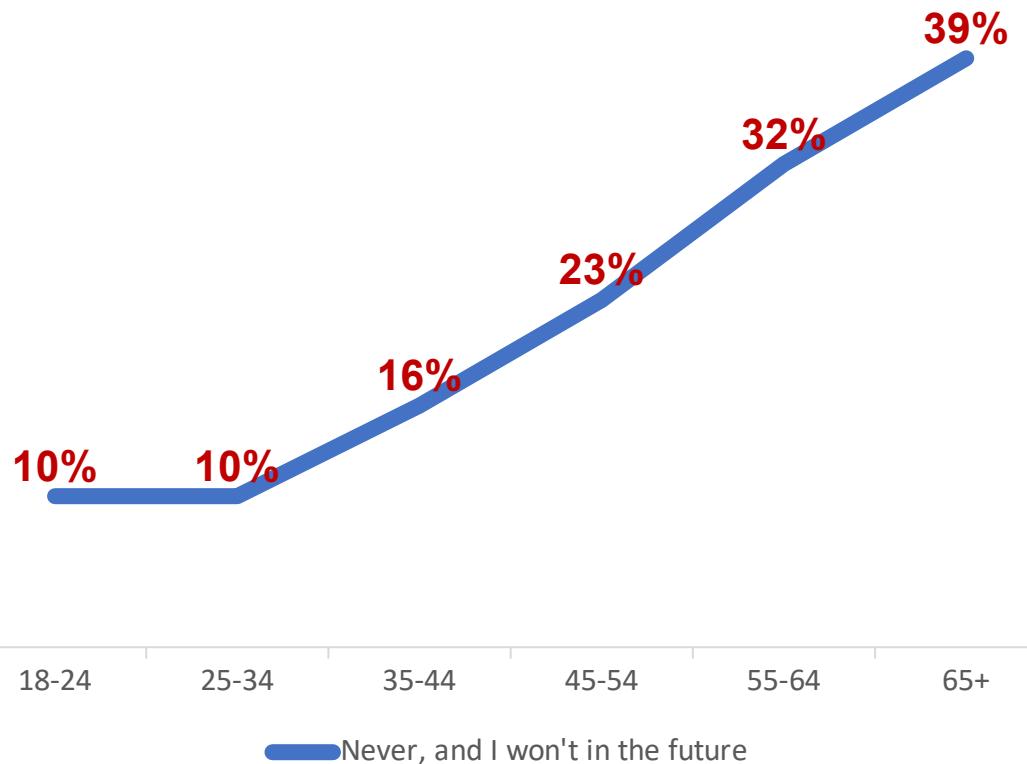
Outright rejection rises with consumer age, with 32% of those over 65 saying they have never trialled the alternatives and do not plan to.

This figure is highest in the US (21%) and France (20%).

P1. How often, if ever, do you intentionally choose plant-based alternatives in place of regular meat products?

Rejectors of Plant-Based Dairy Alternatives

THOSE WHO HAVE NEVER CONSUMED PLANT-BASED DAIRY ALTERNATIVES AND NEVER WILL



23% of the total population say they have never consumed dairy alternatives, and won't in the future. Outright rejection rises with consumer age, with 39% of those over 65 saying they have never trialled the alternatives and do not plan to.

This figure is highest in Germany (24%), France (23%) and the USA (24%). This is driven by those without children (26% vs 15% with children)

P2. And how often, if ever, do you choose plant-based alternatives in place of regular dairy products?



83%
think that people won't
change their habits unless
sustainable choices are
made cheaper

In 2023, plant-based burgers, dairy, and egg alternatives derived from soy, peas, and other plant-based proteins will attain price parity. (GFI)

Plant-based meat has achieved price-parity in the Netherlands - “Vegan Burgers are now 78c cheaper per kg than beef” (Food Navigator)

Cost

Cost is seen as more important than the environment for all markets, most evidently in the USA, Ireland, and the UK.

Rank



85% of global consumers think that the **rising cost of food** will impact on what they eat and drink in the future



83% don't think people will change their habits unless **sustainable choices are made cheaper**

Cost is seen as a barrier to trialling plant-based foods

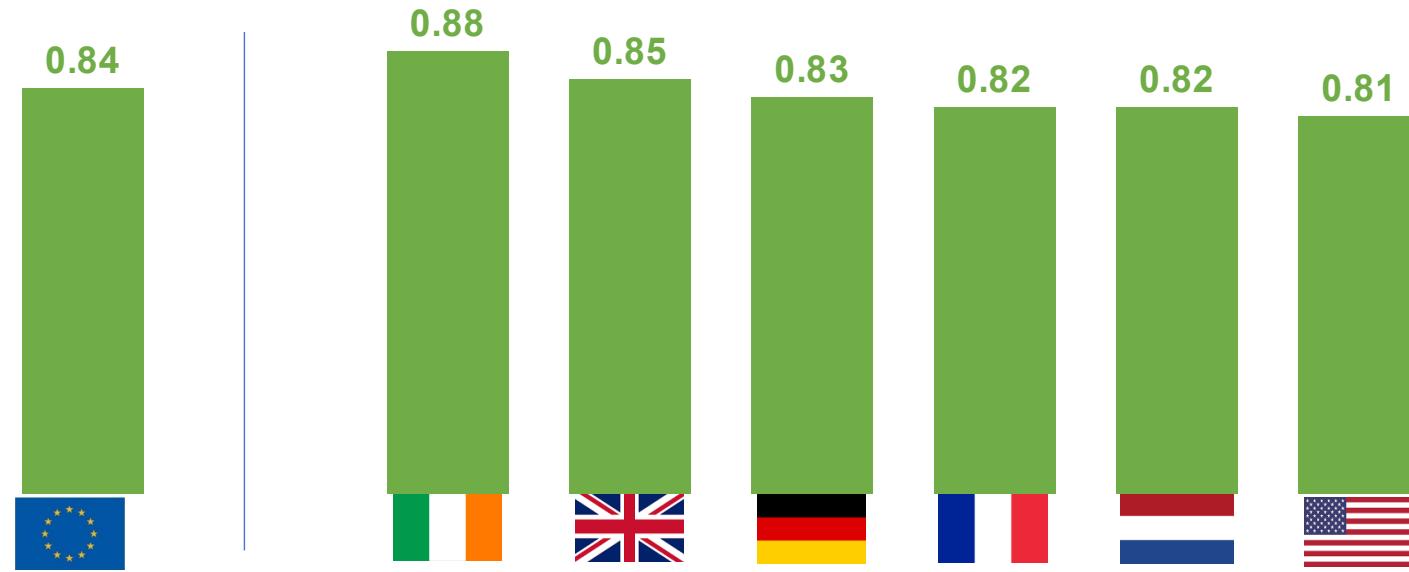
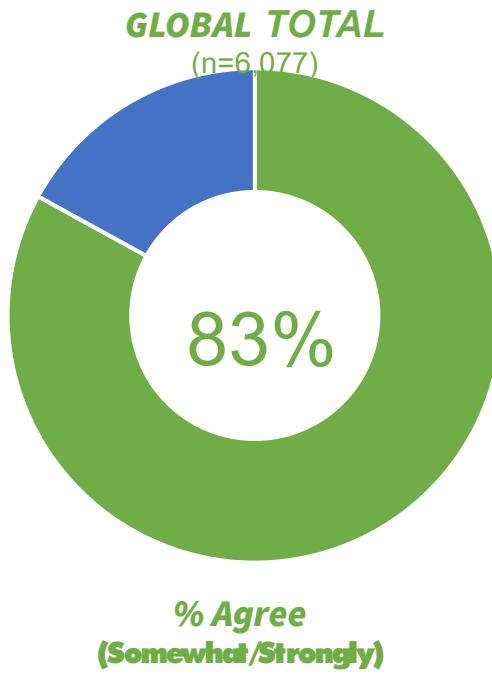
65% agree that plant-based meat alternatives are too expensive compared to meat/dairy equivalent



This is particularly seen while eating out of home, with 68% citing this as a barrier



“I don’t think people will change their habits unless sustainable choices are made cheaper”



Affordability is a significant barrier to making more sustainable choices....



Taste is crucial too

“We eat for comfort and taste as much as we do for nutrition”

Deirdre McCafferty, Cornucopia

Image by iStock



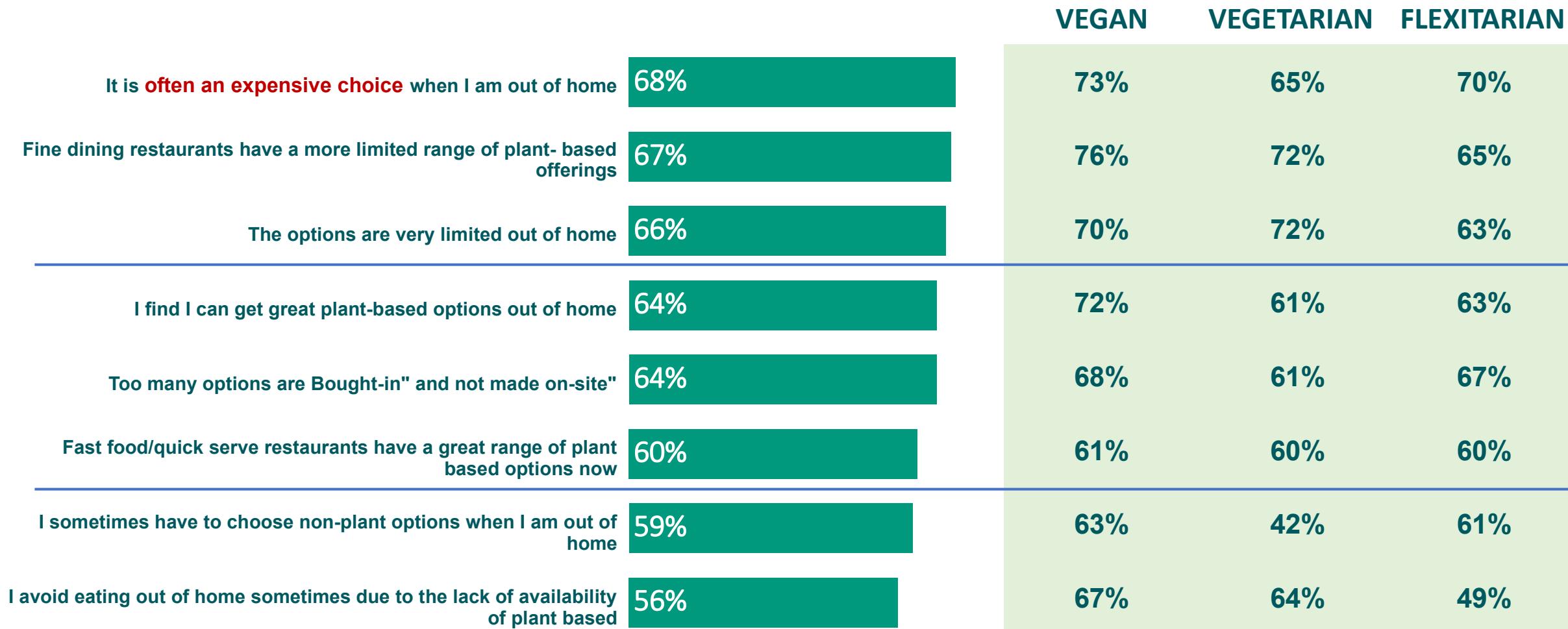
1. PBA meats have previously seen **exceptional CAGR predictions and while these have been tempered somewhat**, they remain positive.
2. Despite this we are seeing **challenges for leading incumbent brands** like Beyond Meat and Impossible Foods among others.
3. **Questions around ingredients, naturalness, and healthiness are part of this**, but the current **inflationary pressures are a more significant drag on demand**. Bloomberg report a 14% drop in sales of chilled PBA meats in 2022.
4. Given the importance of health and nutrition for current PBA consumers, this Achille's heel is important to consider in future development within this category.
5. **CAGR forecasts are more subdued for Dairy Alternatives** and in fact are negative in China. And while they have a higher prevalence overall when compared to meat PBAs, rejection of dairy PBAs is also higher.
6. **The main reasons cited for not using PBA meat and PBA dairy are similar; Taste, health credentials and cost.**

The Out of Home Experience



Barriers to Consuming Plant-based Out of Home

(Base: Regular consumers of meat/ dairy alternatives , n=1,436)



Flexitarians are feeling it too....

Foodservice

66% of consumers agree that plant-based options are limited when eating out of home

68% agree they are an expensive choice

59% say they sometimes have to choose non-plant items out of necessity

Fine dining restaurants are also perceived as having a more limited range of plant-based offerings, with 70% agreement at total sample level Vs 76% in Ireland

Photo by Gabriel Gurrola on [Unsplash](#)

Out of Home Operators Driving Change



In the UK and Ireland, foodservice supplier Sodexo reported a marked increase in the demand for vegan and vegetarian dishes at its workplace catering sites.

The company will also ensure that 42% of all meals served at its US university campuses are plant-based by 2025.



89% of chefs globally have already seen growing consumer interest in plant-based meat and dairy substitutes, while 33% now regularly list them on their menus (GEA, 2023).

Photo by Naim Benjelloun from Pexels:

**Wagamama have been
pioneers in tackling both of
these foodservice barriers**



VEGATSU
Wagamama's
Katsu Curry
Gets a Vegan
Makeover

join our plant pledge

our world is demanding action, but where do we begin? **we believe small choices create big change** + collectively we can make a difference. eating less meat + dairy has been dubbed the most essential + ownable action we can all take, to reduce carbon emissions (**poore + nemecek, science journal 2018**)

which is why our plant-based bowls make up 50% of our menu, a commitment we met in 2021. **that same year, we launched our plant pledge + saw over 14 thousand of you join our journey + make your own plant pledge for the planet**

this year, we go again. whether it's finding a new go-to vegan side or choosing to eat meat-free for half the week. **positive change can start small + begins with all of us**

make your first ever plant pledge or pledge again + to say thanks, and you'll receive a voucher for a vegan side on us

terms + conditions apply
you have to be 18+ years old to take part



Foodservice and catering

The Opportunity

University of Cambridge

Nadeem Badshah and agency

Tue 21 Feb 2023 19.26 GMT



Cambridge University students vote for completely vegan menus

Union will hold talks with catering services about removing all animal products from cafes and canteens



 The University of Cambridge's catering services removed beef and lamb from all its menus in 2016. Photograph: Pajor Pawel/Shutterstock

Contract caterers have a big opportunity to make positive changes amongst large groups of people.

Compass Foods UK & I reported a 36% reduction in emissions from animal proteins in its first in-depth climate impact report (Feb 2023)



Companies like Rebel Meat (Austria) provide hybrid solutions for schools & creches, introducing the concept at a young age.

