NECTAR | March 2025

# Taste of the Industry 2025

## A Sensory Analysis of Plant-Based Meats

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- R&D Roadmap

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# Foreword

In a world grappling with the environmental impact of our food choices, the alternative protein industry stands at a critical crossroads. The health and climate consequences of conventional meat production are profound. Animal agriculture generates approximately 16.5% of global greenhouse gas emissions,[1] and, according to the Center for Disease Control and Prevention, poultry products cause more human deaths from foodborne illness than any other food[2]—a reality highlighted by the current H5 bird flu outbreak. Despite growing concerns about conventional meat, one truth remains paramount: taste is non-negotiable for omnivore consumers.

Plant-based meats offer a promising path forward—delivering improved nutrition and reduced environmental impact while striving to match flavors consumers expect. With each plant-based burger producing roughly 91% fewer greenhouse gas emissions than conventional beef,[3] the climate benefits could be substantial if mainstream adoption of these products scales.

In service of this mission, NECTAR's *Taste of the Industry 2025* report provides the most comprehensive sensory analysis of plant-based meat to date. As a nonprofit research initiative, NECTAR employs rigorous sensory methodologies to deliver evidence-based insights the industry can trust. Our approach prioritizes transparency, ensuring findings reflect authentic consumer experiences and provide an actionable roadmap for product improvement.

Building on our inaugural 2024 report, this expanded analysis explores fourteen plant-based meat categories. Through blind sensory panels with over 2,600 omnivores and flexitarians, this report objectively compares plant-based products to conventional counterparts, offering invaluable insights into competitive positioning, consumer preferences, and R&D opportunities.

As the plant-based sector continues to navigate adoption challenges, this report comes at a time when producers worldwide—from startups to major corporations—are refining their approaches to create more appealing alternatives.

Our data confirms this investment is worthwhile: companies that prioritize taste generate stronger financial returns and capture more meaningful market share from conventional animal products. Whether you're a manufacturer, retailer, foodservice operator, investor, or consumer, this report illuminates the path toward a more sustainable food system, acknowledging that the transition must be grounded, above all else, in exceptional taste experiences.

*Caroline Cotto*

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1. Twine, R. (2021). Emissions from Animal Agriculture—16.5% Is the New Minimum Figure. Sustainability, 13(11), 6276. https://doi.org/10.3390/su13116276
2. Painter JA, Hoekstra RM, Ayers T, Tauxe RV, Braden CR, Angulo FJ, et al. Attribution of foodborne illnesses, hospitalizations, and deaths to food commodities by using outbreak data, United States, 1998–2008. Emerg Infect Dis [Internet]. 2013 Mar. http://dx.doi.org/10.3201/eid1903.111866
3. EarthShift Global. (2024, April). Comparative life cycle assessment of plant-based meats and conventional animal meats. The Good Food Institute. https://doi.org/10.62468/casv3213

# Survey Overview

## Current Context

Following NECTAR's inaugural *Taste of the Industry* report in 2024 and our *Future of the Industry 2024: Balanced Protein* analysis, the 2025 report expands our examination of plant-based meat alternatives during a critical market transition. The plant-based meat sector has experienced a 20% year-over-year volume decline,[1] with regular company failures highlighting systemic challenges. This downturn follows a period of explosive growth and significant investment, suggesting a market correction as consumers reassess these products.

Plant-based meats currently face challenging market conditions. Consumer adoption is weakening, with 46% of buyers not making repeat purchases claiming taste dissatisfaction.[2] This weakness isn't uniform across categories - retail scanner data reveals particularly poor performance in plant-based beef products, while plant-based chicken alternatives have demonstrated greater resilience. The foodservice sector shows similarly inconsistent results, with quick-service restaurants reporting mixed outcomes from their plant-based meat trials. These weak market signals highlight the critical importance of addressing the taste gap to improve consumer acceptance and drive sustainable growth in the category.

