DATASSENTIAL
FOOD WITH A STORY

PLANT + CELLULAR

FOODSCAPE 2017

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THIS STUDY

online survey fielded in June 2017
626 total respondents (general population)
± 3.9% margin of error

meat and meatless attitudes 3
plant-based eating 10
cellular agriculture 20
summary 32

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TO MEAT OR NOT TO MEAT?

consumers are shifting toward a plant-centric, benefits-driven eating philosophy to achieve a balanced lifestyle

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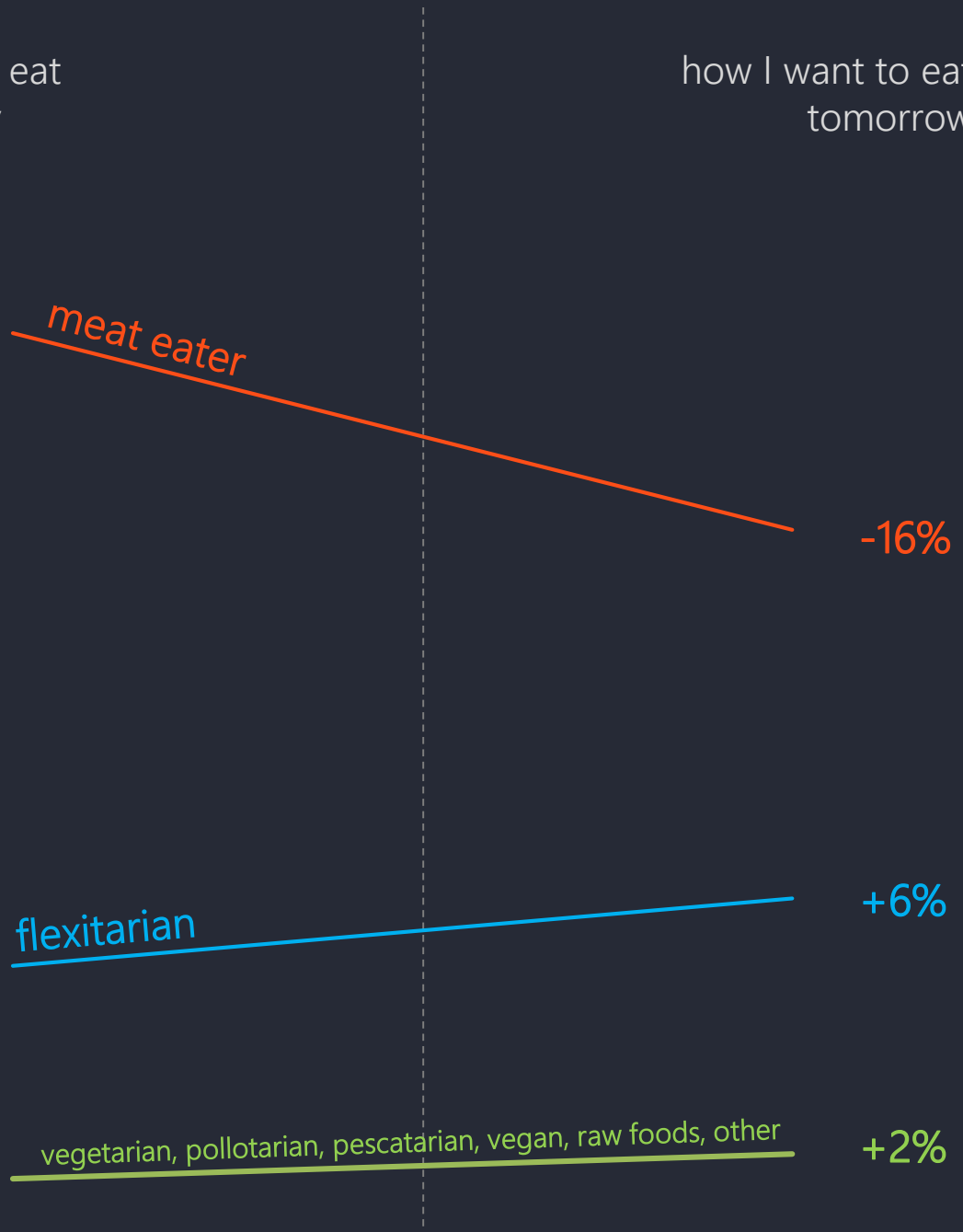

Flexitarian eating is the true meatless opportunity.

Consumers seek to reduce meat intake, but relatively few aspire to be full-time vegetarians.

		how I eat TODAY	how I want to TOMORROW
Meat Eater	any variety of meat products	71%	55%
Flexitarian	limit meat (but don't exclude entirely)	19%	25%
Vegetarian	no meat, but animal byproducts okay	2%	5%
Pollotarian	no meat except poultry	2%	3%
Pescatarian	no meat except fish and seafood	1%	5%
Vegan	no animal products or byproducts	1%	2%
Raw Foods	only uncooked & unprocessed foods	0%	2%
Other	all other approaches	3%	3%
	TOTAL	100%	100%

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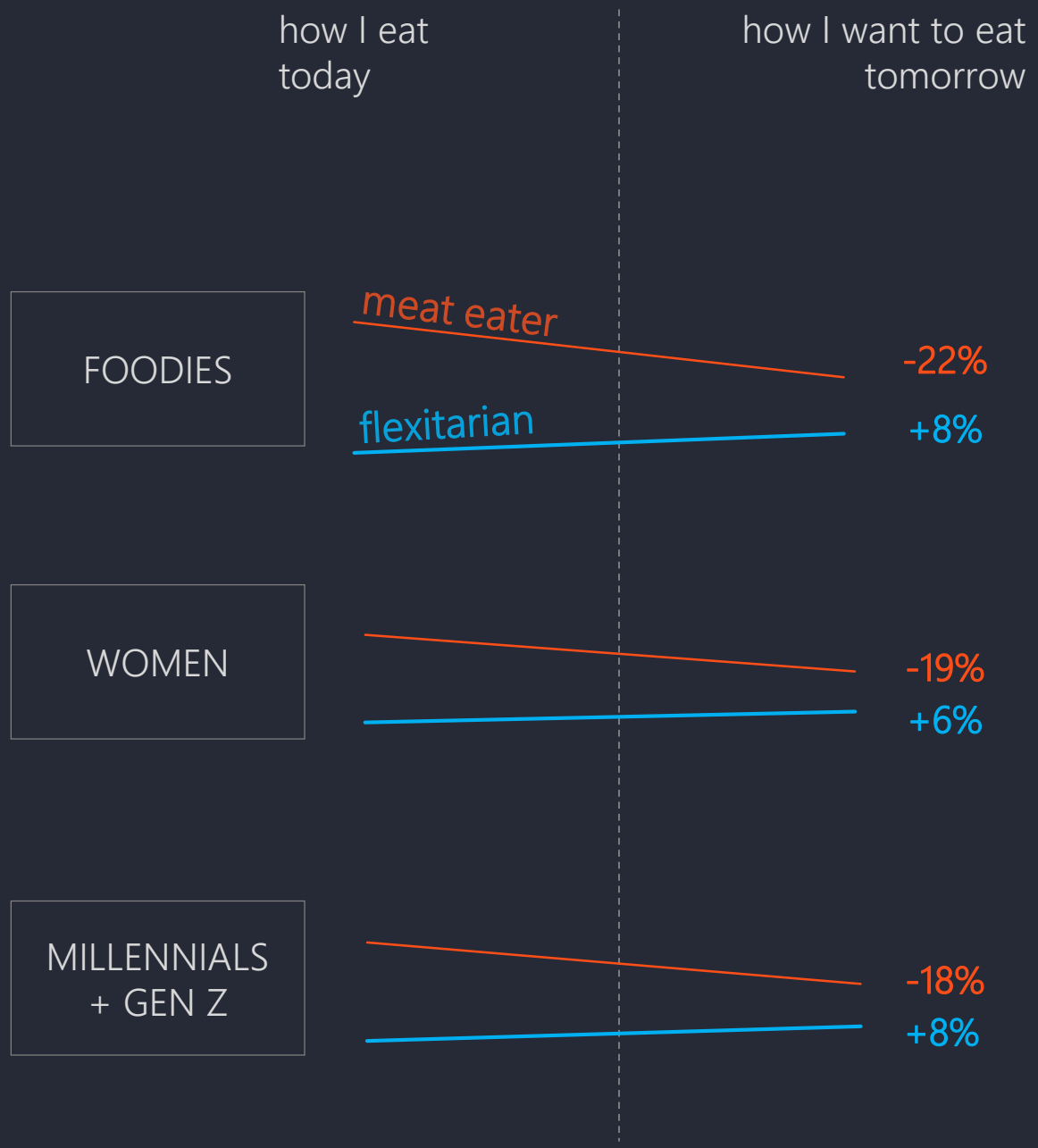