Lunch

Striking the Balance: Plant, Protein and the Planet



Embracing Change

Exploring alternatives



There is a willingness to change



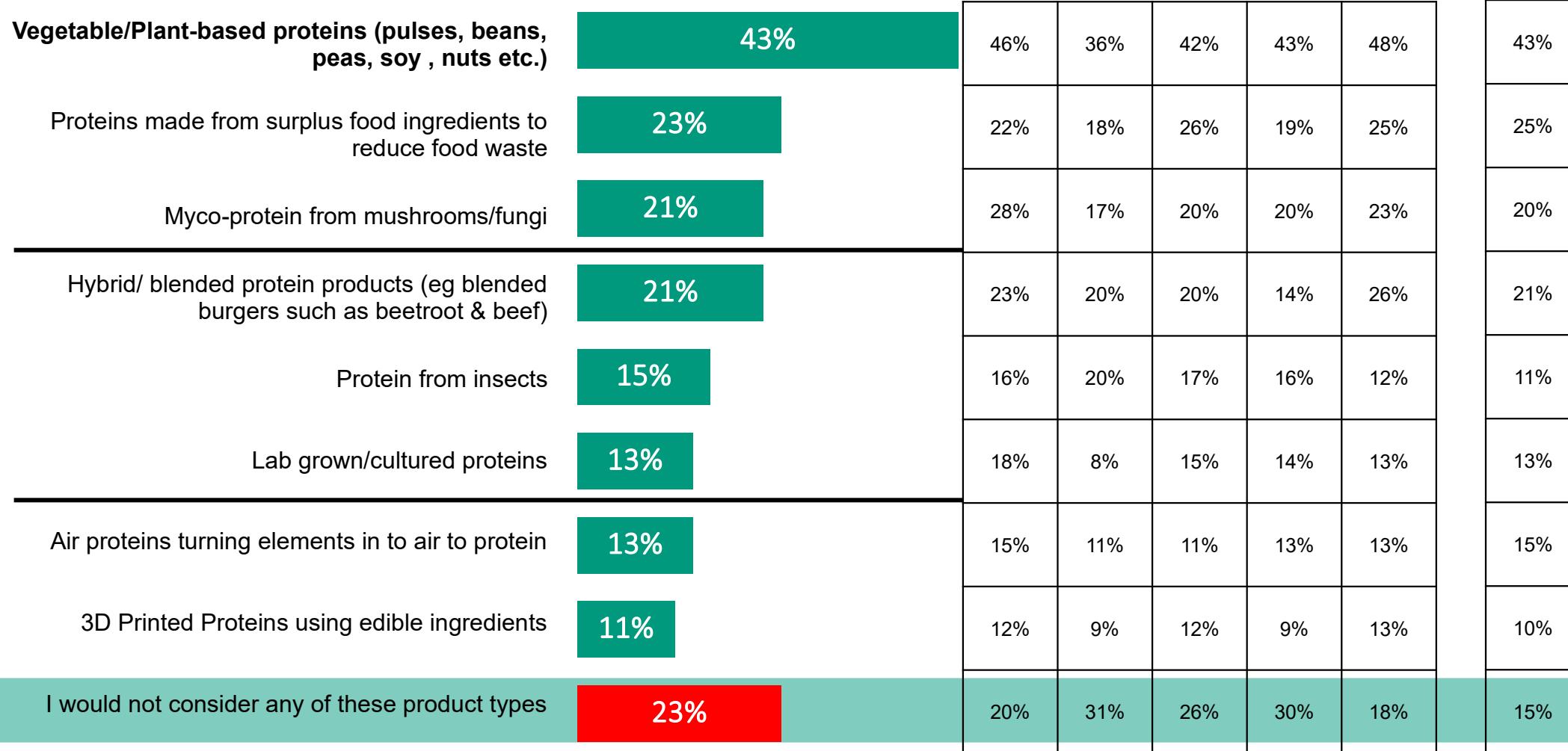
2 in 3
claim they are willing to significantly
change their food consumption
behaviour to improve the environment

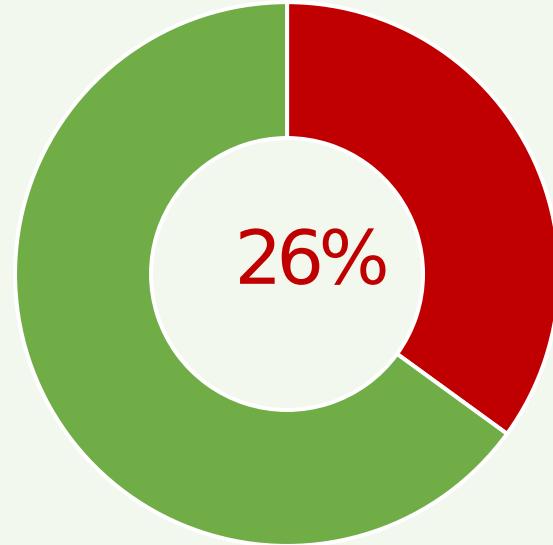
25-44 year olds most willing to change



Openness to consideration: Country view

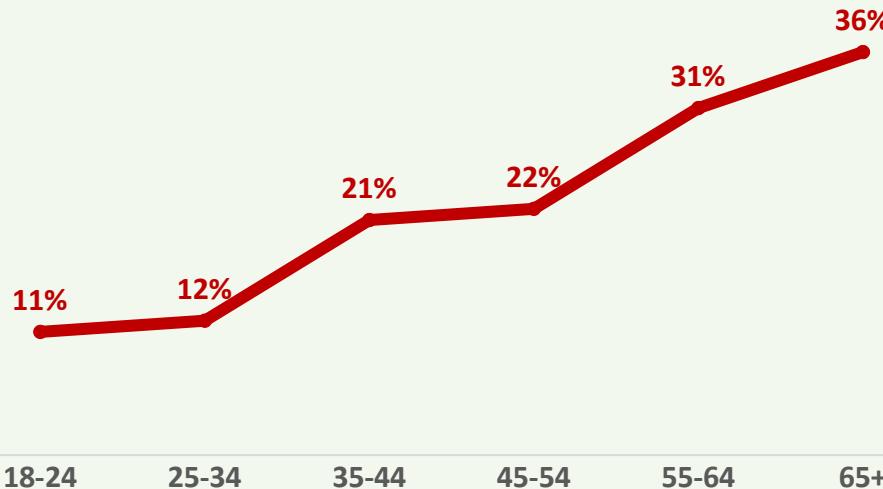
(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR)



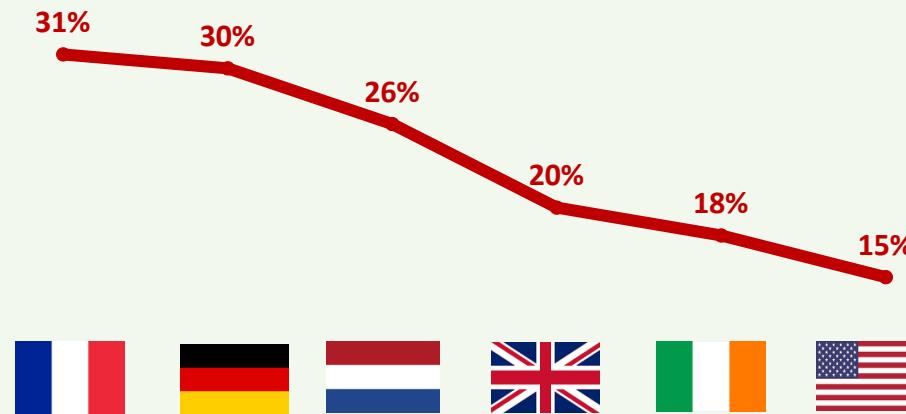


... would not consider
ANY of these new
alternatives

... would not consider **ANY** new alternatives



... would not consider **ANY** new alternatives



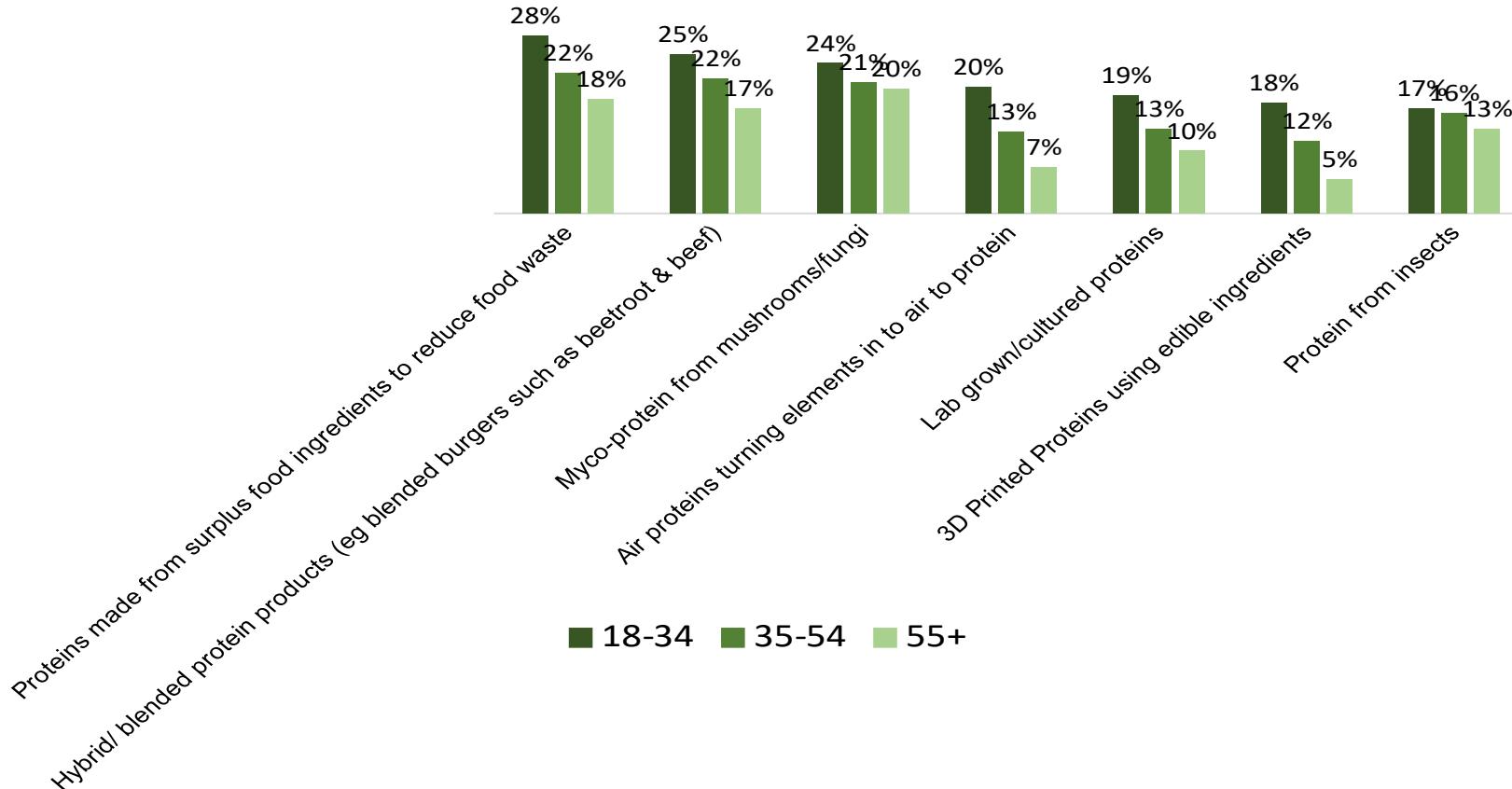
A photograph of a group of young people, mostly women, sitting around a table and eating sandwiches. One woman in the foreground is holding a sandwich and looking at the camera. The scene is casual and suggests a social gathering or a break.

“Younger consumers priorities differ. They are more focussed on things like taste, convenience and price. But they are more open to different options”

-Mary Shelman, Thought leader- Global Agribusiness

Younger consumers are more likely to trial NEW alternative protein types

OPENNESS TO TRIALLING ALTERNATIVE PROTEINS



Acceptability of the newer and more innovative concepts drops off in the over 55 age group.

New Frontiers: Flexitarian Futures

Open to consider

(Base: All Flexitarians, n=1,243)

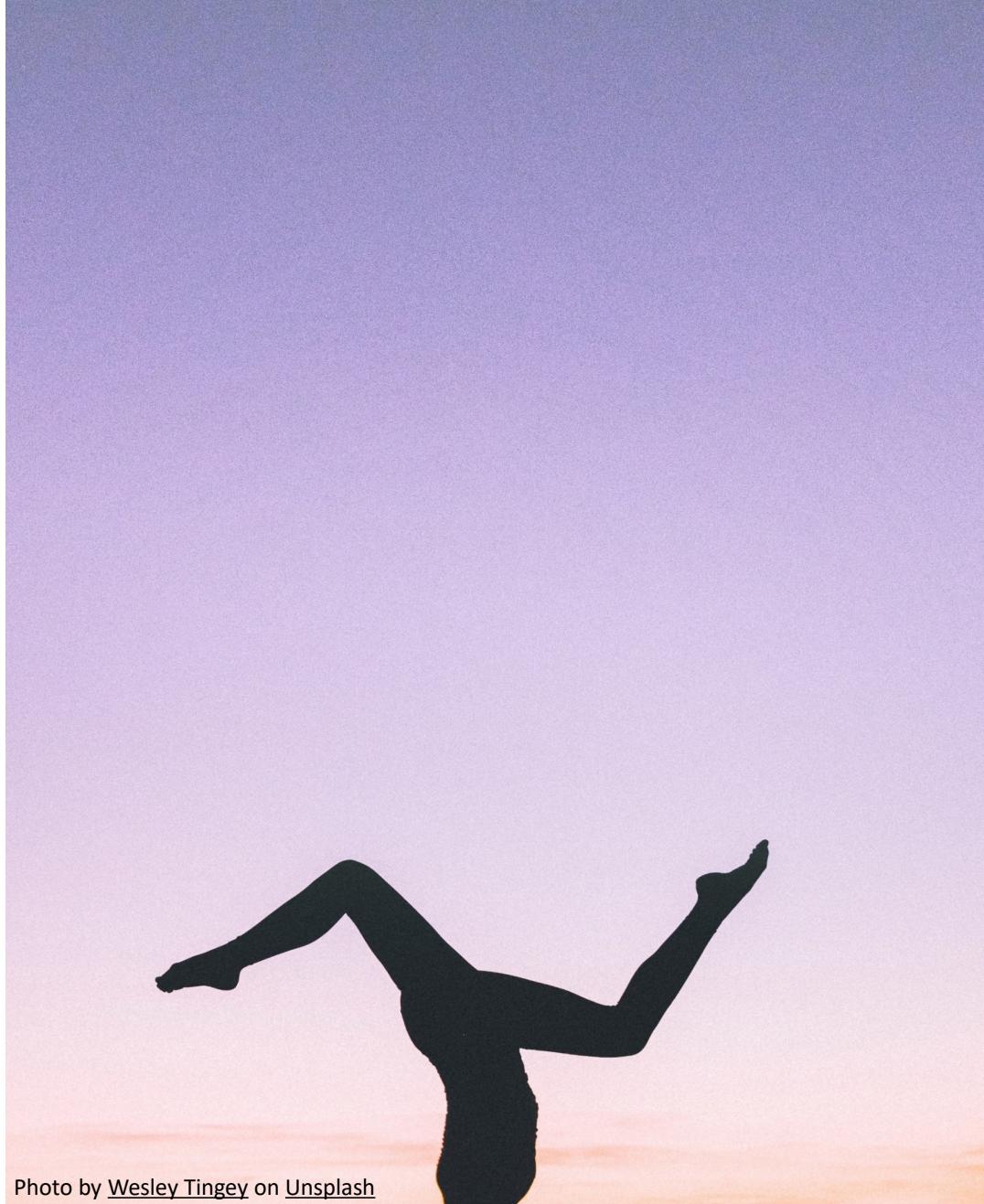
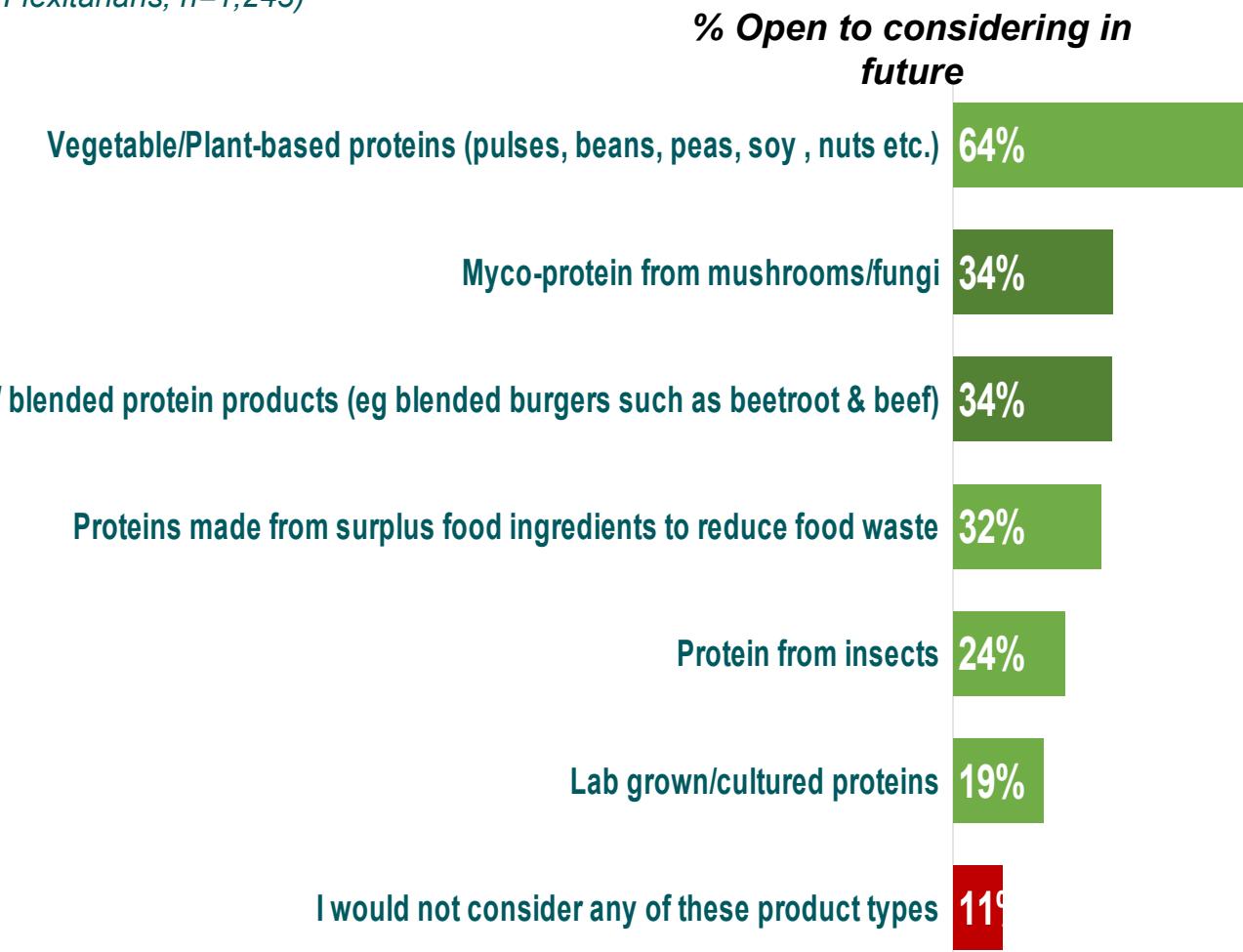