Despite these challenges, our research reveals that leading categories of plant-based meat capture 5-15x more market share than lower performing categories.[3] Leading products in each category significantly outperform competitors, capturing up to 1.5x greater market share on average than lower performing products.[4] These products demonstrate that excellence in taste and texture is achievable and financially rewarding.

*Taste of the Industry 2025* arrives at a pivotal moment as industry recovery depends on elevating product quality across all categories.

## Our Approach

NECTAR, a nonprofit initiative working to accelerate the alternative protein transition, conducts an annual *Taste of the Industry* sensory analysis of plant-based meats. These reports are sensory deep dives into the most innovative alternative protein products currently on the market, evaluating a range of technologies, ingredients, and different consumer segment preferences.

*Taste of the Industry 2025*, the second report in this annual series, provides objective sensory data about plant-based meats through blind taste tests in American restaurant settings. By having omnivores directly compare plant-based products against conventional meat benchmarks, we reveal competitive positioning and specific R&D opportunities for manufacturers in this increasingly important category.

If you have any questions or would like to discuss potential future research areas, please contact NECTAR's Director Caroline Cotto (caroline@nectar.org).

**Dashboard access:** Explore the full dataset here

1. Good Food Institute. Key plant-based category sales metrics and purchase dynamics. 2023. https://gfi.org/marketresearch/
2. Food Frontier. (2024). The Food Frontier consumer survey 2024: Understanding dietary preferences and changes in Australia.
3. NECTAR (2025). *Taste of the Industry 2025: Plant-Based Meat*. Page 19.
4. NECTAR (2025). *Taste of the Industry 2025: Plant-Based Meat*. Page 20.

# Study Design & Methodology

**NECTAR partnered with Palate Insights** to conduct **blind taste tests** at Palate's restaurant partners in San Francisco and New York City between November 2024–January 2025.

## Testing Environment

Participants tried products at restaurants in San Francisco and New York City in order to achieve an authentic and natural eating experience.

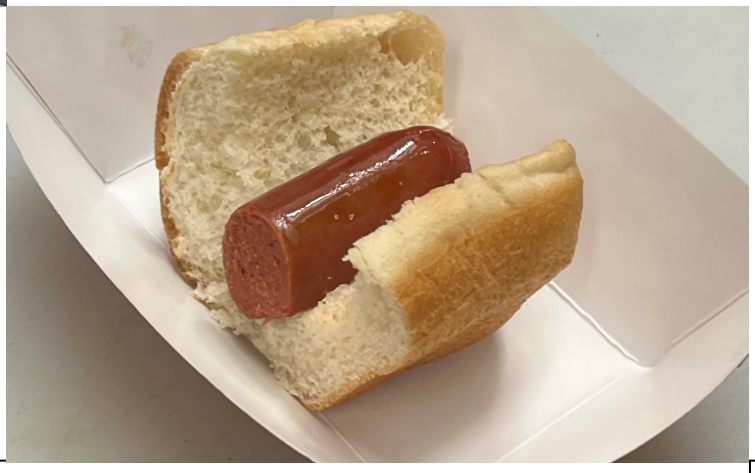


## Preparation

All products were prepared according to manufacturer instructions using timers and meat thermometers while controlling for equipment type. Participants were allowed to add condiments but were required to apply them consistently across products.

## Testing Experience

In a blinded, randomized design, participants evaluated one product at a time. Each was presented as a complete, simplified build to facilitate clear assessment. Evaluations covered sensory, price, and nutritional aspects using a standardized survey.