Foodies, **women**, and **younger generations** propel the **balanced eating** trend forward.

As the trend advances toward meat limitation, rather than elimination, predominant eating patterns will depolarize from extremes and head toward well-rounded diets.

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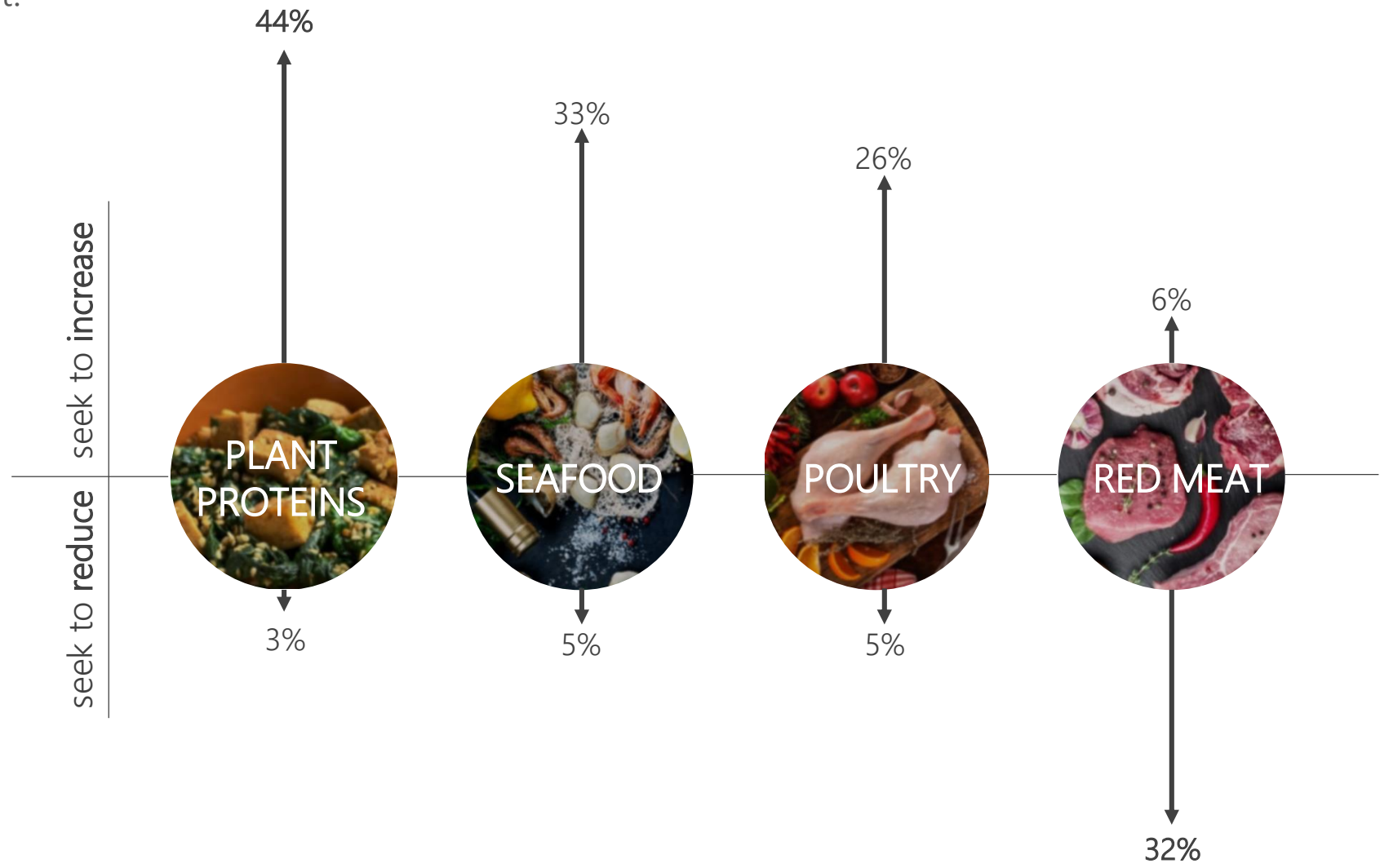
Less red meat, more plant proteins.

The shift toward plant and vegetable-based proteins is driven principally by a desire to reduce red meat intake. But people aren't looking to cut animal proteins across the board; consumers seek to marry plant-based eating with lean meats to achieve a healthier overall diet.