Photo by [Wesley Tingey](#) on [Unsplash](#)



1. **Two thirds say they are willing to alter their diets** to improve their environmental impact overall.
2. “Close in” options like vegetable-based alternatives, blended proteins, myco and those produced from waste streams have the most “mass” appeal.
3. **Insects and other “high tech” food innovations though have some way to go** despite significant interest and evidence of their increasing visibility at the vanguard of food innovation.
4. Acceptance of all of these options is unsurprisingly related to age and once again we see it is **health, naturalness and affordability credentials that prevail** in consumer’s consideration of these.
5. PBAs as ingredients are a significant area of potential for the future.



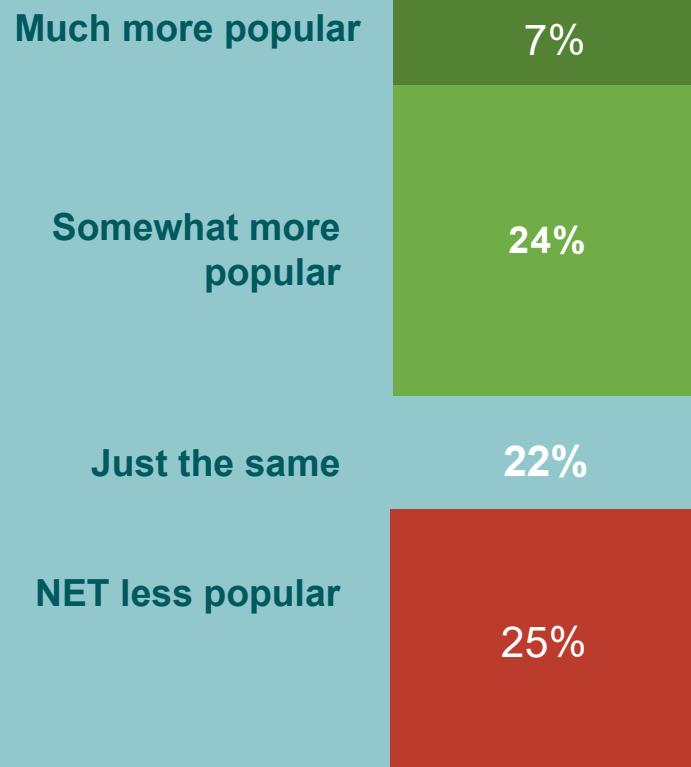
New Frontiers?

Headline Response to New Proteins

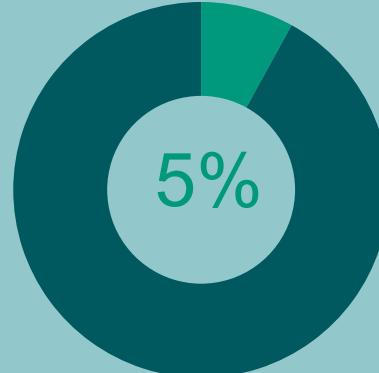
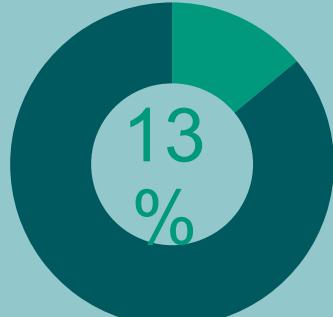
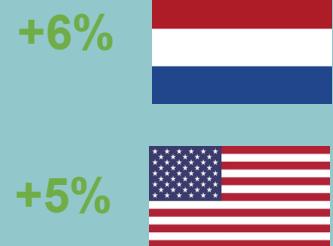


Lab grown/cultured proteins

Do you think lab grown/cultured proteins will become more or less popular in the future?



More Popular (31%)



Top statements related to lab grown/cultured proteins

- 1 Is too processed and unnatural
- 2 Will result in less animals suffering
- 3 A good solution to help feed the growing world population



Open to considering in future:



+ 5%



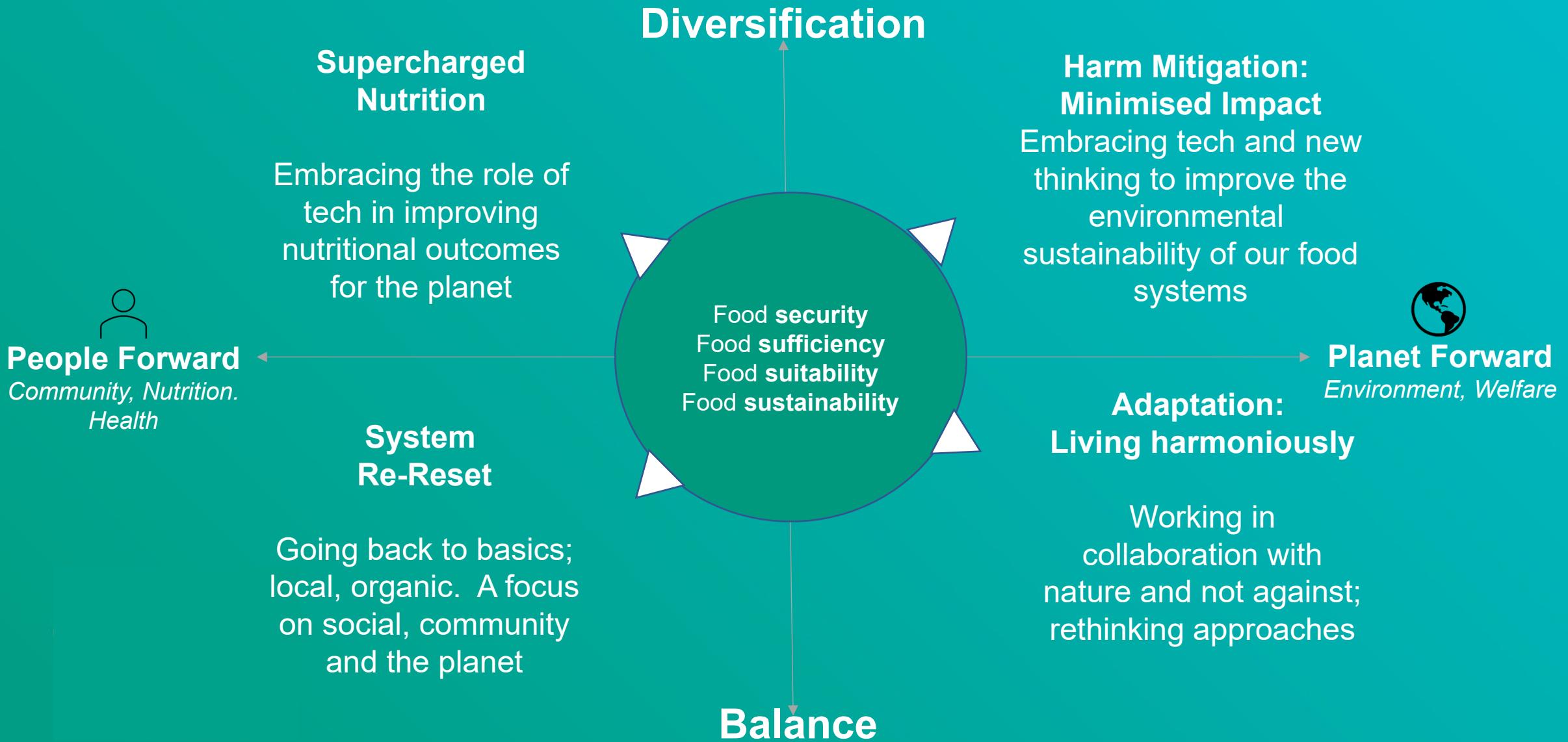
+ 2%

Ever consumed:

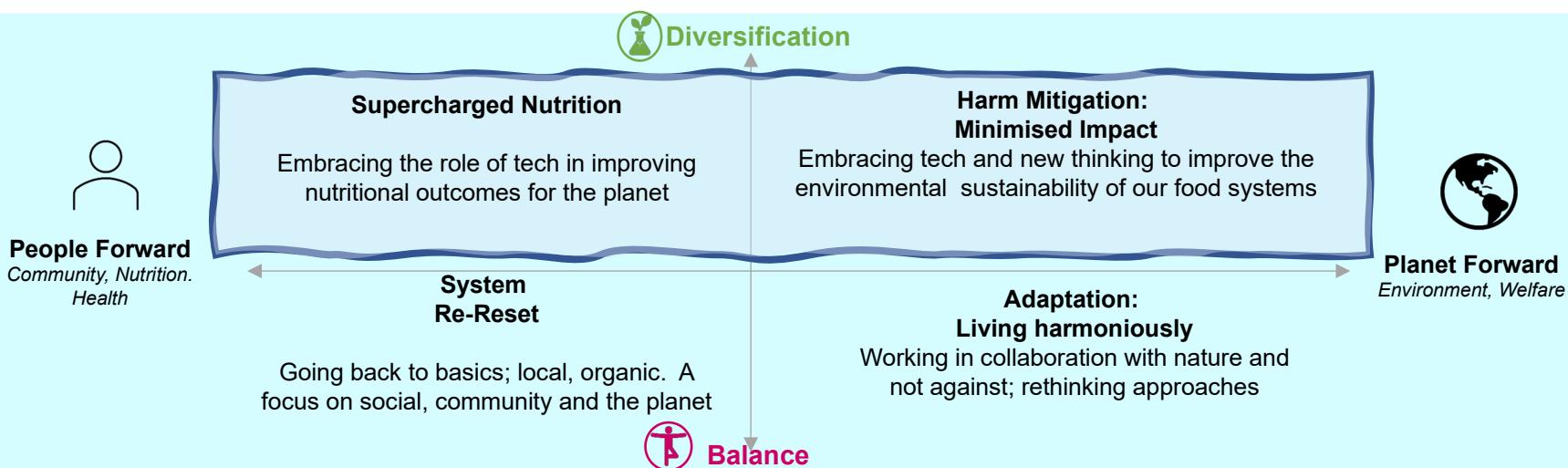
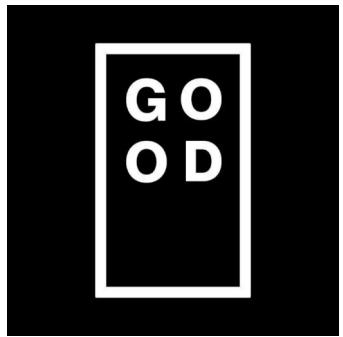


+ 1%

Reminder Directions of Travel?



Lab Growth/Cultivated Meat



Lab grown investment remains buoyant....

Upside Foods first cell-based meat to receive safety sign off from the FDA

Aleph Farms from Israel the first Kosher Lab-grown meat

Good Meat secured regulatory approval in Singapore to produce lab-grown serum free meat which cuts costs and allows vegan certification

Lab Grown Meat International Policies

All sizzle, no steak: how Singapore became the centre of the plant-based meat industry

The first country to approve the commercial sale of cultivated meat has engaged its tech industry to become a global hotspot for alternative protein projects

Get our [morning and afternoon news emails, free app or daily news podcast](#)



Chicken nuggets made from lab-grown cultured chicken, developed by Eat Just. Photograph:

Singapore

Lab-grown chicken safe to eat, say US regulators

17 November 2022 • [Comments](#)



GETTY IMAGES

By Shlona McCallum
Technology reporter

USA

Italy moves to ban lab-grown meat to protect food heritage

29 March



NICHOLAS YEO/AFP

| Food safety authorities in the US and Singapore have already approved synthetic meat and the EU is also expected to

By Paul Kirby
BBC News

Italy

Lab Grown/Cultivated Dairy



Animal-free dairy

Uses precision fermentation to create a whey protein that mimics dairy in taste, texture and nutrition, while producing up to 97% less carbon emissions than traditional milk.

Animal Free Dairy

In 2019 Kraft Heinz invested in **New Culture**, a San Fran start up making animal free dairy cheese with casein proteins made from **microbial fermentation** instead of cows milk.

Ingredient company **Perfect Day** makes animal-free dairy proteins, which are available in General Mills' new Bold Cultr cream cheese, as well as ice cream, cake mix, whey protein powder and cream cheese made by The Urgent Company, its CPG arm.

While **Perfect Day** has used its technology to create **animal-free whey**, which has recently been incorporated into a cream cheese product under food tech's Modern Kitchen brand, **New Culture** is using precision fermentation to replicate **casein**.