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# Products Tested

**14 product categories** were selected using the below criteria:

- **High volume:** Sufficient sales volume (animal or plant-based)
- **Sufficiently developed:** At least five plant-based products exist in market

**122 plant-based products** were prioritized based on the below criteria:

- **Significant player:** Sufficient sales volume (plant-based)
- **Market-ready:** Product is in-market or at validation stage of development
- **Animal analog:** Product is designed to mimic the animal product
- **Original flavor:** Comparable to an original (unflavored) animal product
- **Distinct:** Uses ingredients or technology that is distinct / unique to other products being tested in the category

**Animal benchmarks** for each category were chosen based on their volume of retail sales.

| Category | Animal benchmark | Dish | Plant-based products tested |
|---|---|---|---|
| Bacon | Oscar Mayer Naturally Hardwood Smoked Bacon Original | Bacon, eggs | 10 |
| Bratwurst | Johnsonville Original Brats | Sausage, sauteed onion, sauteed bell pepper | 9 |
| Breaded Chicken Fillet | Tyson Chicken Breast Patties | Bun, breaded chicken fillet, mayo, lettuce, tomato | 5 |
| Breakfast Sausage | Jimmy Dean Heat 'N Serve Original Sausage Patties | English Muffin, breakfast sausage | 10 |
| Burgers | Bubba Burger Original | Bun, burger, lettuce, tomato, onion, pickle & condiment of choice | 10 |
| Ham Deli Slices | Oscar Mayer Smoked Uncured Ham | White bread, ham, lettuce, tomato, mayo | 9 |
| Hot Dogs | Ball Park Bun Sized Beef Franks | Hot dog, bun, condiments of choice | 10 |
| Meatballs | Cooked Perfect Italian Meatballs | Spaghetti, meatball, red sauce | 5 |
| Nuggets | Tyson Frozen Chicken Nuggets | Nuggets, condiments of choice | 10 |
| Pulled Pork | Kirkland Smoked Pulled Pork | Hawaiian roll, pulled pork, BBQ sauce optional | 7 |
| Steak Fillet & Tenderloin | Kirkland Signature USDA Choice Beef Loin Tenderloin Whole | Butter sauce, steak, side of mashed potatoes | 9 |
| Turkey Deli Slices | Oscar Mayer Oven Roasted Turkey Breast | White bread, turkey, lettuce, tomato, mayo | 7 |
| Unbreaded Chicken Fillet | Perdue Harvestland Boneless Chicken Breast | Bun, unbreaded chicken fillet, mayo, lettuce, tomato | 10 |
| Unbreaded Chicken Strips & Chunks | Tyson Diced Chicken Breast | Chicken, seasoned rice | 10 |

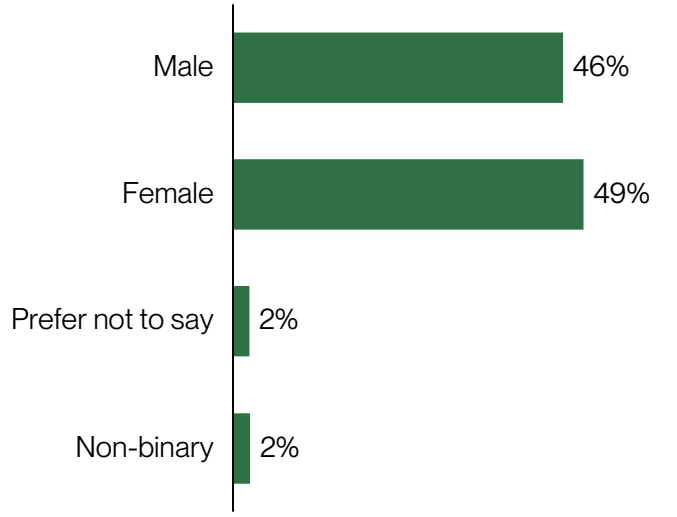
**Dashboard access:** Explore the full dataset here