31% of consumers believe **meat is no longer essential to the human diet**

23% of **current meat eaters** would like to **eat a less meat-oriented diet**

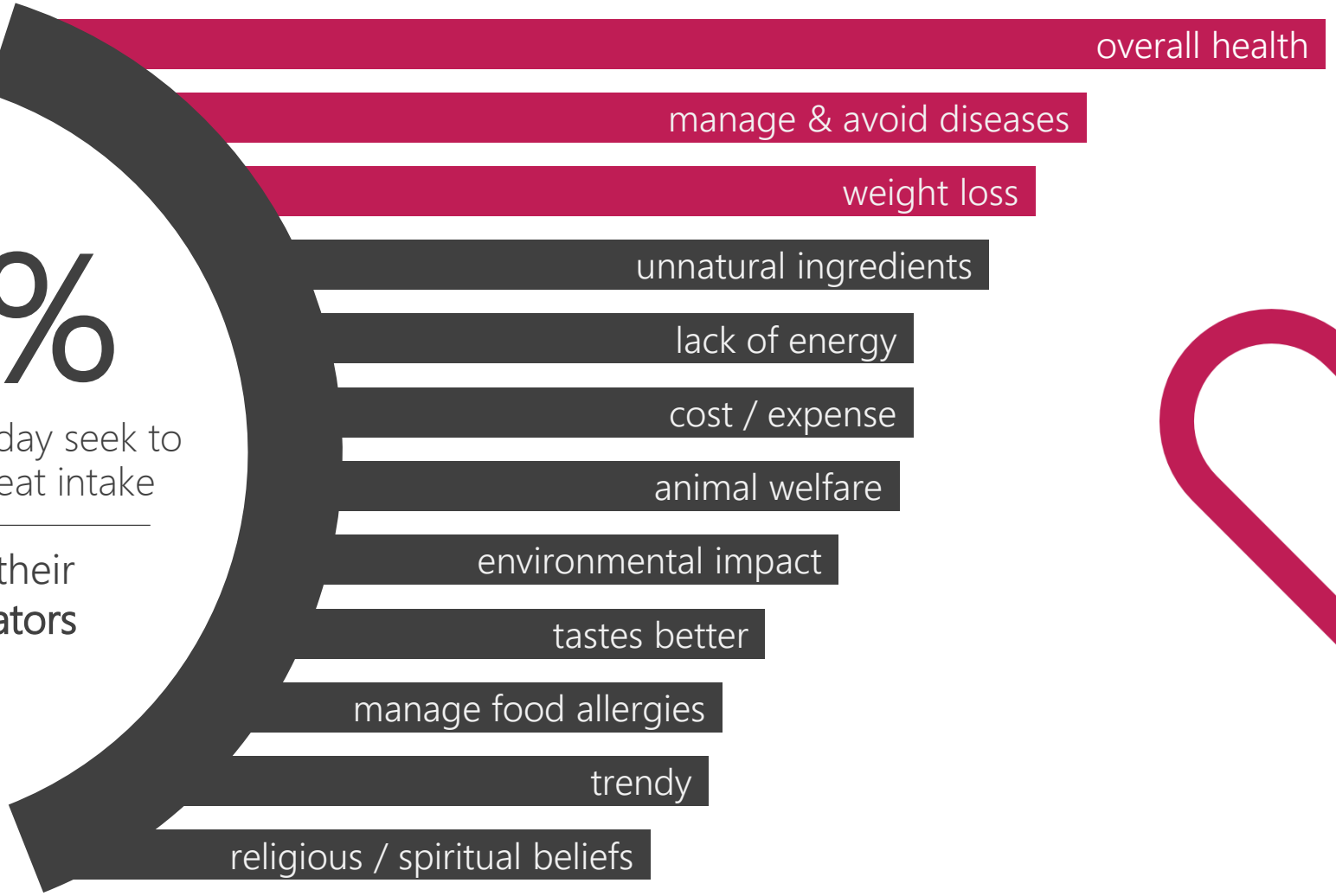


General **health** is the primary motivator for reducing meat.

39%

of consumers today seek to reduce their meat intake

these are their **top motivators**



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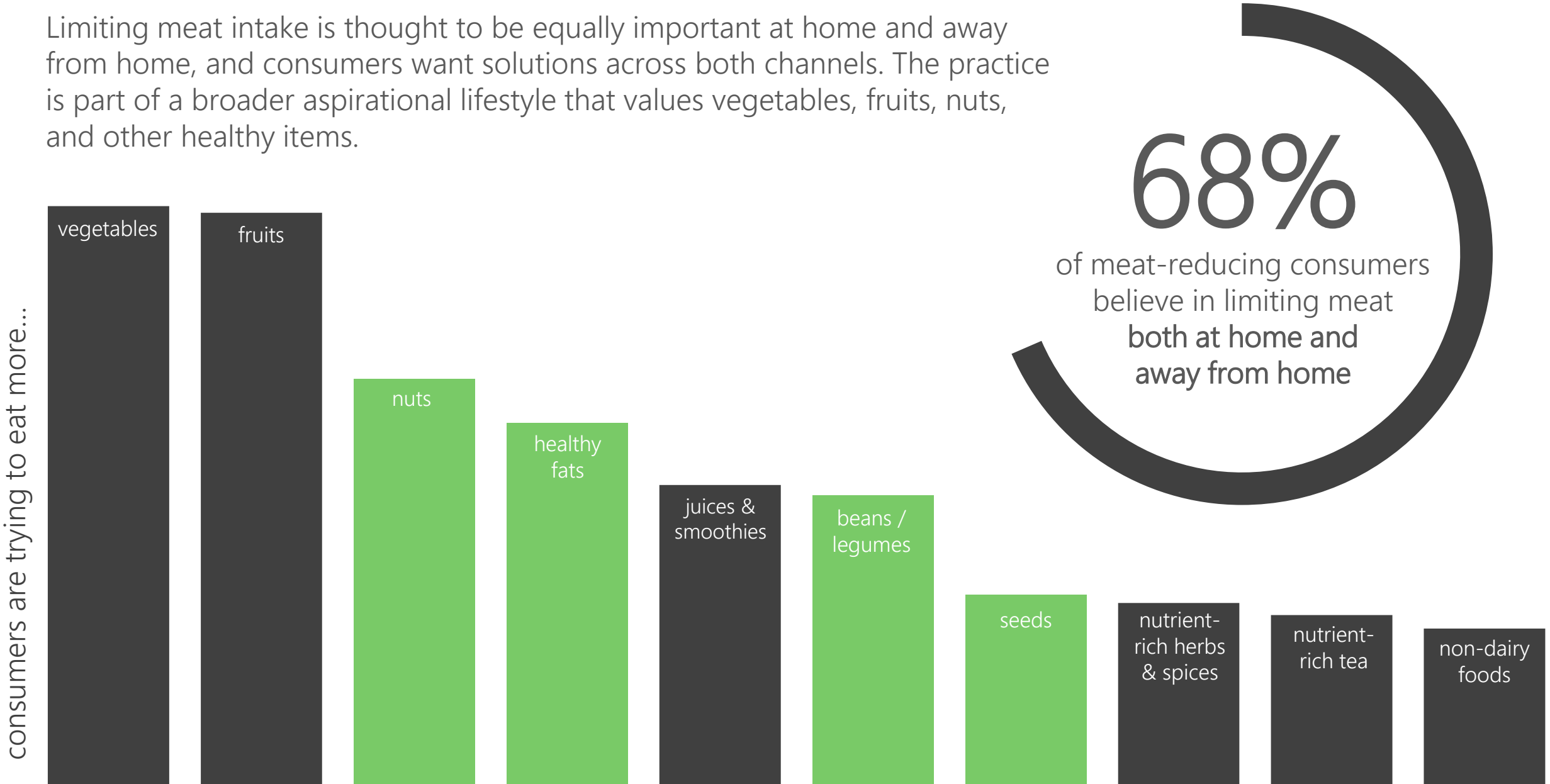
Meat-restricted eating is a **holistic behavior**.

Limiting meat intake is thought to be equally important at home and away from home, and consumers want solutions across both channels. The practice is part of a broader aspirational lifestyle that values vegetables, fruits, nuts, and other healthy items.



People love meat for two reasons – **protein** & **taste.**

To compete most effectively with meats, plant-based foods must first drive positive perceptions in these two vital areas.

PROTEIN

71% consider **protein** to be a primary benefit of meat

50% are **concerned with protein intake** if they went meatless

TASTE

65% consider **taste** to be a primary benefit of meat

44% **failed to limit their meat consumption** due to taste

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PLANT-BASED EATING

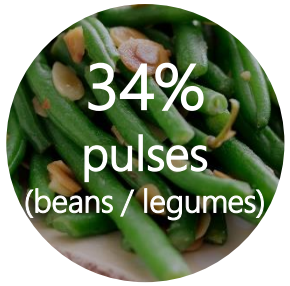
PLANT-BASED EATING

refers to eating patterns geared toward fruits, vegetables, whole grains, nuts, and beans while aiming to exclude or minimize foods derived from animals.

creative options are growing to meet the shift in demand toward plant-based foods of all kinds…

The classics are contemporary.