New Culture Bags \$25M To Serve Animal-Free Mozzarella in Pizzerias By 2022

By Sally Ho — Last updated May 18, 2022

ALT PROTEIN FERMENTATION-BASED ALT PROTEIN



General Mills Brand Bold Cultr Debuts As First Major U.S. Precision Fermentation Cheese Launch

By Jill Ettinger — Last updated Nov 19, 2021

ALT PROTEIN FERMENTATION-BASED ALT PROTEIN



Companies that have invested in animal free dairy include:

- Kraft Heinz
- Dr Oetker
- General Mills
- Mars
- AB InBev
- Cargill





Insects



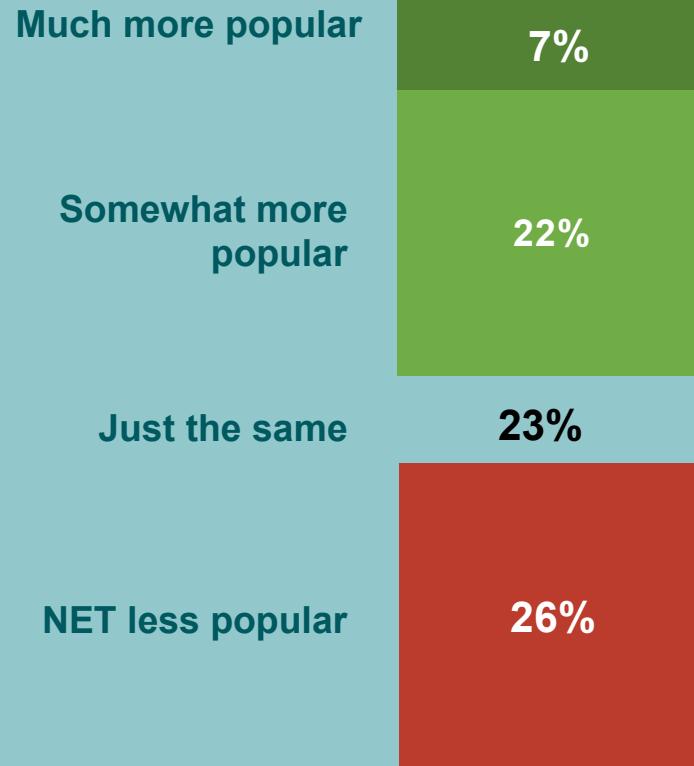
About 80 percent of people around the world regularly consume one or more of the 1,700 edible types of insects, which are very high in protein for their size.

<https://healthyeating.sfgate.com/worlds-main-sources-protein-7395.html>

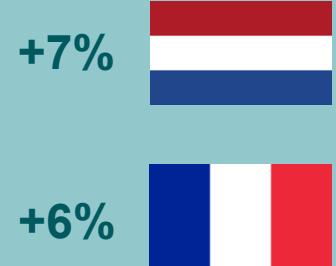
Photo by Julia Filirovska from Pexels:

Insect proteins

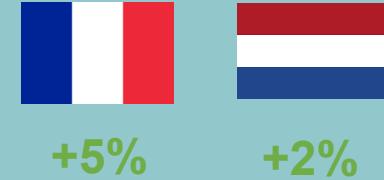
Do you think insect protein will become more or less popular in the future?



More Popular (29%)



Open to considering in future:



Ever consumed:



Top statements related to Insect Proteins

- 1 A good solution to help feed the growing world population
- 2 Is a natural option
A good source of nutrition
I think we will have to consume this in future whether we like the idea or not





Insect protein: Ireland & the UK

As of 2022, the European Commission has approved three insects for sale and consumption as food – namely, **crickets, mealworms and locusts**. These can be sold in frozen, dried and powder forms.



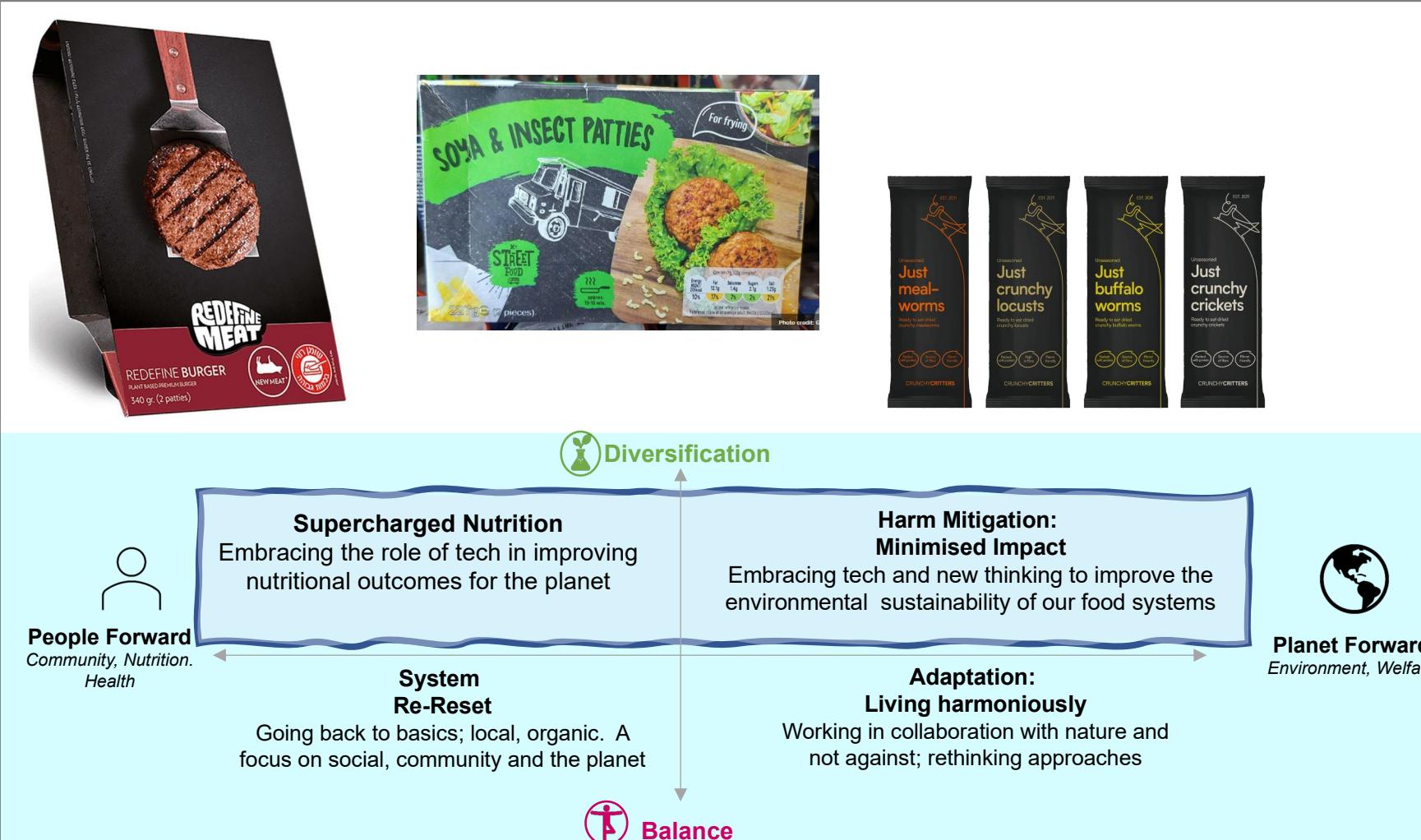
“I think there’s going to be a lot of mind opening down the line. We are all going to be eating this stuff if we want sustainability and nutrition”

Aveen Bannon, Registered Dietician



Soya & Insect Burgers for sale in Lidl Ireland
€2.99 for 277g (2 burgers)

Novel Proteins



New ingredients and technologies like 3D printed meats, insects & even proteins made from air are slowly gaining traction and approval from the FDA/EFSA.

Is insect protein a possible future?



“Grasshoppers are the most widely eaten insect in the world, consumed by 2.5bn people across Asia, Africa and Central America, and are both Kosher and Halal.”

They are also highly nutritious, containing all essential amino acids and omega 3 and 6s. FoodNavigator USA



Crickets (Chapulines in Spanish) served as a bar snack in South America

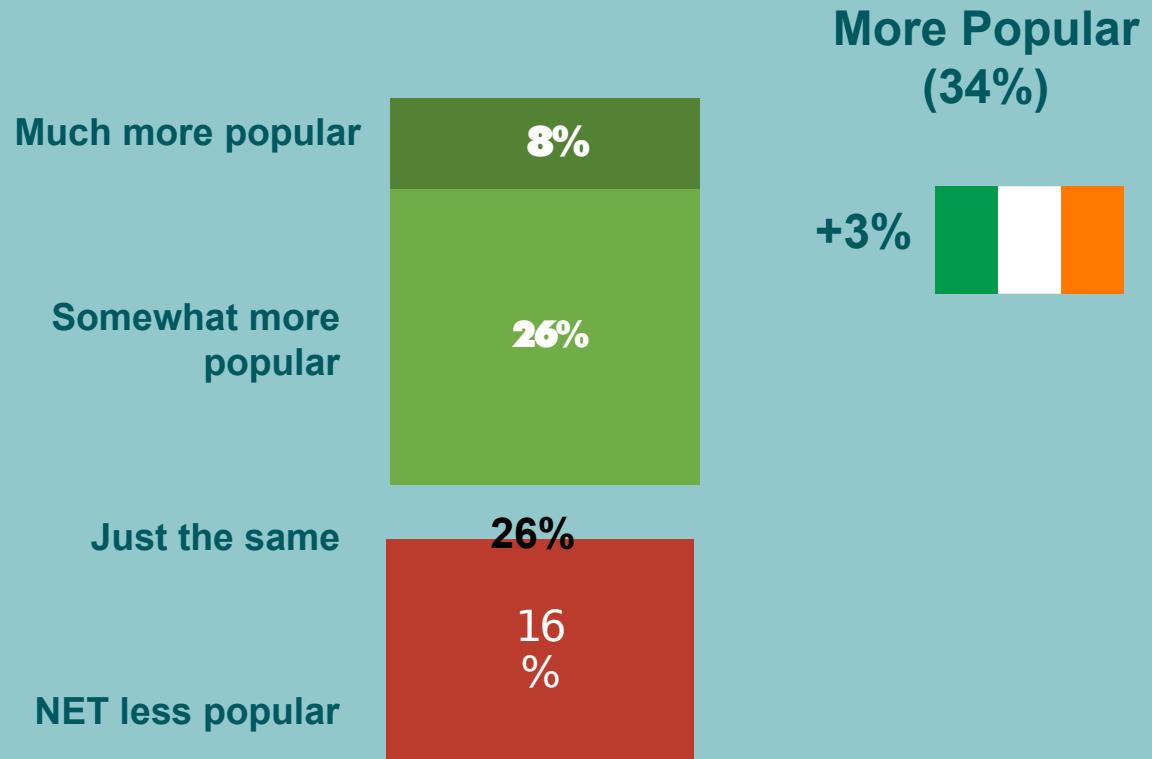
5 places in LA that you can get edible bug cocktails



<https://www.timeout.com/los-angeles/blog/5-places-in-la-that-serve-edible-bug-cocktails-101315>

Myco-protein made from Mushroom/Fungi

Do you think mycoproteins will become more or less popular in the future?

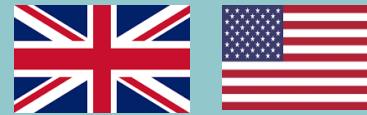


Open to considering in future:



+2% + 7%

Ever consumed:



+ 5% +1%



Top statements related to Mycoproteins

- 1 Will result in less animals suffering
- 2 An environmentally sustainable choice
- 3 I think it would be too expensive
- 3 A good solution to help feed the growing world population

Quorn – the original Mycoprotein

- Created in the 1960s as an alternative protein to feed the growing world population
- Originally positioned as a health food
- ✓ High protein with all essential amino acids
- ✓ Low fat, low calorie
- Meat replacement rather than vegan alternative as some products contain eggs



Marlow Foods, parent company of Quorn, sets up ingredients division to make its mycoprotein available to others

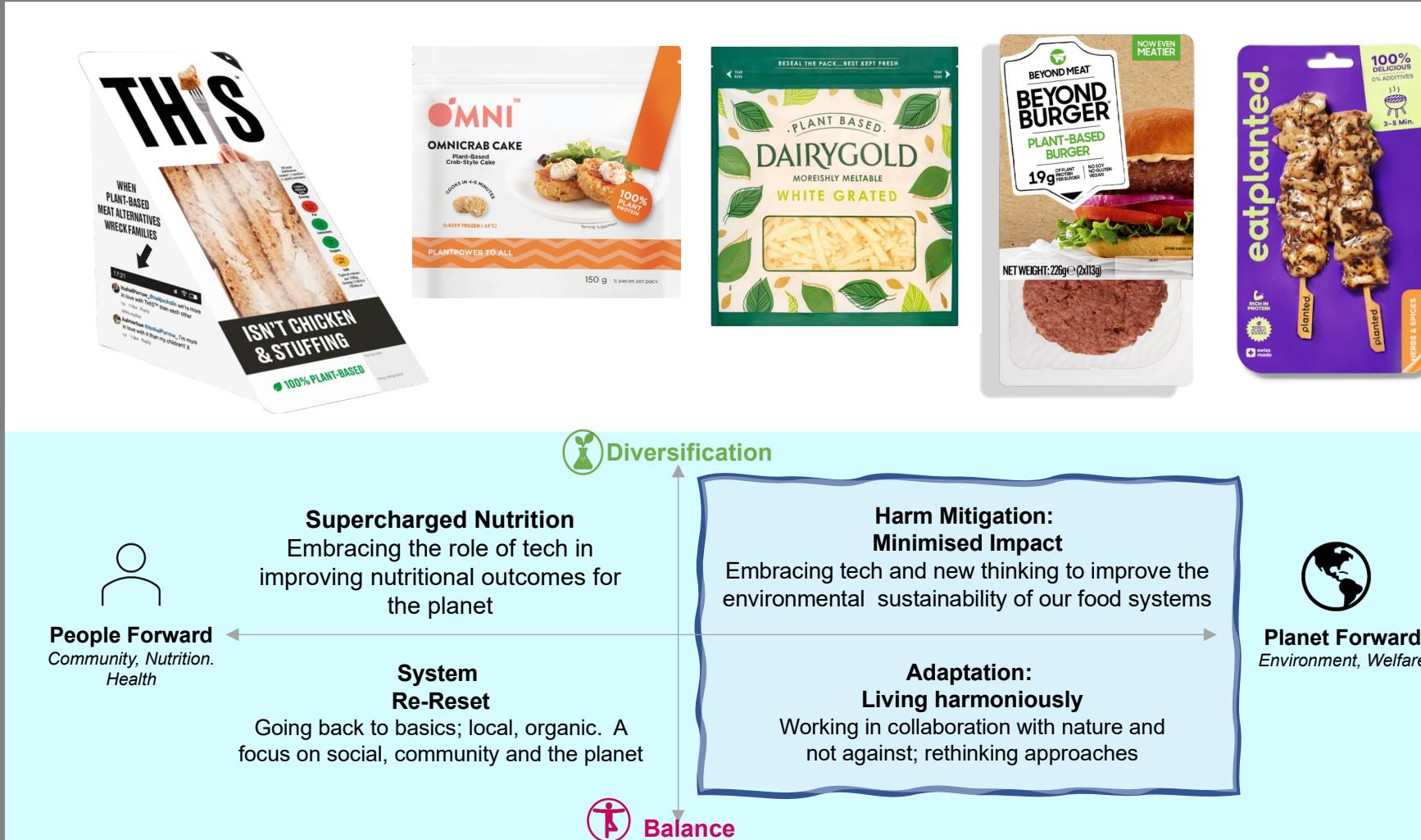
April 17, 2023



UK Market Share

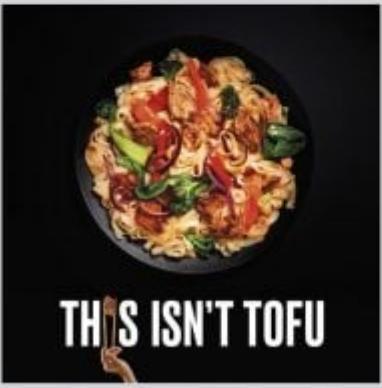
45%
2019 → 27%
2022

Meat & Dairy Mimics



Products like **THIS™**, Beyond Meat burgers and Dairygold's Dairyfree appeal to those who are choosing alternatives for environmental or animal welfare reasons, but still want the same great taste.

Meat Mimicry



U.K.'s fastest
growing retail brand
(2 year CAGR
growth of 246%!).

Juicy Marbles

Plant-based premium meat alternative, founded in Slovenia

Available for retail and foodservice

Made from a mix of plant proteins and soy, using beetroot powder for colour.