# Study Population

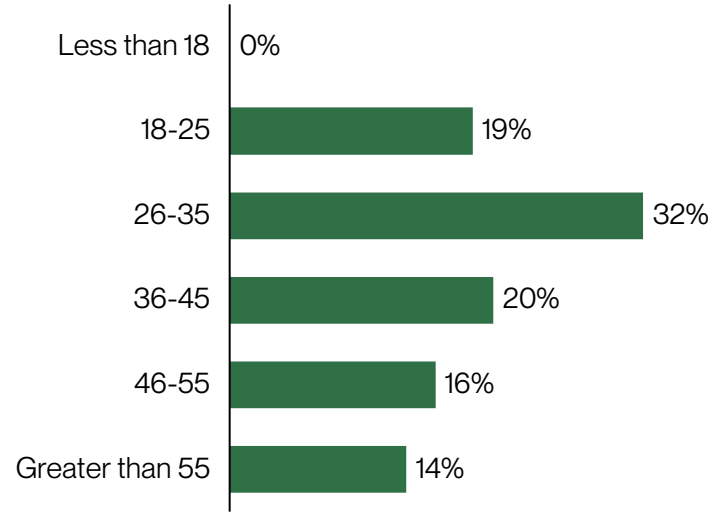
Demographic overview of a sample of 2,684 omnivores and flexitarians.

Participants were additionally screened to **only include those who eat the category being evaluated at least once every 1-2 months.**