% of **consumers making a conscious effort** to eat more...



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Meat replacers and analog options are growing.

Meat replacers and analogues refer to products made from plant-based foods that are designed to resemble products that are typically meat-based.

SUPPORT

providers & sources

sources & advocates

- SWEET EARTH NATURAL FOODS
- PLANT BASED FOODS ASSOCIATION
- FORKS OVER KNIVES

meal kit delivery

- PURPLE CARROT

media & research

ABC NEWS
Can plant-based meat be better than the real thing?

FOOD NAVIGATOR
Plant-based meat that matches steak for texture: 'The technology is unique in the world'

COMPREHENSIVE REVIEWS IN FOOD SCIENCE & FOOD SAFETY
Nonmeat Protein Alternatives as Meat Extenders and Meat Analogs

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Plant-based eating: animal byproduct replacements

Among plant-based alternatives are an array of animal by-product replacements utilizing everything from plant proteins, root vegetable starches, nuts and seeds, nutritional yeast, coconut and soy derivatives, and live, non-dairy cultures.

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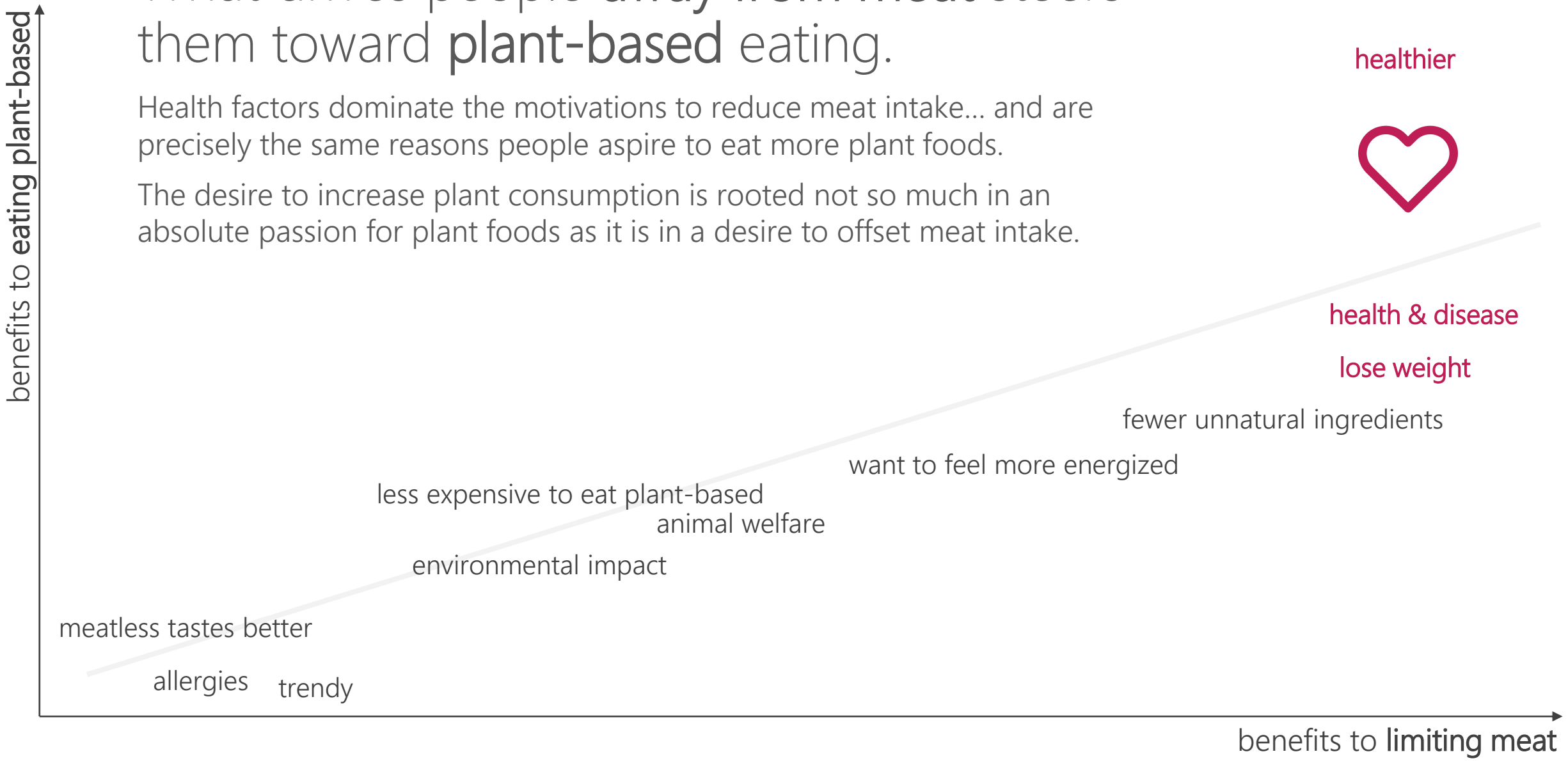
What drives people **away from meat** steers them toward **plant-based** eating.

Health factors dominate the motivations to reduce meat intake… and are precisely the same reasons people aspire to eat more plant foods.

The desire to increase plant consumption is rooted not so much in an absolute passion for plant foods as it is in a desire to offset meat intake.



Seeds are poised to break out as the next big food trend

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top plant-based interests

alternative protein sources

- seeds 36%
- pulses 32%
- alternative grains 31%
- ugly / misfit produce 26%

meat alternatives

- plant-based meat replacers 25%

dairy alternatives

- dairy-free milk 32%
- dairy-free ice cream 28%
- dairy-free yogurt 24%
- dairy-free butter 24%
- dairy-free cheese / cream cheese 24%

honey alternatives

- bee-free honey 26%

egg alternatives

- egg-free condiments 24%
- egg-free scrambled eggs 20%

Younger generations and foodies are leading the charge toward plant-based eating.

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Overall, people **don't yet trust the taste** of plant-based foods...

TOP REASONS FOR **NOT** WANTING TO EAT PLANT FOODS

not necessary	35%
don't taste good	34%
expensive	31%
won't keep me full	28%
have less protein	24%
no product info available	20%
lack essential nutrients	19%

...but **dairy and burgers** have the **greatest potential to earn consumer trust** in their plant-based form.