Revo Foods

Plant-based seafood made in Austria

Made of peas, plant oils and algae
(soy and allergen free)

Source of protein, omega 3s and vitamins D and B12

Available in 20+ European countries



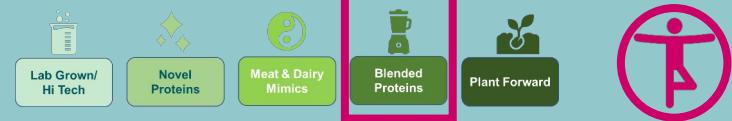
Meat Mimicry: A cautionary tale



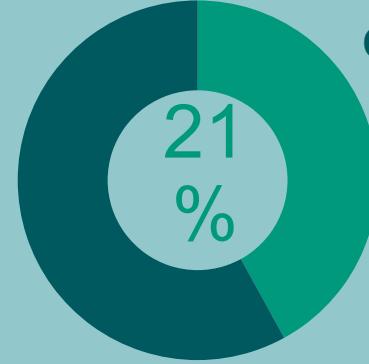
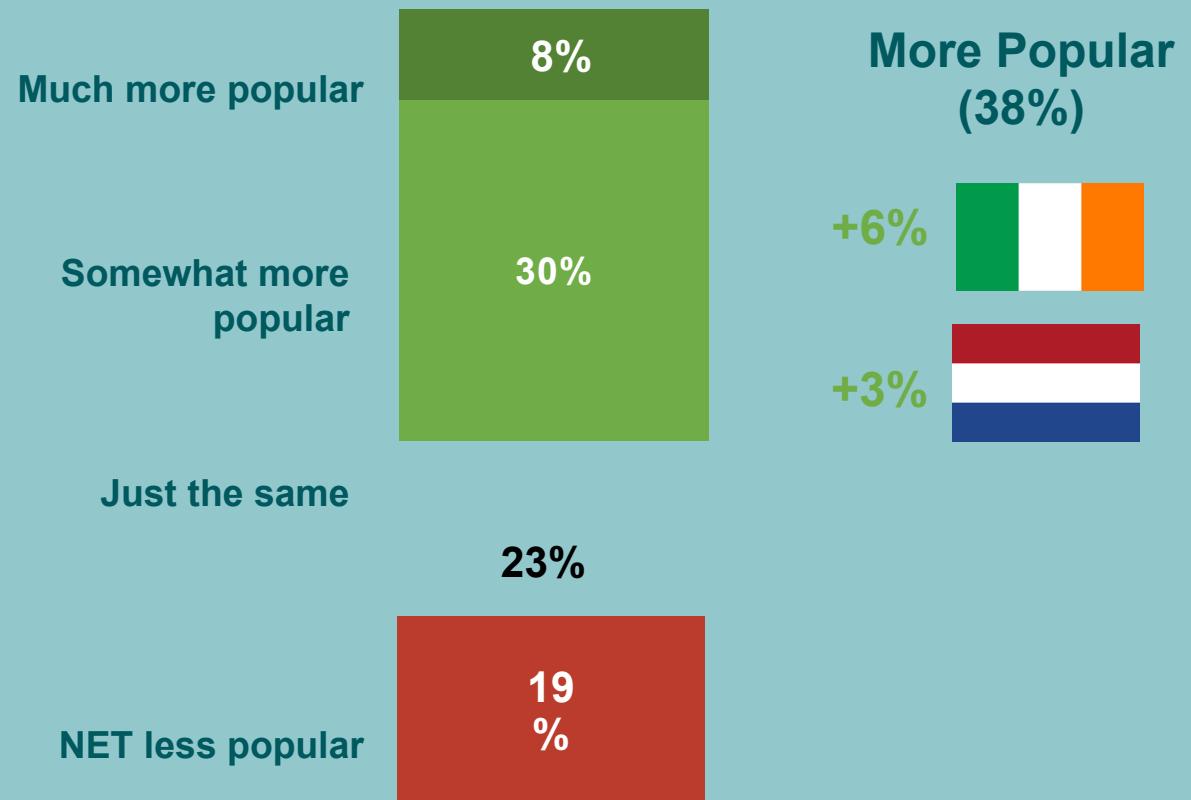
The US test run of the McPlant burger was quietly shelved last month (it is still available in some markets, including the UK) in one of a series of setbacks for a meatless-meat industry that only a year ago was claiming it could change the great American menu for ever.

Multiple chains that partnered with the company (Beyond Meat), including McDonald's, have quietly ended trial launches.

Hybrid/blended protein products



Do you think hybrid/blended proteins will become more or less popular in the future?



Open to considering in future:



Ever consumed:



Top statements related to hybrid/blended proteins

- 1 A good source of nutrition
- 2 A good solution to help feed the growing world population
- 2 I think we will have to consume this in future whether we like the idea or not
- 2 Is too processed and unnatural

Blended/Hybrid Meat Products



Kepak Blended Burgers

Position as a healthier alternative to traditional meat products

- ✓ lower in fat
- ✓ higher in fibre
- ✓ reduced carbon emissions

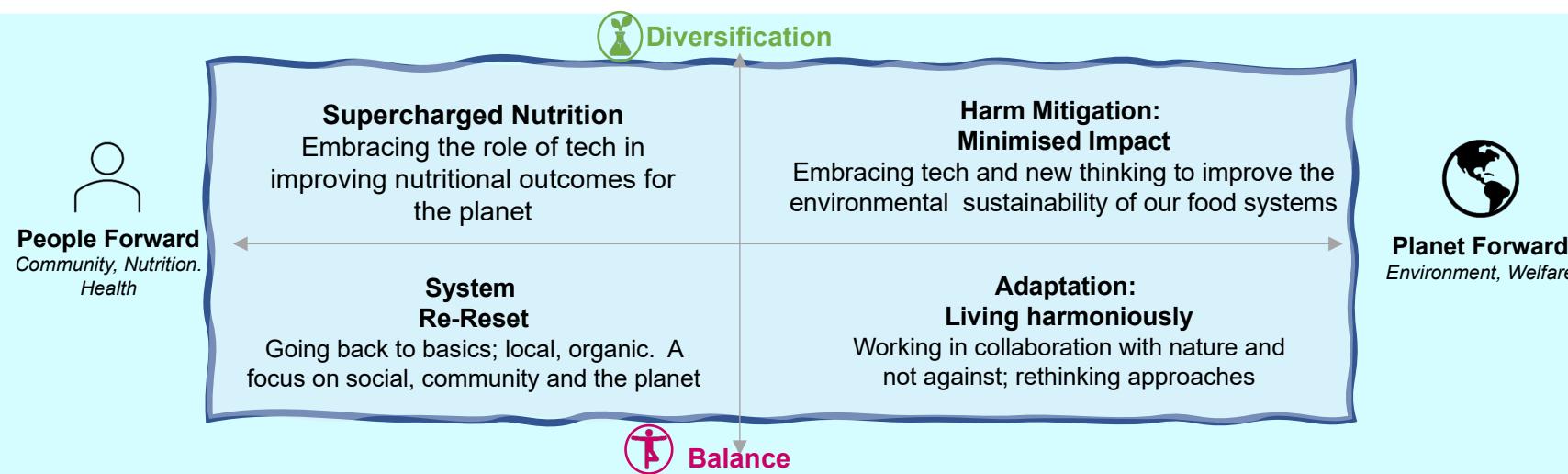


Waitrose Eat:Flexi Chipolatas



Rebel Meat Hybrid Nuggets, Austria

Blended Proteins



Blended Proteins
e.g. beef burgers mixed with mushrooms, lentils or beetroot are a potential solution to reduce the carbon emission of meals without compromising on taste.

This is also seen in dairy products, with 50% dairy/plant-milk options available on shelf in France and the US.



Blended protein products

Blended protein products, e.g. beef burgers mixed with mushrooms, lentils or beetroot are a potential solution to reduce the carbon emission of meals without compromising on taste.

23%
Of the total population are open to considering



Rising to
34%
of flexitarians

If McDonalds & Burger King (representing 2-3% of global beef purchases) swapped out 50% of the beef in their burgers for plant-based meat to create blended burgers, demand for global agricultural land would reduce by about 8.5m hectares (21m acres). **That's an area the size of Ireland.** Combined, this is a reduction of 51m tonnes of CO2 equivalent, and more than **80% of the way to both companies' net zero targets.**

Hybrid burgers are also well liked by consumers, with a recent blind taste test finding that **consumers actually ranked the taste of blended burgers above beef burgers.**

How can we cut soaring demand for meat?
Try a hybrid burger
Joseph Poore

Blending lentils or vegetables into meat products could have huge benefits for the environment, animal welfare and human health



McDonald's McPlant burger was successful enough to stay on the menu in the UK and the US. Photograph: Justin Sullivan/Getty Images

<https://www.theguardian.com/commentisfree/2022/nov/07/soaring-demand-meat-hybrid-burger-blending-benefits>

Blended/Hybrid Dairy Products

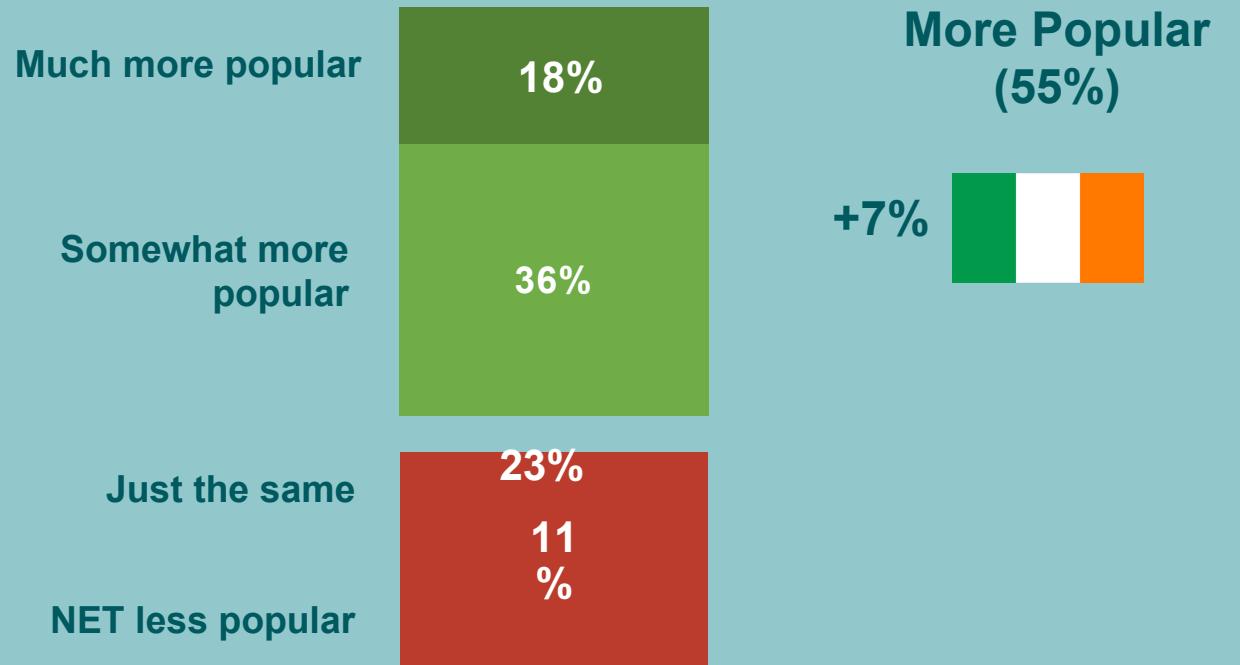


75% of the UK population who use plant-based alternatives also use standard dairy milk, and this clearly highlights that the usage of plant-based drinks are not limited to people following an exclusively plant-based diet (Mintel, 2020b).



Vegetable/plant-based proteins

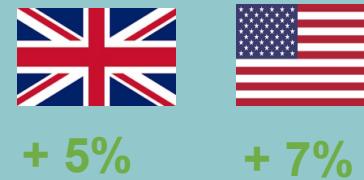
Do you think vegetable/plant-based proteins will become more or less popular in the future?



Open to considering in future:



Actually consumed



Top statements related to Plant-Based Proteins

- 1 Will result in less animal's suffering
- 2 An environmentally sustainable choice
- 3 Is a natural option
A good source of nutrition
I expect this to get more popular

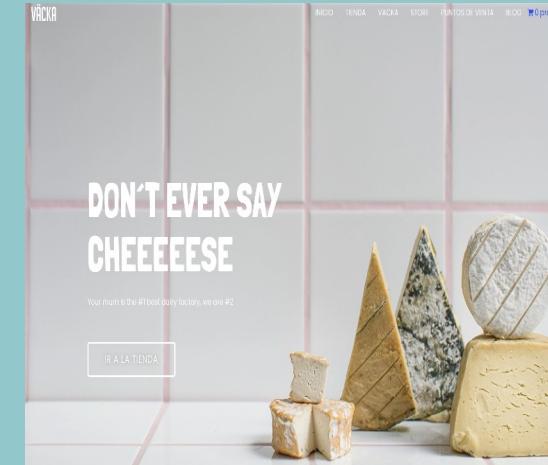


Vegetable/plant-based proteins



High protein veggie balls made from lentils, spinach and tomatoes.

Mince alternative made from jackfruit.



Cheddar and Mozzarella from melon seeds (Aviko Rixona)

“The mushroom is an underappreciated superfood. It’s a bioeconomic superhero and has a wide range of benefits for health and wellbeing”

- Peter Corcoran



Mushroom meat, plant based company “Fable”

“Mushrooms definitely have the potential to be centre-plate as a meat substitute”

MBio

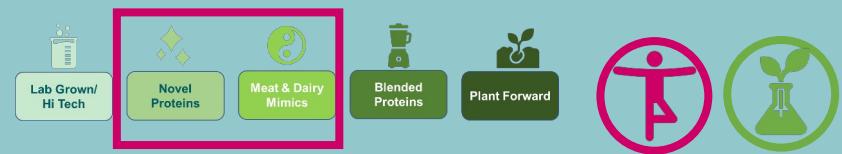
Plant Forward



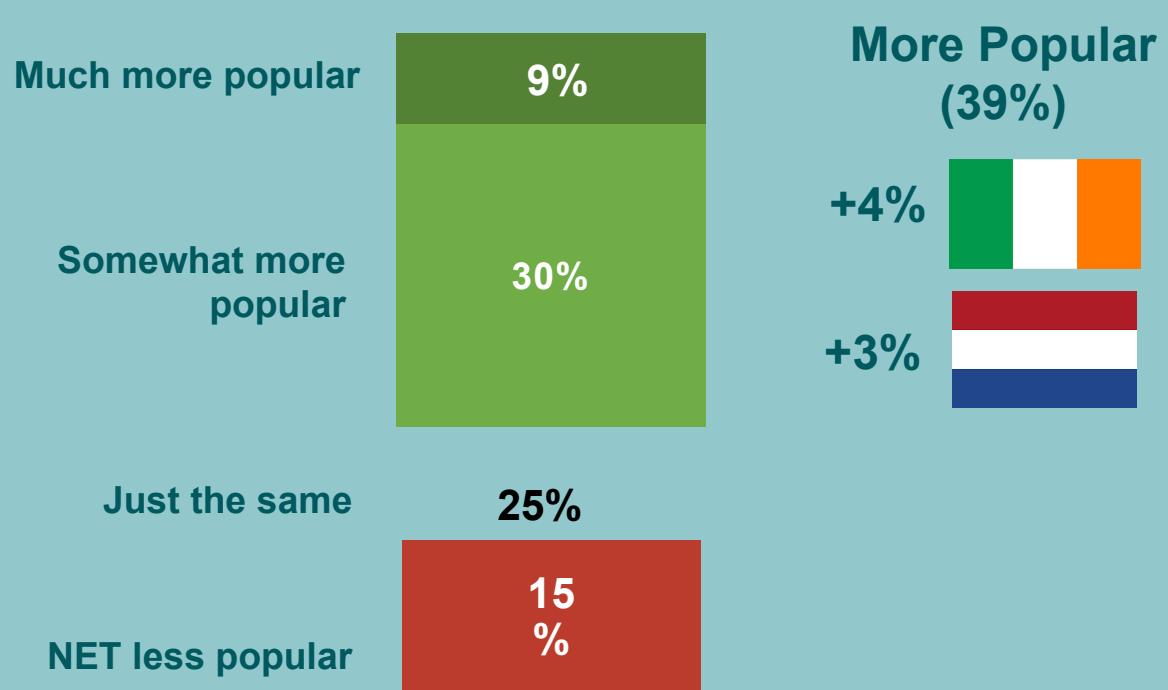
Plant-forward

While being the most accessible option for those looking to reduce their consumption of animal products, some plant-forward options do not adequately replace the protein content.