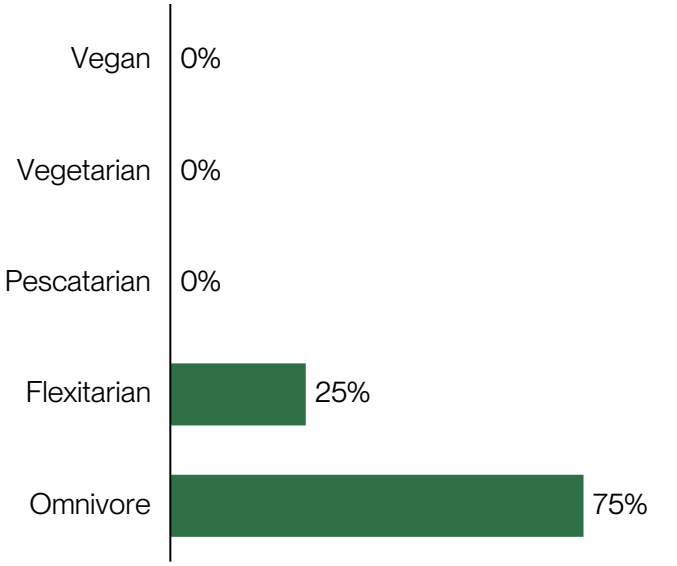
**Gender,** % of participants



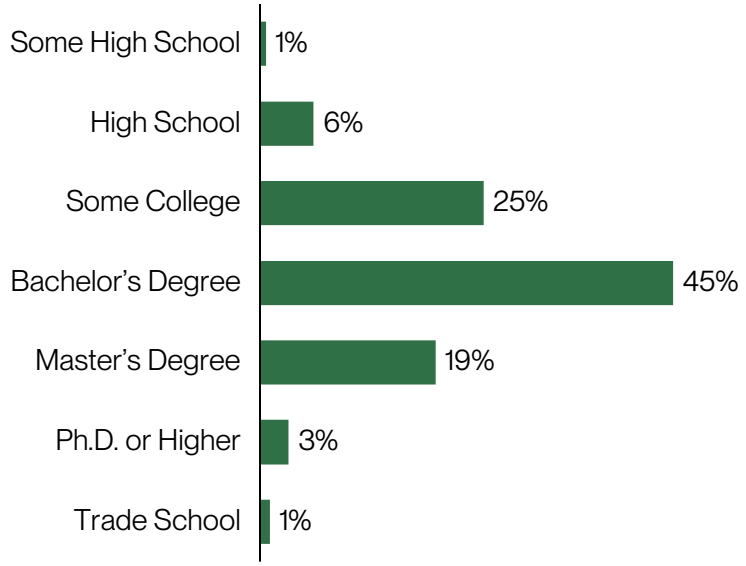

**Age,** % of participants




**Dietary preference,** % of participants




**Education,** % of participants




**Dashboard access:** Explore the full dataset here

# Analytical Approach

## Questions

| | |
|---|---|
| **Liking** | Rates products on a 7pt scale from 'Dislike very much' to 'Like very much' covering overall liking, flavor, texture, and appearance |
| **Qualitative** | Describes the 'likes' and 'dislikes' of each product using open-ended responses |
| **CATA (Check-all-that-apply)** | Describes products using lists of 10-15 attributes available for participants to select or leave unchecked covering flavor, texture, and appearance |
| **Purchase Intent** | Rates products on a 7pt scale from "Definitely would buy' to 'Definitely would NOT buy' after revealing either price or nutritional information |

## Analyses

| | |
|---|---|
| **Mean** | The average rating for each product on a 1-7 scale |
| **Histogram of the Differences** | Compares each participant's rating for a product against a benchmark to calculate the difference in their ratings for the two products |
| **Wilcoxon Signed-Rank Test** | Calculates whether there is a statistically significant difference in two products using the Histogram of the Differences |
| **AI Qualitative Analysis** | Synthesizes key themes from qualitative responses using Chat GPT |
| **Product CATA (Check-all-that-apply)** | Maps the sensory profile of a product and measures which attributes are associated with higher or lower liking when identified |
| **Comparative CATA (Check-all-that-apply)** | Compares the sensory profile of a product against a benchmark to identify its opportunities, weaknesses, and strengths |
| **Pricing Analysis** | Calculates the impact of product's price on purchase intent |
| **Nutrition Analysis** | Compares purchase intent for a product after revealing its nutrition facts panel and ingredient list and measure the impact of specific ingredients / nutrient levels on any difference in purchase intent |

## Nomenclature

| | |
|---|---|
| **Plant-Based Average** | Calculated by averaging the scores of every plant-based product tested in that category |
| **Plant-Based Leader** | The plant-based product in each category that performed the highest on overall liking (independently and against the animal) |
| **TASTY Award Winner** | Any plant-based product that was rated the same or better than the animal on overall liking by at least 50% of participants |
| **Animal benchmark** | The 'typical' animal product in each category with the highest retail sales volume |
| **Promoter** | Participants rating the product as 'like very much' or 'like' |
| **Passive** | Participants rating the product as 'like somewhat' or 'neither like nor dislike' |
| **Detractors** | Participants rating the product as 'dislike somewhat', 'dislike', or dislike very much' |