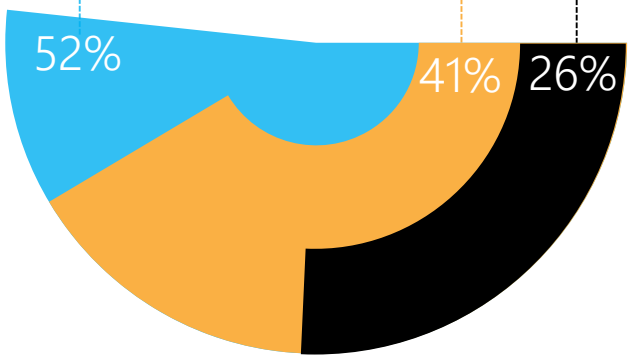
BELIEVE **PLANT-BASED CAN TASTE JUST AS GOOD** AS THE REAL THING

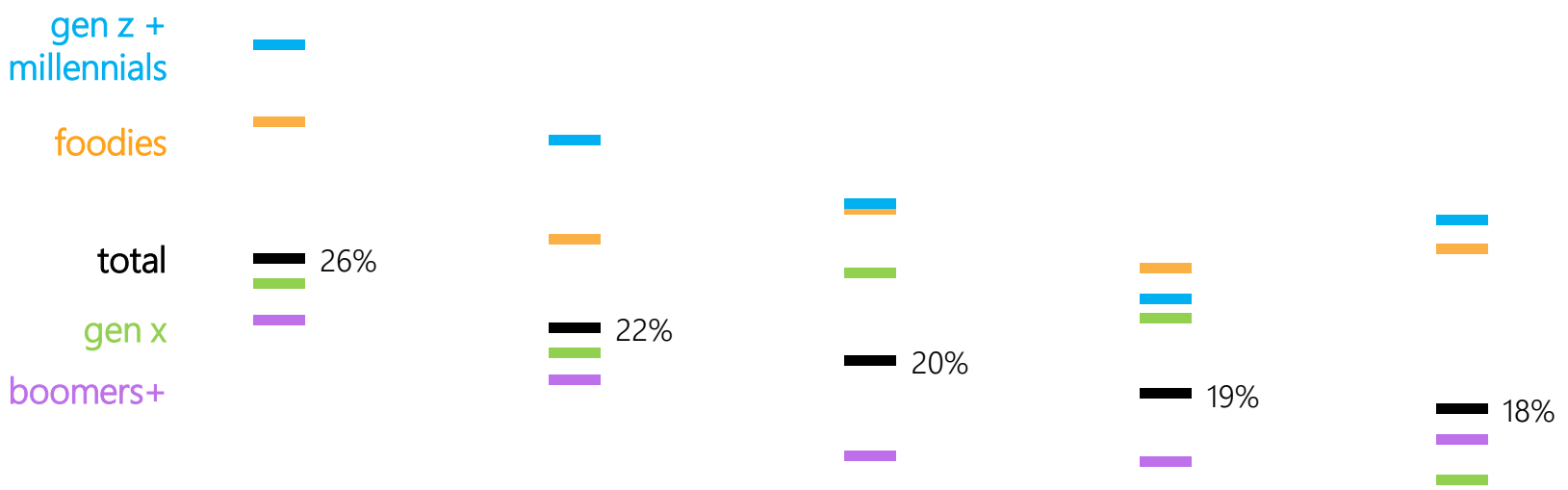
16%	dairy
14%	burgers
11%	hot dogs / sausages
10%	ground meat
10%	jerky
9%	raw fish
9%	shellfish
9%	cold cuts
8%	bacon
8%	fish filets
8%	steak

Plant-based starts with **burgers.**

People want plant-based burgers more so than any other application. And depending on the population, they'll pay a premium too; foodies and younger generations are the most willing to open their wallets and will play a central role in kickstarting trend adoption.

would **pay a price premium**





consumers want **plant-based alternatives** to replace...

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CELLULAR AGRICULTURE

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CELLULAR AGRICULTURE

What is it?

The production of agricultural products from cell cultures within a laboratory. These products are exactly or nearly the same as the original product; the only difference is in how they are made.

How is it done?

There are two types of agricultural products: **acellular** and **cellular**, each with its own process...

MILK WITHOUT COWS

EGGS WITHOUT HENS

BEEF WITHOUT COWS

NEW HARVEST

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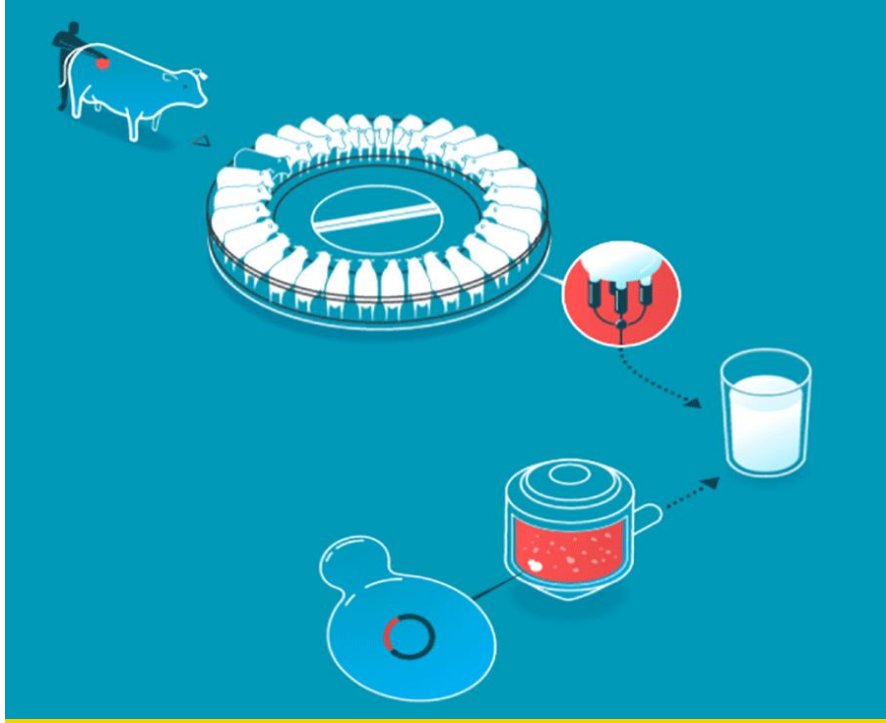
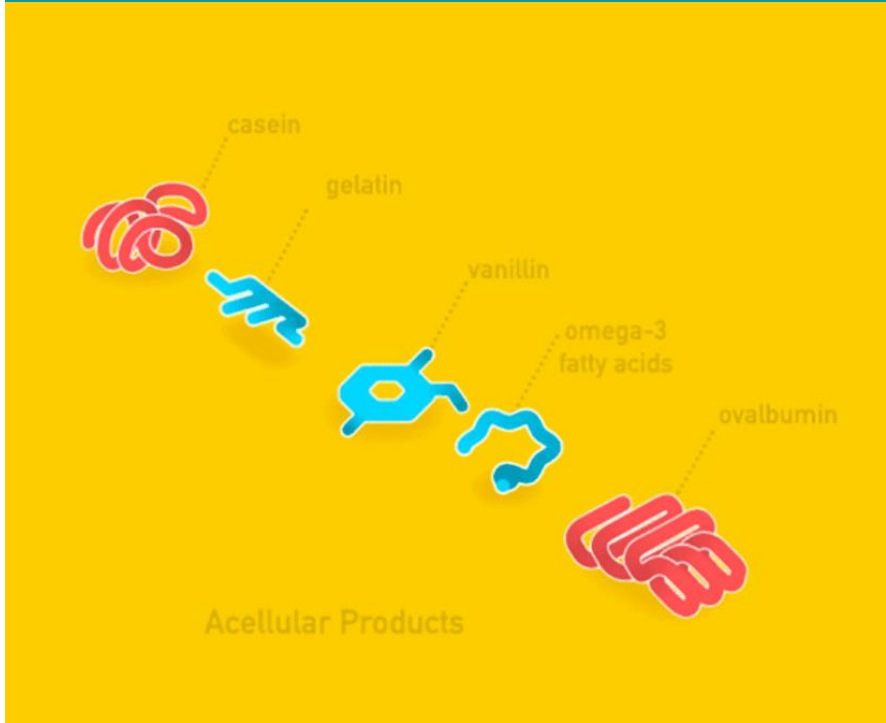
Acellular

Acellular products can be made without animals by using organic molecules, like proteins or fats, that contain no cellular or living material. Cells with the genetic codes for animal proteins are inserted in microbes or bacteria. These cells “act” like animal protein, producing byproducts (like milk) similar to what the animal would produce.