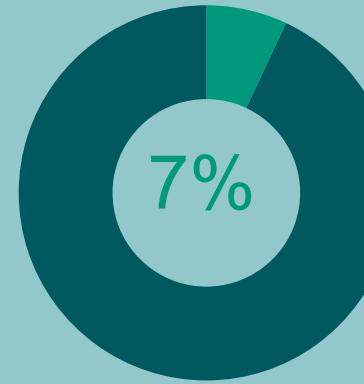
Protein made from surplus food ingredients



Do you think proteins made from surplus food ingredients will become more or less popular in the future?



Open to considering in future:



Actually consumed



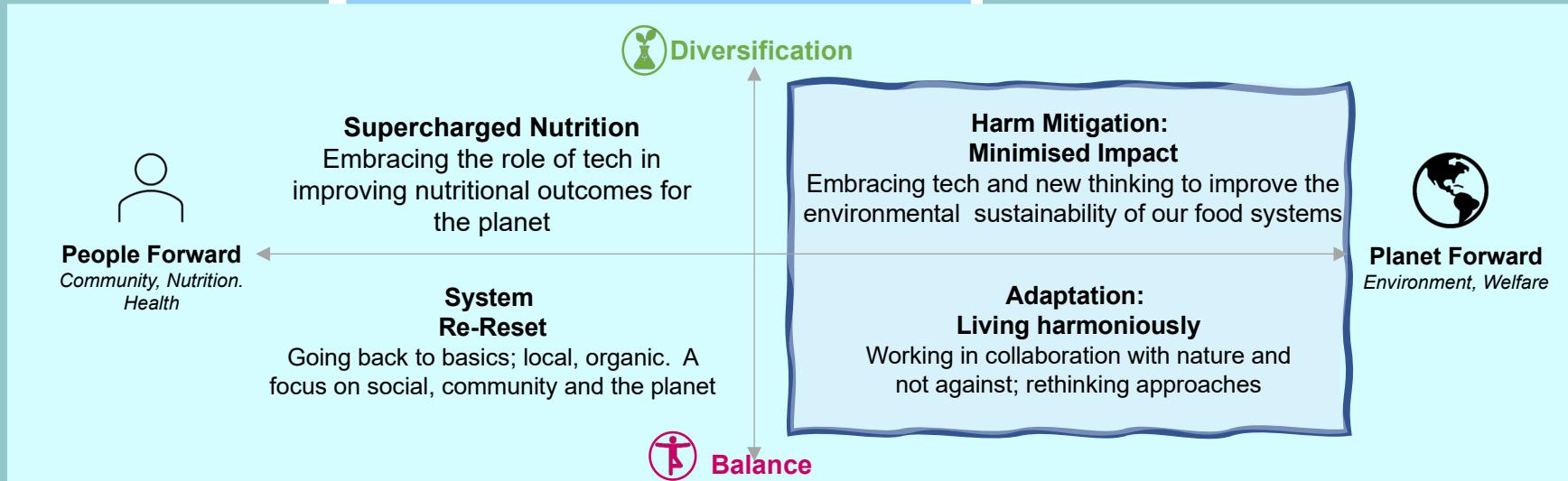
Protein made from surplus food ingredients



INNOVATION: SCIENCE & TECHNOLOGY
The New Food Waste Solution: Protein Powder
Made From Scraps



New concept in development by Nutrapharma, not yet available to consumers





Lab Grown/ Hi Tech

13% would consider in future

Only 11%: Natural
40% “unnatural & processed”



Novel Proteins

18% would consider in future
(avg. insect, myco etc)

Only 11% (insect),
17% (myco) expect to taste good



Meat & Dairy Mimics

25% strongly wish they made meat and dairy alternatives that are just like the original

31% among vegan/vegetarians



Blended Proteins

21% would consider in future

21% willing to consider “myco proteins” in future



Plant Forward

43% would consider in future

38% strongly prefer vegetable, not products pretending to be meat/dairy

Stretchy

Safe



Diversification

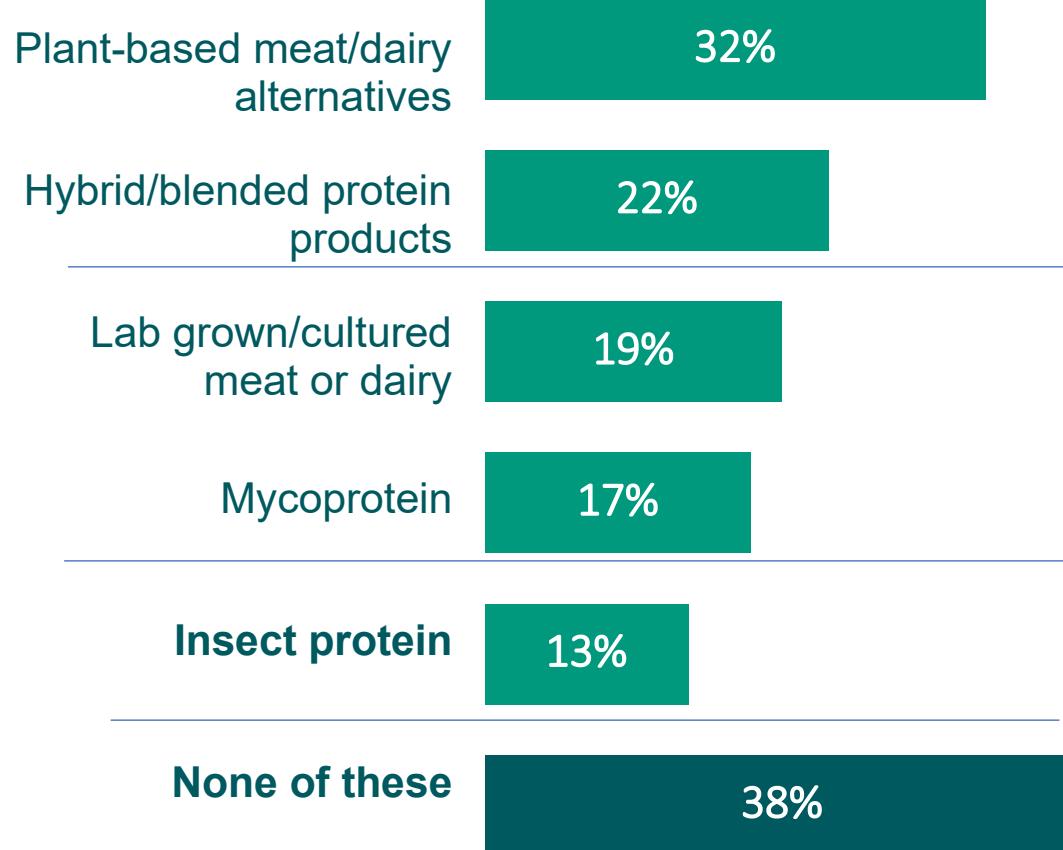


Balance

Back to some challenges for these Alt-Proteins

Taste Expectations

"I would expect it to taste good"



33%	23%	32%	36%	34%	34%
24%	19%	19%	21%	27%	25%
21%	18%	21%	18%	18%	20%
21%	17%	13%	18%	16%	18%
12%	17%	15%	15%	10%	10%
37%	42%	40%	36%	37%	36%



Believe that plant based alternatives are **less natural** than their meat/dairy alternatives

So...

Where do various alternative proteins sit on the scale of naturalness?



Naturalness

(Base: All Adults n=6,077, IE, UK, DE, NL, US, FR)

“Is a natural option”

Plant-based meat/dairy alternatives 38%

Insect protein 24%

Mycoprotein (protein derived from fungus) 22%

Hybrid/blended protein products 16%

Lab grown/cultured meat or dairy 11%

None of these 31%

“Is too processed and unnatural”

Lab grown /cultured meat or dairy 40%

Hybrid/blended 22%

Mycoprotein (protein derived from fungus) 21%

Plant based meat/dairy alternatives 20%

Insect protein 17%

None of these 33%

Cleaning Up

MEALA
CLEAN BITE | REAL TASTE

Meala

About Us

in

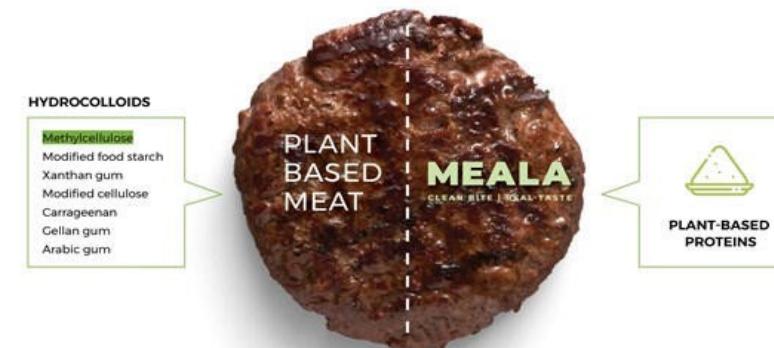
Clean Bite. Real Taste.

Charting new paths for plant-based products.

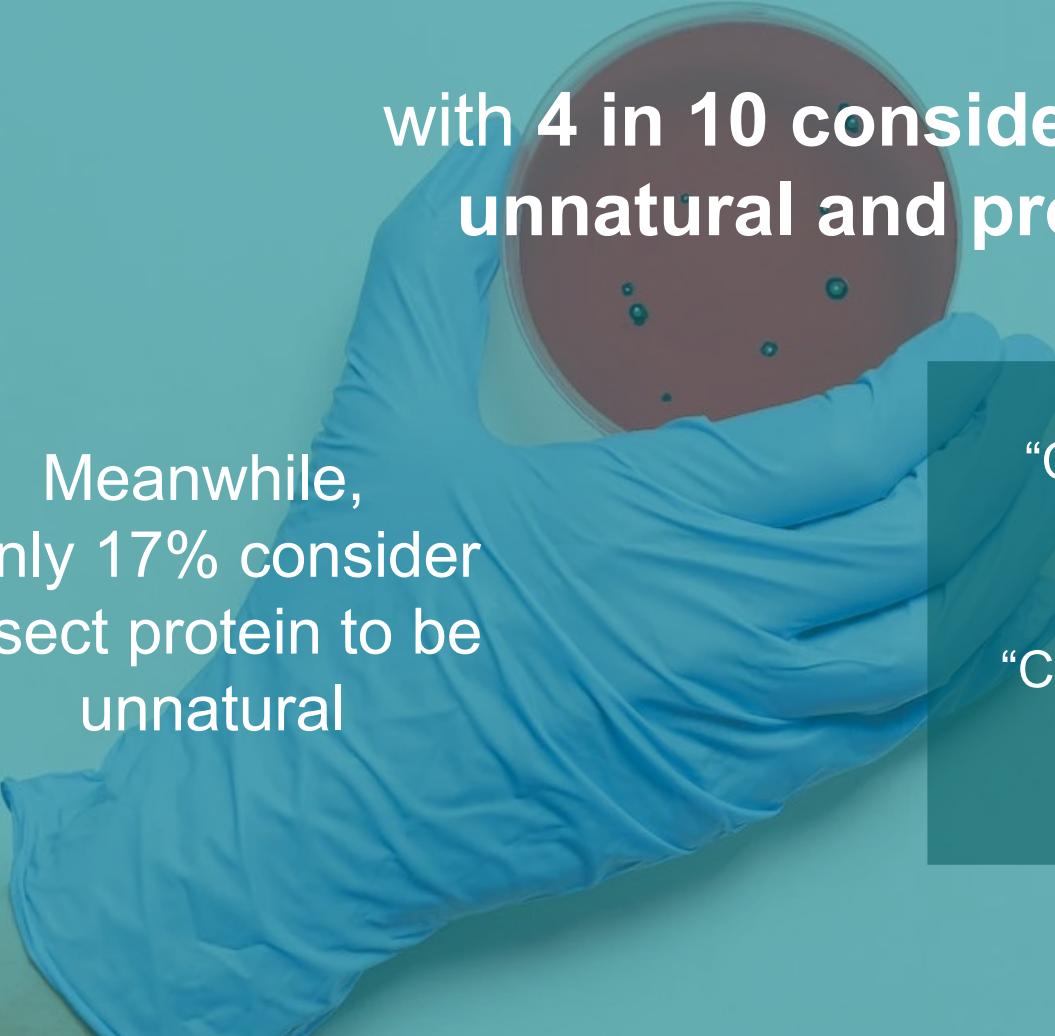


Better ingredients, healthier future.

By replacing stabilizers and emulsifiers widely used in the alt-meat, alt-fish and alt-dairy industries, our products will create healthier plant-based products. Get ready to taste the change.



Although plant based foods are considered a natural option by 38%, consumers still need convincing of other alternatives such as lab grown



with 4 in 10 considering it too unnatural and processed

Meanwhile,
Only 17% consider
insect protein to be
unnatural

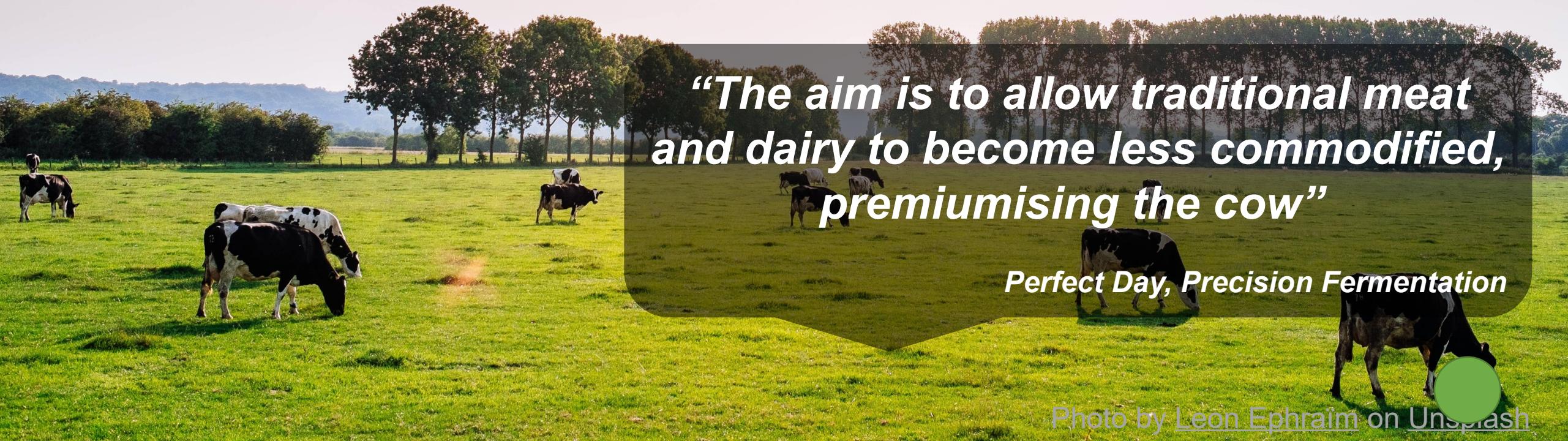
“Consumers wonder, how is my food built? What ingredients are used in its fabrication?”

MBio

“Consumers don’t want the integrity of their food to be compromised by technical processes”

MBio

These alternative proteins could initially be used in processed foods, replacing milk and dairy in lower-value channels.