Products include:

- Casein (used to create dairy products)
- Gelatin
- Vanillin (used in vanilla extract)
- Omega-3 fatty acids
- Ovalbumin (used to create egg whites)





NEW HARVEST

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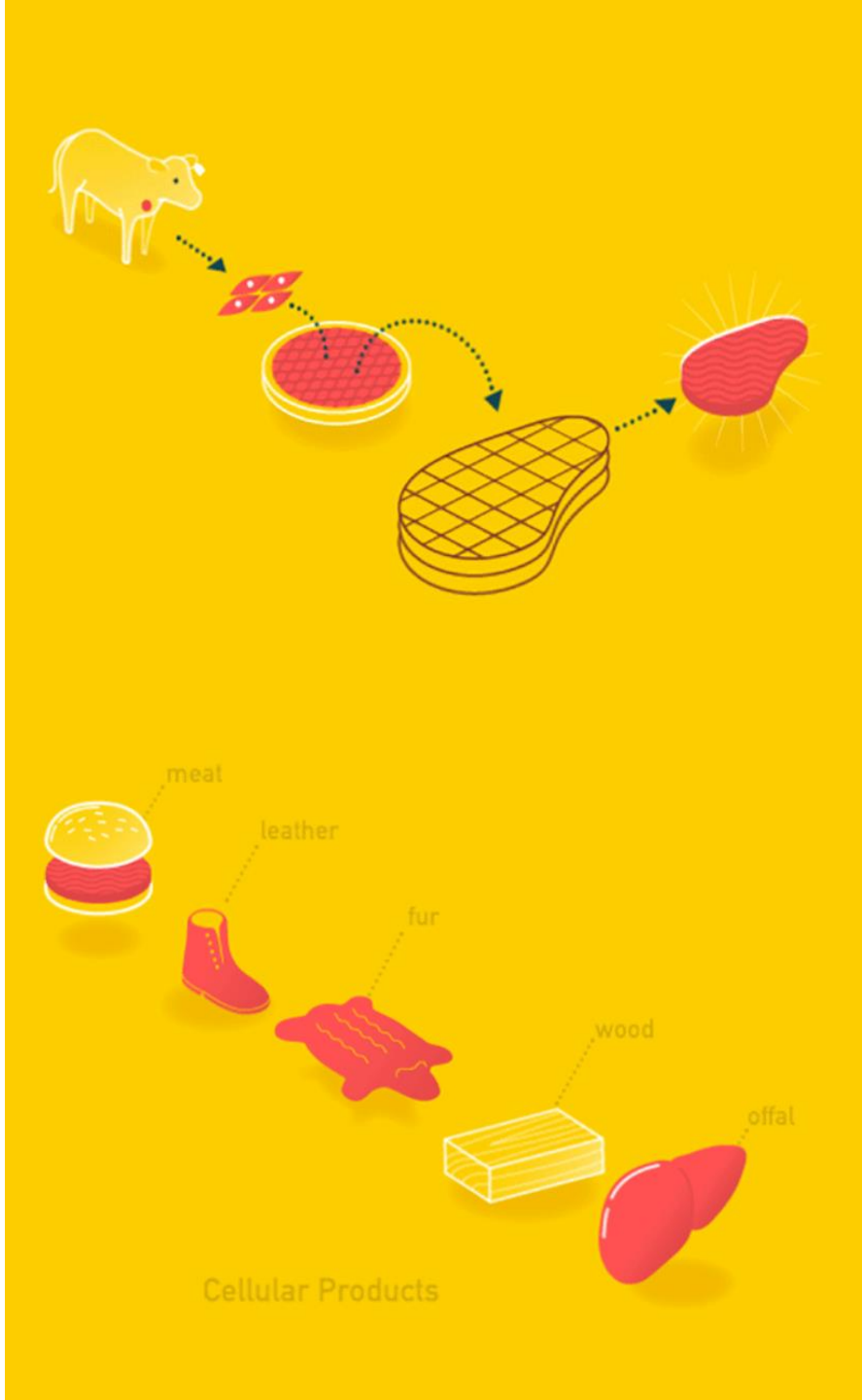
Cellular

Cellular products use living cells for tissue engineering. Cells taken from an animal or plant are replicated and grown on a scaffold. These tissues grow into meat or other cellular products.

Products include:

- Meat
- Leather
- Fur
- Wood
- Offal (organ meats)



NEW HARVEST

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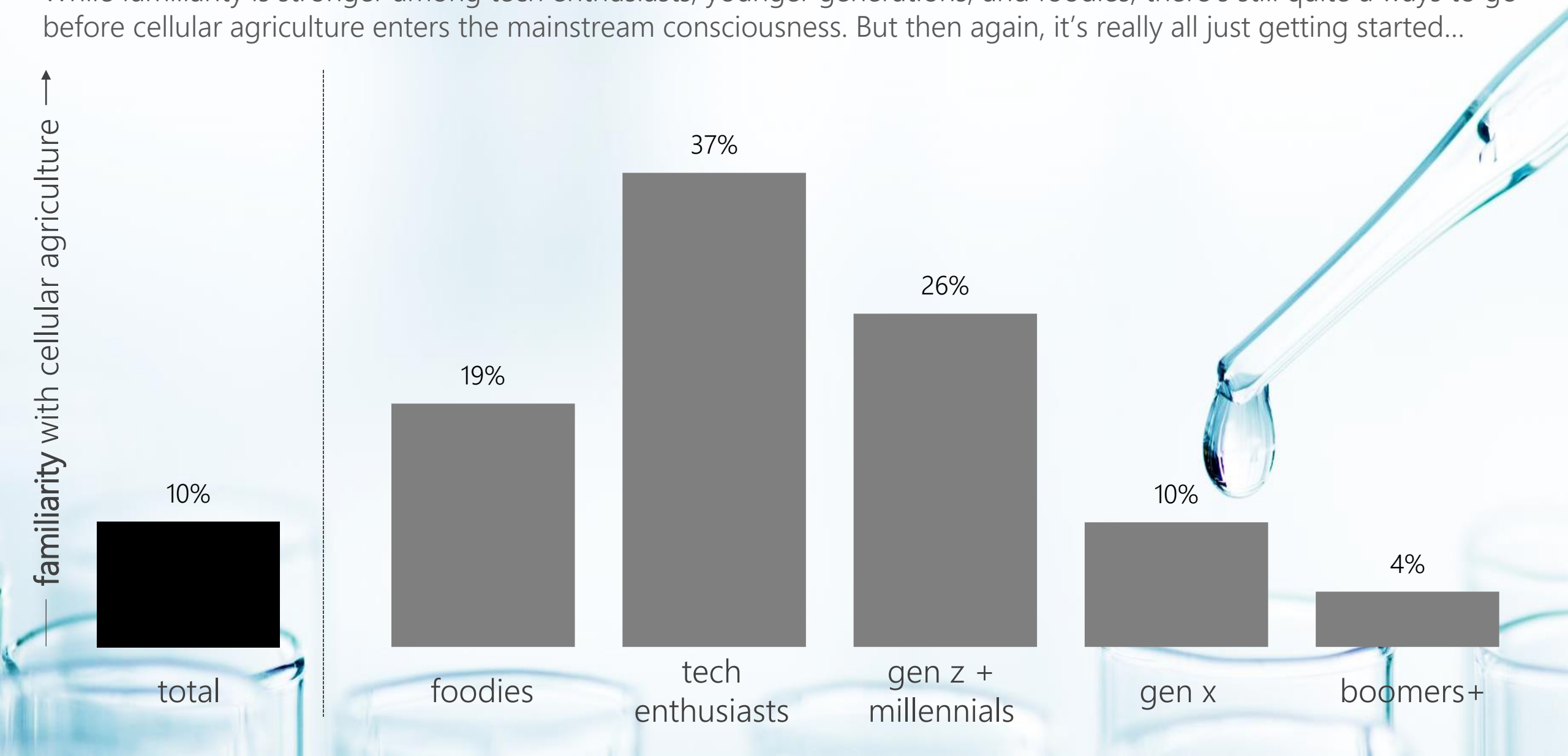
The concept of cellular agriculture is still **brand new** to consumers.