“The aim is to allow traditional meat and dairy to become less commodified, premiumising the cow”

Perfect Day, Precision Fermentation

Photo by [Leon Ephraim](#) on [Unsplash](#)

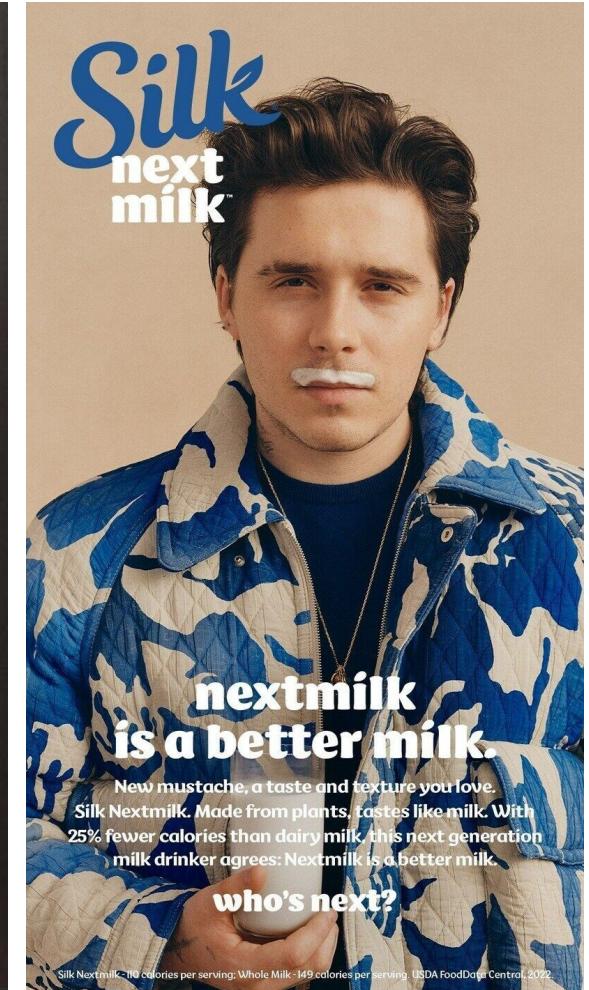
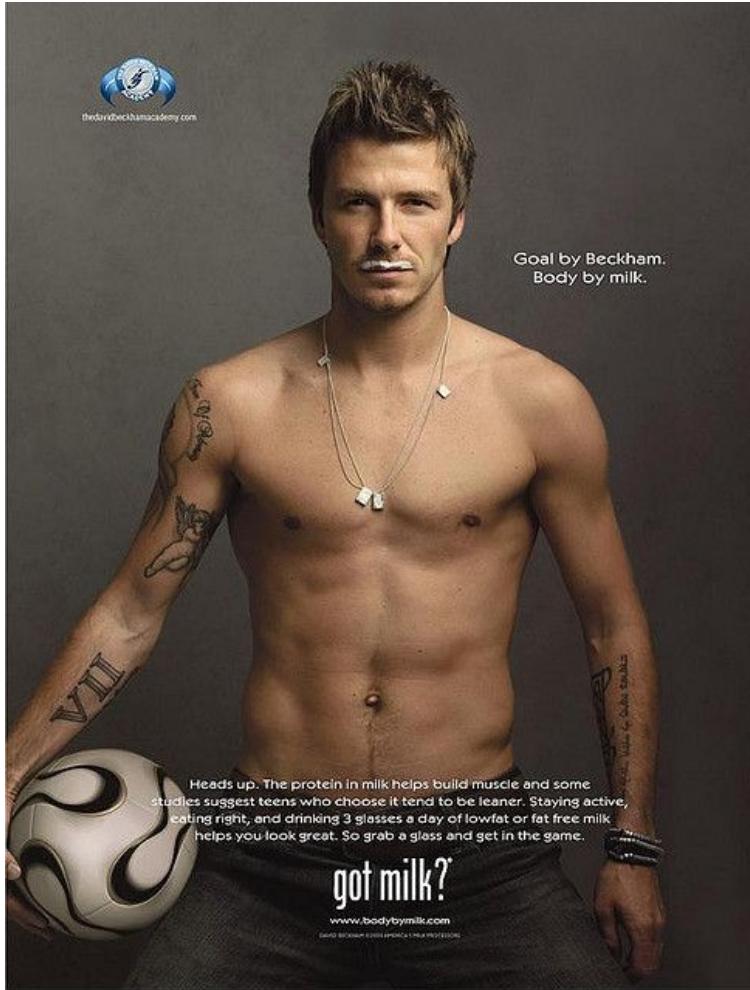
Claims Evaluation

On pack Messaging





believe that
marketing
communications
will impact what
we eat and drink in
the future



From “Got Milk” to “Silk”
Children of the original Got Milk campaigns star in ads for a plant-based alternative.



“A lot of companies have these products but don’t know how to market them to consumers”

-Mary Shelman, Thought leader- Global Agribusiness

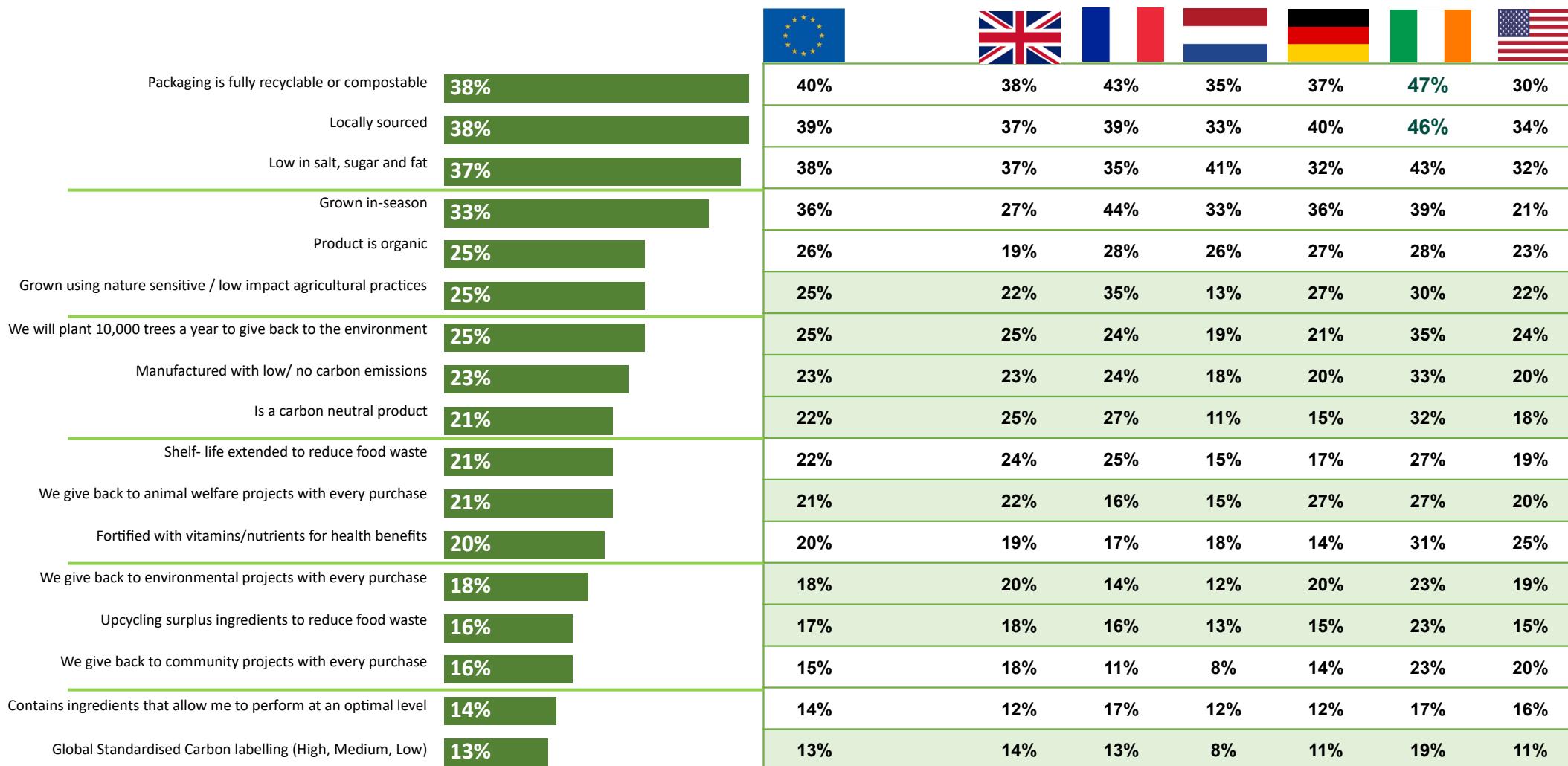
*“ESG has now become really important.
Shareholders wont invest anymore if businesses
don’t have it built in in some way”*

Enda O' Dowd, Lecturer Product Design

*People want environmental and social
commitments from the brands they are
buying from”*

Most resonant “on-pack” messages

(Base: All Adults n=6,077, Market Sample n=1,000 approx.)



Eco
Influences

A stack of white paper with green leaf illustrations and a green ribbon.

“While we are creating beautiful food products, they need to be in beautiful packaging that doesn’t destroy the environment”

Enda O' Dowd, Lecturer Product Design

Photo by Cats Coming from Pexels



72%
think that food and drink
brands use ethical and
sustainability messages to
increase prices for their
own benefit

But businesses need to walk the walk

*“A lot of brands are greenwashing,
especially when it comes to
packaging materials. They’re just
putting these labels on because it
sounds good and makes them seem
green”*

Enda O' Dowd, Lecturer Product Design

Future Platforms

Planning for Growth



Macro Themes

Diversification

Supercharged Nutrition

Embracing the role of tech in improving nutritional outcomes for the planet



People Forward
Community, Nutrition, Health

System Re-Reset

Going back to basics; local, organic. A focus on social, community and the planet



Balance

Harm Mitigation: Minimised Impact

Embracing tech and new thinking to improve the environmental sustainability of our food systems



Planet Forward
Environment, Welfare

Adaptation: Living harmoniously

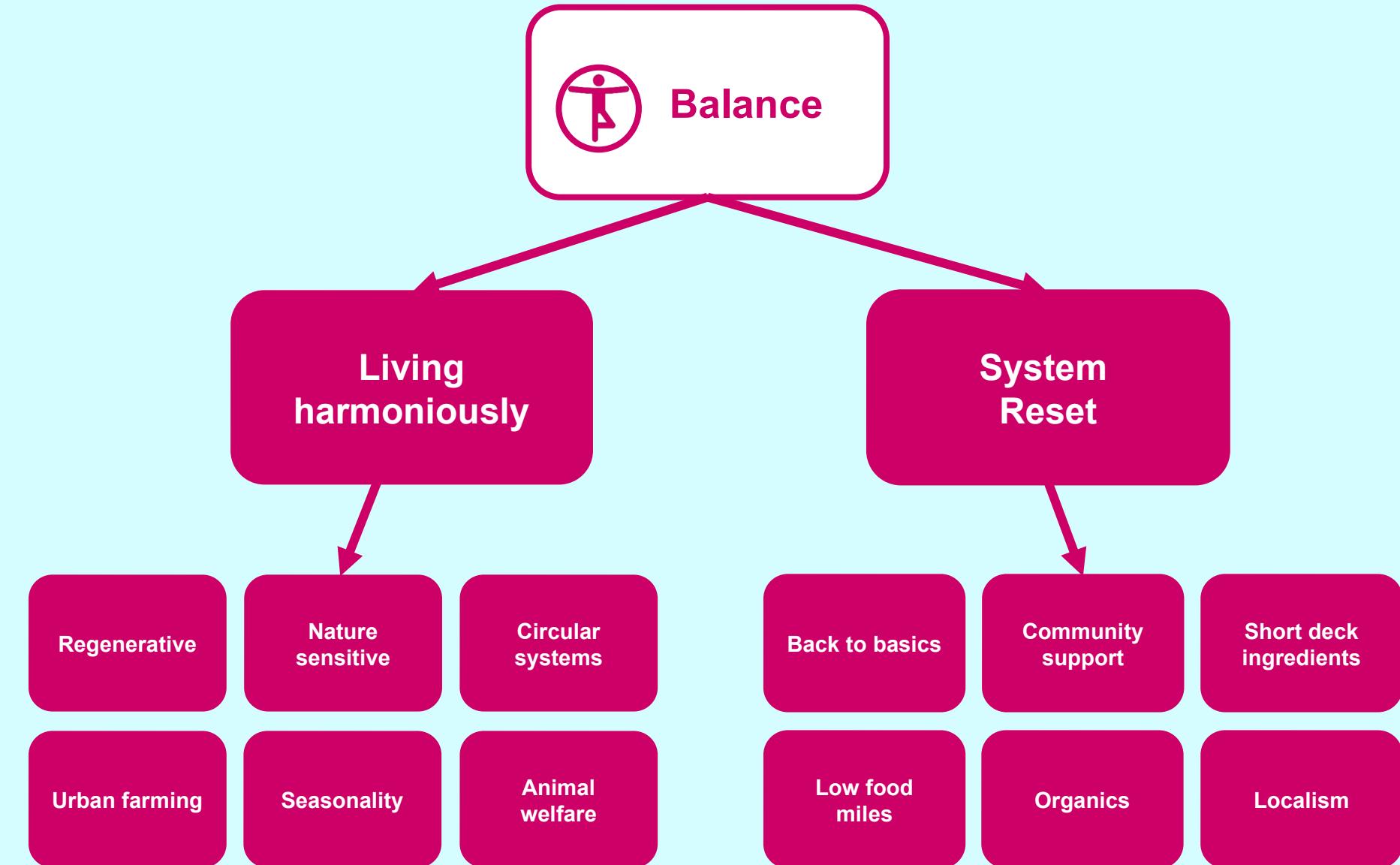
Working in collaboration with nature and not against; rethinking approaches

Themes

Macro

“Dig Sites”

Expressions

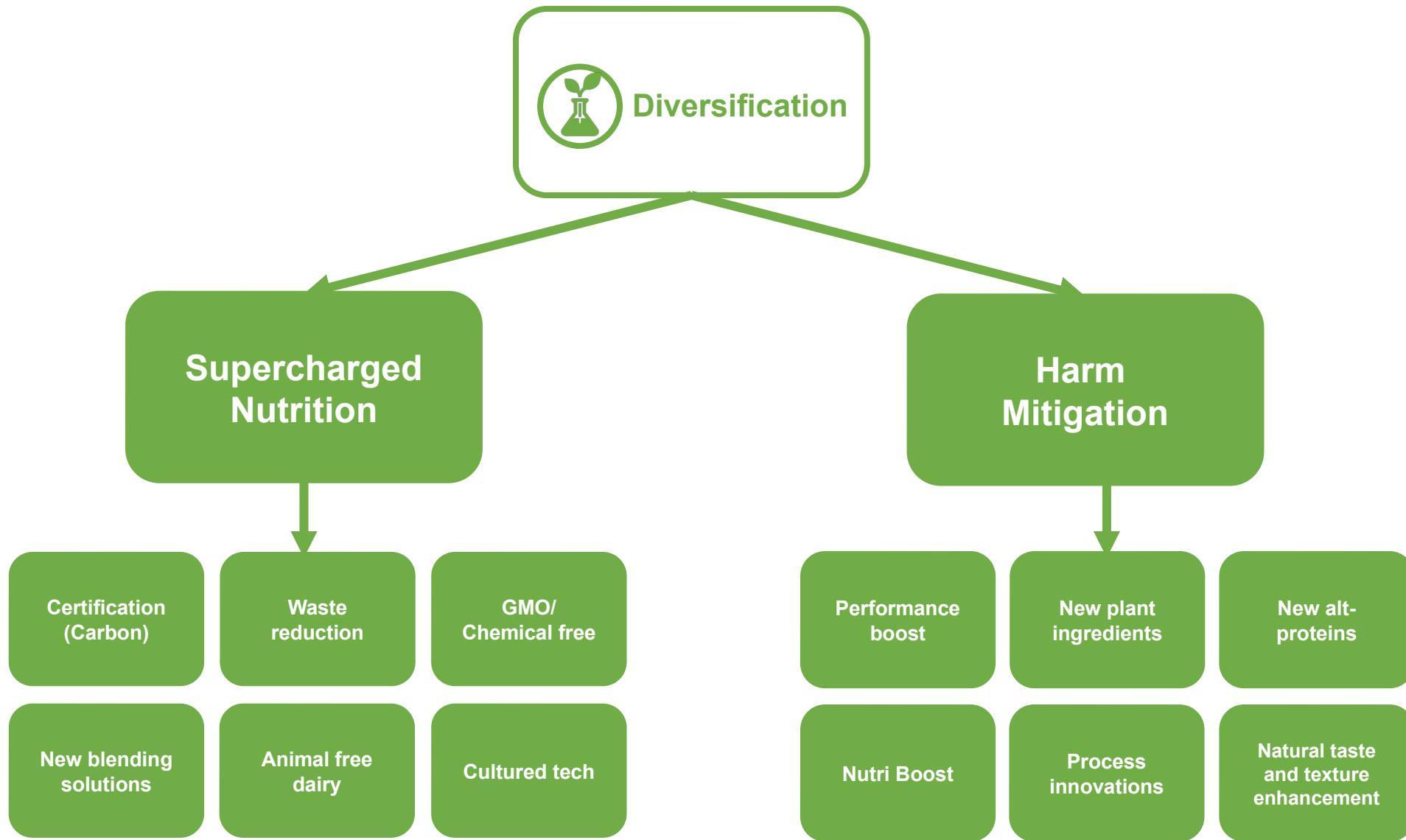


Themes

Macro

“Dig Sites”

Expressions



Sectoral Implication

Exploring Possibilities



Directions of Travel?