While familiarity is stronger among tech enthusiasts, younger generations, and foodies, there's still quite a ways to go before cellular agriculture enters the mainstream consciousness. But then again, it's really all just getting started...



Consumers **believe** in the possibility of cellular agriculture products ...some more than others.

dairy products 34%

eggs 28%

chicken 26%

other poultry 24%

beef 24%

other red meat 22%

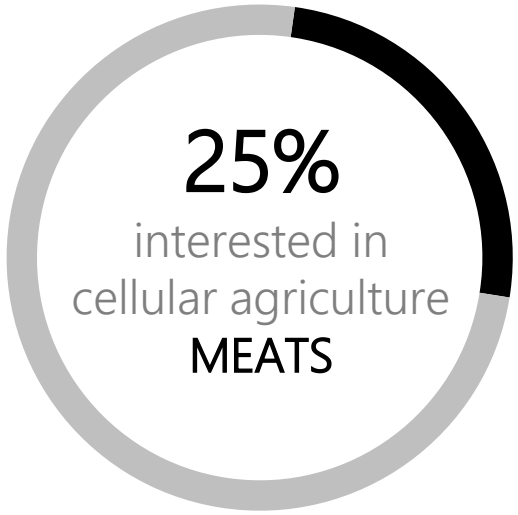
shellfish 22%

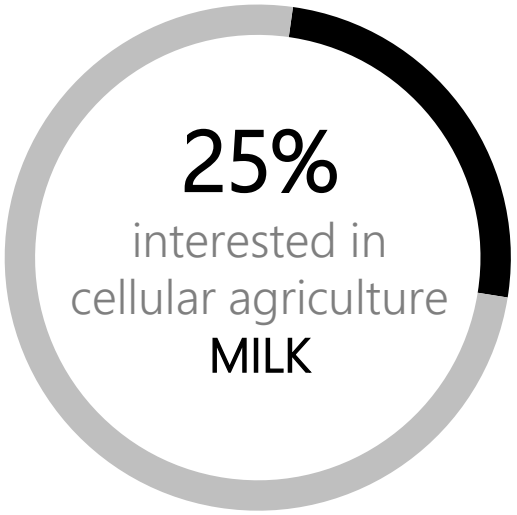
fish 21%

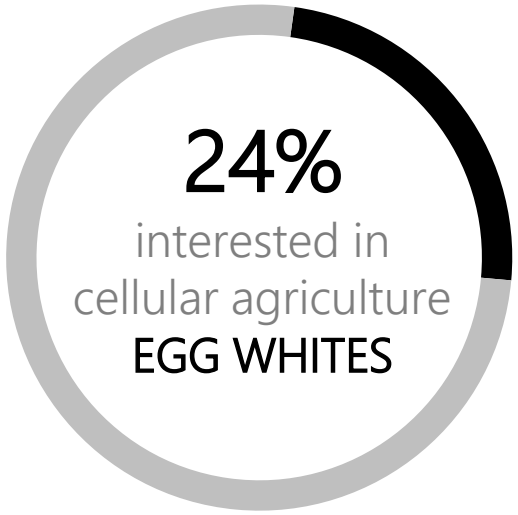
pork 21%

consumer believability that **these cellular agriculture versions are possible...**

Interest is comparable across meat, milk, and eggs made from cellular agriculture.







In particular, consumers would be willing to try…

Social welfare and health are equal motivators to cellular agriculture.

Cellular agriculture has the capacity to satisfy different sets of need states across consumers.

- help **reduce global hunger** 54%
- improve **animal welfare** 51%
- less **environmental impact** 49%
- **cheaper to produce** than livestock 48%
- will be more **sustainable** 47%

81%

believe science can have a **positive impact** on food

- **less** food **contamination** 54%
- **cleaner** 51%
- generally **healthier** 48%
- modified to be **more nutritious** 46%

27%

believe cellular agriculture foods are **better for your health**

- **taste** better 41%

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People who want natural and non-GMO are the same people who want cellular agriculture.

Seems strange, right? How can someone who values natural foods also want something created by humans in a lab?

The answer is that it comes down to the social good. Science is appealing to people when it helps the world in some way – whether it's solving hunger, improving animal welfare, or helping heal the earth.

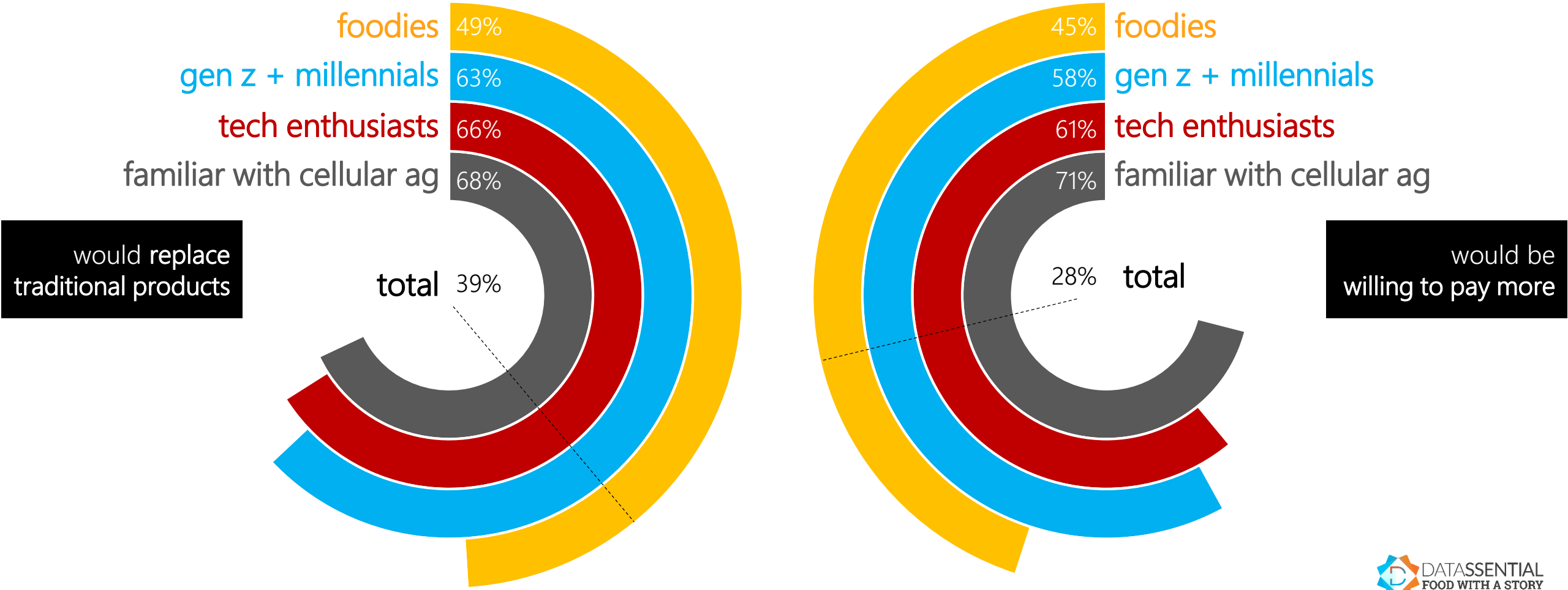
Information, safety & taste are vital to cellular agriculture's success.

TOP CONCERNS REGARDING CELLULAR AGRICULTURE FOODS

not enough information available	47%
potential long-term side effects	45%
unknown ingredients / chemicals	44%
might not taste good	41%
don't trust meat / byproducts grown in a lab	41%
might not like the texture	29%
products are unnatural	24%
might be less nutritious	21%
products are not necessary	21%
unethical	12%

Familiarity & knowledge will influence purchasing behavior.

Those familiar with the concept are not only more likely to prefer cellular agriculture products, they are also more likely to lead replacement of traditional products and are most willing to pay a premium. Foodies, tech enthusiasts, and younger generations will also support this movement.



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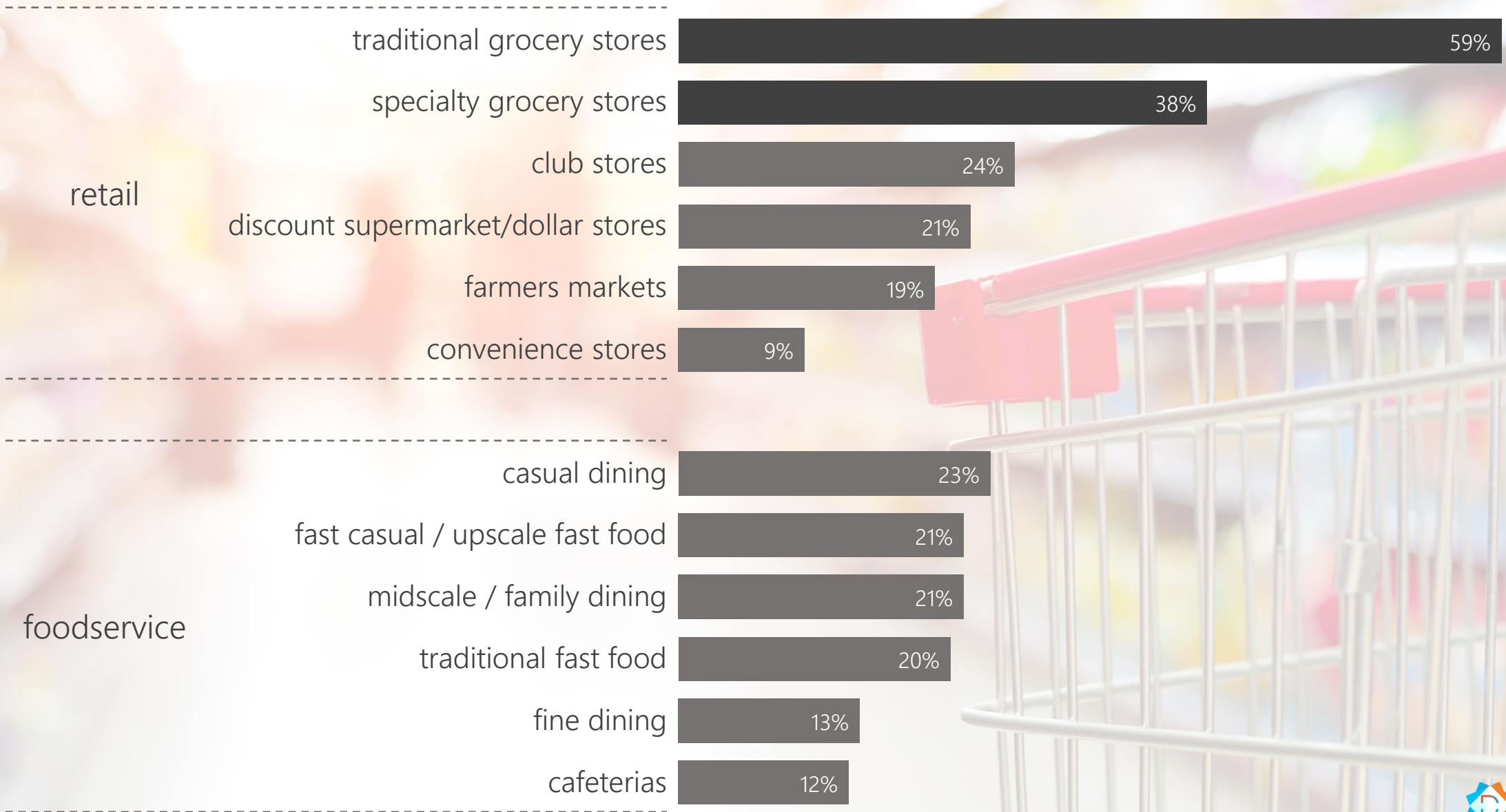
Grocery is the place for cellular agriculture products first.



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SUMMARY

- Eating patterns are shifting toward balance and away from extremes – consumers, led by younger generations and foodies, are shifting toward plants while limiting, but not eliminating, meat.
- Seeds are in position to become the next widespread food trend, following plant-based dairy alternatives.
- Plant-based eating is holistic and healthy – consumers want to focus on eating a more plant-heavy diet in and out of the home with the goal of improving health. They are interested in eating plant-based foods in all forms, from classic fruits and vegetables to plant-based analogue meats (burgers, in particular) and animal byproduct alternatives.
- Taste is king. In retaining balance with limited but not eliminated meat-eating, consumers can satisfy what makes meat so craveable – taste. Subsequently, taste is then the crux of success for plant-based alternatives; providing a plant-based alternative that can match up to its original counterpart will be the greatest hurdle.
- Cellular agriculture is in its infancy, but familiarity, which breeds interest and purchasing, is on the rise with food- and tech-focused consumers. Expect cellular agriculture products to be most successful in grocery at first, but they won't stop there.
- Social welfare and health motivate positive perceptions of cellular agriculture, while information & transparency will address concerns and help navigate barriers to cellular agriculture products.
- New technologies, spanning from plant-based to lab-grown, will bring to market solutions that deliver on consumer aspirations to eat less meat, increase creative plant food intake, and eat earth-friendly.

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