People Forward
Community, Nutrition.
Health

BORD BIA
Thinking
House

**Supercharged
Nutrition**

Embracing the role of
tech in improving
nutritional outcomes
for the planet

**System
Re-Reset**

Going back to basics;
local, organic. A focus
on social, community
and the planet

Diversification

Food **security**
Food **sufficiency**
Food **suitability**
Food **sustainability**

Balance

**Harm Mitigation:
Minimised Impact**

Embracing tech and new
thinking to improve the
environmental
sustainability of our food
systems



Planet Forward
Environment, Welfare

**Adaptation:
Living harmoniously**

Working in
collaboration with
nature and not against;
rethinking approaches

Meat

Where do we go from here?



Platform

Human Insight

Sector Focus

Meat

Adaptation:
Living harmoniously

Working in collaboration with nature and not against; rethinking approaches

“In a world where more people realise that they are a part of and not separate from nature, they are seeking to make eco sensitive choices which align with the rhythm and wisdom of the natural world”

Some thought starters.

CONTINUE

- Talking about how the Irish production system is based around seasonality, and welfare..

CAPITALISE

- On positioning of Irish meat in terms of naturalness compared to other countries production systems and vs lab grown alternatives. Meats such as poultry as a source of low carbon protein

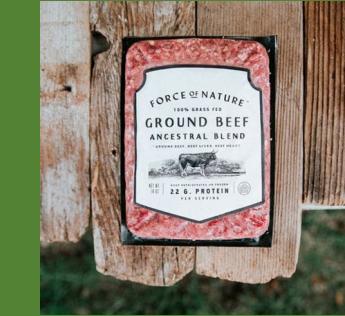
CONSIDER

- Regenerative agriculture, supporting biodiversity. Balancing with plant through blended solutions (by stealth), sustainable production systems e.g. silvopasture, agroforestry

CONVINCE

- Detractors that Irish beef production systems are based around seasonality and with the animal's welfare in mind

Inspiration



<https://forceofnature.com/>

Force of Nature, animals are pasture raised and regeneratively sourced. Positive outcomes for biodiversity, soil health and ecosystem functions

Defend

Embrace

Where do we go from here?



Platform

Human Insight

Sector Focus

Meat

System Reset

Going back to basics; local, organic. A focus on social, community and the planet

"In a world where people struggle to keep up with the rapid pace of technological advancements, there is a countermovement back to a simpler, more natural way"

Some thought starters.

CONTINUE

-Talking about small family farms, grass-based production system etc

CAPITALISE

-On Food Brand Ireland's messaging and it's positioning for Ireland' meat relative to other countries meat production systems

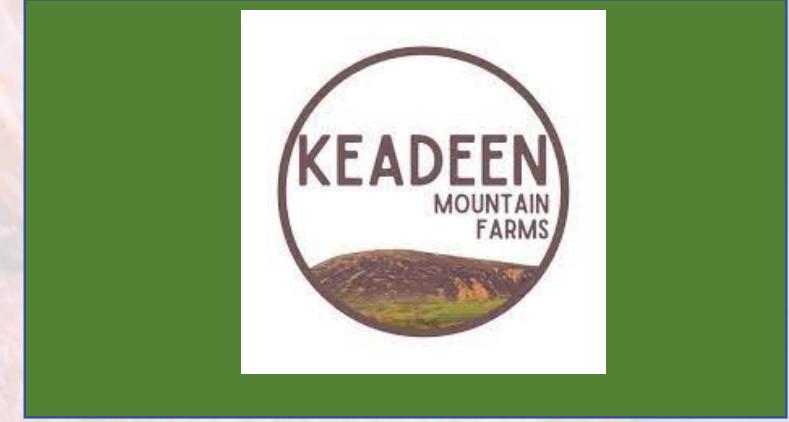
CONSIDER

-Smaller specialised production and native, premium breeds. E.g. Moiled cow, Kerry blues, Dexter

CONVINCE

- Beef and other meat is an important part of Irish cultural heritage. Family farms are an important part of the fabric rural of Irish economies and communities .. 'nature intended'

Inspiration



Keadeen Mountain Farms based in Co. Wicklow offer organic Dexter Beef (a native Irish breed) that they produce on their farm

Defend

Embrace

Where do we go from here?



Diversification

Platform

Human Insight

Sector Focus

Meat

Supercharged Nutrition

Embracing the **role of tech** in improving **nutritional outcomes** for the planet

“People want to know that the conscientious, healthy choices they make are backed by today’s science, but find it very confusing”

Some thought starters.

CONTINUE

- Positioning meat as part of a balanced diet with its own specific nutritional benefits

CAPITALISE

- On positioning meat as a premium product for special moments (especially beef)

CONSIDER

- Exploring lab grown and other tech led innovation, blended products

CONVINCE

- Superior nutritional quality of meat, B12, Iron, etc..

Defend

Embrace

Inspiration



Kepak meets the demand of the fast growing flexitarians, offering a healthier option with blends of mushroom and beetroot

Where do we go from here?



Diversification

Platform

Human Insight

Sector Focus

Meat

Harm Mitigation: Minimised Impact

Embracing tech and new thinking to improve the environmental sustainability of our food systems

"In a world where people are saturated with imagery and communications highlighting the injurious impact of our food systems on the environment, people want to make choices that are a force for good"

Some thought starters.

CONTINUE

- *Highlighting the sustainability credentials of meat (e.g. through SBLAS, Bord Bia quality assurance. Sign post/ best practice farms, advancements in ag etc*

CAPITALISE

- *On Ireland's local and efficient production system*

CONSIDER

- *Offering organic, low impact production through tech, adopting circular enterprises that complement the production system etc*

CONVINCE

- *Detractors of the work that is being done and the technological advancements that are being embraced to make the sector more sustainable*

Inspiration



LOW CARBON BEEF

Developed low carbon management practices proven to produce cattle in a way that reduces the environmental impact. Backed by rigorous life-cycle assessments and process verification, Low Carbon Beef delivers high-quality, environmentally conscious certifications.

Defend

Embrace

Dairy

Where do we go from here?



Platform

Human Insight

Sector Focus

Dairy

Adaptation:
Living harmoniously

Working in collaboration with nature and not against; rethinking approaches

"In a world where more people realise that they are a part of and not separate from nature, they are seeking to make eco sensitive choices which align with the rhythm and wisdom of the natural world"

Some thought starters.

CONTINUE

- Talking about how dairy is primarily based on seasonality and linked to the growth of grass

CAPITALISE

- On the fact that Ireland has a unique climate that is suited to produce dairy in a nature sensitive way

CONVINCE

- Detractors that a grass- based dairy production system is superior to non- grass based systems from an environmental standpoint and an effective way to produce sustainable nutrition

CONSIDER

- Dialling up the seasonality of the Irish dairy production system
- Obtaining further certification for Irish Dairy which highlight environmental credentials of the production system

Inspiration



In 2021, Alexandre Family Farm Becomes The First Certified Regenerative Organic Dairy Farm In The United States

Defend

Embrace

Where do we go from here?



Platform

Human Insight

Sector Focus

Dairy

System Reset

Going back to basics; local, organic. A focus on social, community and the planet

"In a world where people struggle to keep up with the rapid pace of technological advancements, there is a countermovement back to a simpler, more natural way"

Some thought starters.

CONTINUE

- Talking about how dairy products are produced locally in Ireland

CAPITALISE

- On dairy products natural credentials Vs plant- based and lab grown/ precision fermented alternatives

CONVINCE

- Sceptics of the environmental benefits of a grass- based production system (e.g. carbon sequestration)

CONSIDER

- Highlighting the benefits that dairy farming can create for the rural community and economy

Defend

Embrace

Inspiration

UNDENIABLY DAIRY.



Life on the Farm

Hard work, high tech and a ton of happiness. Get a glimpse into the life of America's dairy farmers.



Youth Wellness

The dairy community wants to be part of helping make sure every child has access to nutrient-rich foods, including dairy foods, to help them grow, learn and thrive.



Hunger

The dairy community has always worked with local food banks to provide nutritious dairy foods. We are committed to supporting charitable feeding systems and school meals programs.

<https://www.usdairy.com/community>

The dairy checkoff was created by American dairy farmers to build trust in and sales of dairy. In addition to highlighting the sustainability and nutritional credentials of dairy, the site also highlights how dairy 'helps develop strong, thriving communities'.

Where do we go from here?



Diversification

Platform

Human Insight

Sector Focus

Dairy

Supercharged Nutrition

Embracing the **role of tech** in improving **nutritional outcomes** for the planet

“People want to know that the conscientious, healthy choices they make are backed by today’s science, but find it very confusing”

Some thought starters.

CONTINUE

- Talking about the superior bioavailability of protein derived from dairy products

CAPITALISE

- On the superior nutritional credentials of dairy produced from a grass- based system Vs alternatives

CONVINCE

- Sceptics around the role of dairy as part of a balanced diet

CONSIDER

- Blending with other ingredients to improve the nutritional and environmental credentials of dairy

Defend

Embrace

Inspiration



<https://hartdairy.com/>

Hart Dairy demonstrates how its pasture- raised and grass- fed credentials results in a product that is superior nutritionally Vs dairy that is not produced from a grass- fed production system.

Where do we go from here?



Diversification

Platform

Human Insight

Sector Focus

Dairy

Harm Mitigation: Minimised Impact

Embracing tech and new thinking to improve the environmental sustainability of our food systems

"In a world where people are saturated with imagery and communications highlighting the injurious impact of our food systems on the environment, people want to make choices that are a force for good"

Some thought starters.

CONTINUE

- Talking about how there is high levels of willingness among farmers to become more sustainable
- Highlighting the work that individual farms are carrying out in order to reduce their impact on the environment

CAPITALISE

- On how advancements in technology are making dairy more environmentally sustainable e.g. improved genetics

CONVINCE

- People of the merits of a grass-based dairy production system from an environmental sustainability perspective

CONSIDER

- Blending with other ingredients to improve the nutritional and environmental credentials of dairy
- Embracing new technologies such as precision fermentation to improve the environmental sustainability credentials of dairy

Inspiration



<https://fabnews.live/triballat-noyal-launches-first-plant-based-drinks-mixed-with-cow-milk-in-sig-carton-packs/>

According to Triballat, the brand is bringing something 'refreshingly different' to the French market, with 'high quality ingredients' and the 'greatest respect for animal welfare and local farmers'

Defend

Embrace

PCF



Where do we go from here?



Platform

Human Insight

Sector Focus

PCF

Adaptation:
Living harmoniously

Working in collaboration with nature and not against; rethinking approaches

"In a world where more people realise that they are a part of and not separate from nature, they are seeking to make eco sensitive choices which align with the rhythm and wisdom of the natural world"

Some thought starters.

CONTINUE

- Creating products that are produced in a nature sensitive way and use seasonal ingredients to minimise harm on the environment.

CAPITALISE

- On the increased awareness around biodiversity, seasonality etc to produce products that are aligned with consumers values

CONVINCE

- Consumers that they can have a positive impact on the world through their food choices
- Consumers that food choices that have a positive impact on the environment needn't be a compromise

CONSIDER

- Innovative recipe formulations to make it easy for consumers to do the right thing while not having to compromise

Inspiration



Fable use a variety of mushrooms to replace animal protein

Defend

Embrace

Where do we go from here?



Platform

Human Insight

Sector Focus

PCF

System Reset

Going **back to basics**: local, organic. A focus on social, community and the planet

"In a world where people struggle to keep up with the rapid pace of technological advancements, there is a countermovement back to a simpler, more natural way"

Some thought starters.

CONTINUE

Highlighting produce grown in Ireland, the use of local produce and your brand's impact on the community

CAPITALISE

- On products with naturally short ingredients deck. Reformulate products to align with expectations

CONVINCE

- Consumers that their food choices can have a positive impact on their health, the environment and their community

CONSIDER

- Using local, more sustainable ingredients to create alternatives of well-loved products

Defend Embrace

Inspiration



ChicP produces hummus and dips made from surplus vegetables grown in the UK, aiming to reduce food waste and promote ethical consumption.

Where do we go from here?



Diversification

Platform

Sector Focus

PCF

Supercharged Nutrition

Embracing the **role of tech** in improving **nutritional outcomes** for the planet

Human Insight

“People want to know that the conscientious, healthy choices they make are backed by today’s science, but find it very confusing”

Some thought starters.

CONTINUE

- Encouraging consumption of a plant based foods along with traditional meat and dairy as part of a balanced diet

CAPITALISE

- Inherent naturalness of plant based foods

CONVINCE

- Plant based has benefits vs meat and dairy equivalents, eg more diverse microbiome

CONSIDER

- Fortifying plant- based products to match the nutritional properties of their non plant- based equivalents

Defend

Embrace

Inspiration



<https://hartdairy.com/>

Athletic greens supplements; dairy free ingredients and plant extracts to enhance nutrition

Where do we go from here?



Diversification

Platform

Human Insight

Sector Focus

PCF

Harm Mitigation:
Minimised Impact

Embracing tech and new thinking to improve the environmental sustainability of our food systems

"In a world where people are saturated with imagery and communications highlighting the injurious impact of our food systems on the environment, people want to make choices that are a force for good"

Some thought starters.

Defend

Embrace

CONTINUE

- Talking about the environmental credentials of both ingredients and products generally

CAPITALISE

On the superior environmental credentials of plant-based food and drink Vs meat and dairy (e.g. land use, emissions)

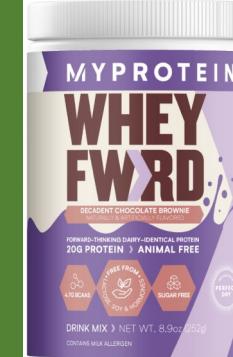
CONVINCE

- Consumers to trial novel foods and new technologies that minimise the impact of food choices on the environment

CONSIDER

- Reformulating or developing products that minimise impact on the environment

Inspiration



Perfect day partnered with My Protein using precision fermentation technology to create an animal free whey protein identical in performance and taste