**Dashboard access:** Explore the full dataset here

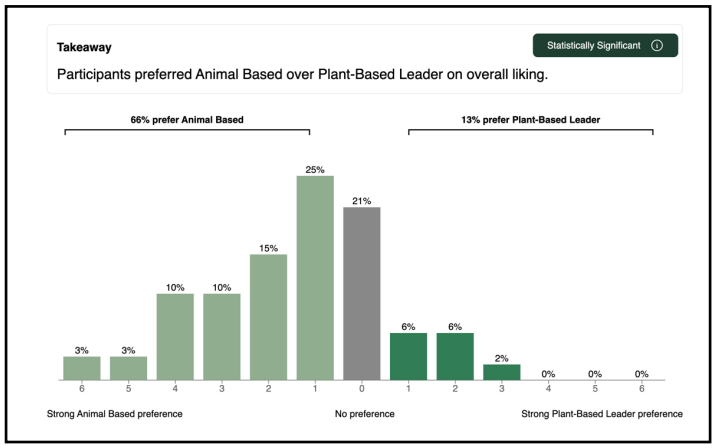
# Dashboard Access

**Access the live dashboard** using the links below to explore the full dataset.

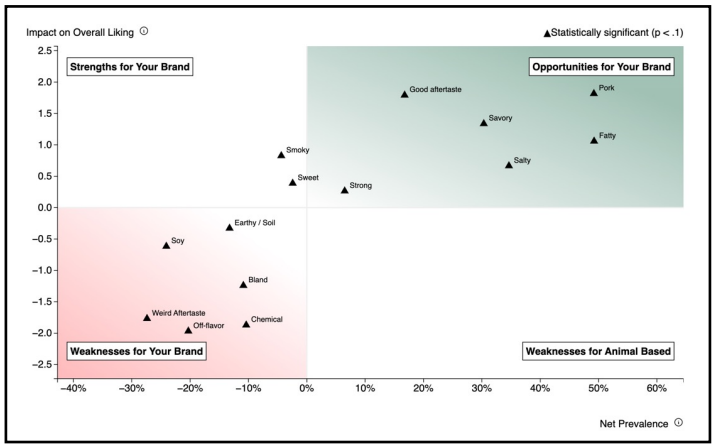
- Bacon
- Bratwurst
- Breaded Chicken Fillet
- Breakfast Sausage
- Burger
- Ham Deli Slices
- Hot Dog
- Meatballs
- Nuggets
- Pulled Pork
- Steak Fillet
- Turkey Deli Slices
- Unbreaded Chicken Fillet
- Unbreaded Chicken Strips & Chunks

**Click here for a short video walkthrough** to get as much as possible out of the dataset.

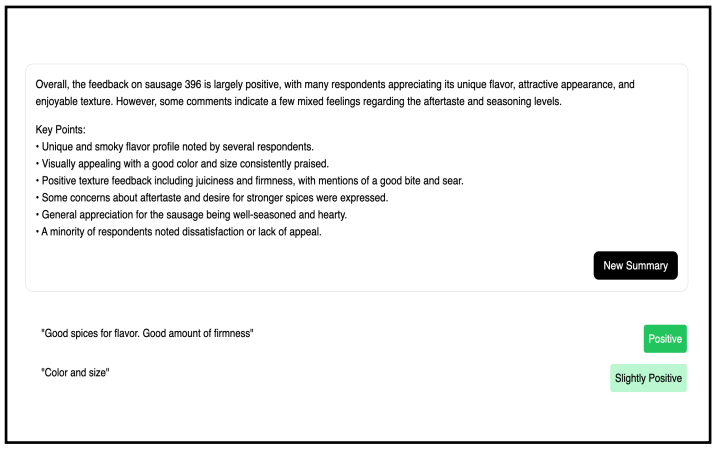
## Preference Testing:
Conduct statistical significance testing




## CATA Analysis / Penalty Analysis:
Prioritize R&D opportunities




## Qualitative Analysis:
Read AI-summaries and each response




## Raw Data:
Download and conduct your own analysis

# Executive Summary

## Recommendations and Insights for Plant-Based Meats

### Top Performers

Leading products and categories highlight the strong potential to meet taste expectations

- **Many products are already worth celebrating –** 20 products were awarded as TASTY Award winners for being rated the same or better than the animal benchmark on overall liking by at least 50% of participants
- **Taste parity is on the horizon** – No statistically significant difference in overall liking between the animal and four plant-based products
- **Several plant-based categories performed at a higher level** – Unbreaded Chicken Fillets, Burgers, Breaded Chicken Fillet, Chicken Nuggets, and Breakfast Sausage were all rated the same or better than the animal benchmark by 40% of participants at the category level

### Gaps in Performance

Improvement is needed, worthwhile, and attainable

- **R&D is still needed for the typical plant-based product** – The average product was rated some form of 'dislike' more frequently than being rated 'like very much' or 'like'
- **Whitespace revealed in key categories** – Opportunity for category-level innovation in Bacon, Steak Fillet, Unbreaded Chicken Strips & Chunks, and Bratwurst
- **Better tasting categories achieved 10x greater market penetration** – High-performing categories (e.g., Burgers, Chicken Nuggets, and Meatballs) have market penetration of 5-14% versus lower-performing categories (e.g., Bacon and Hot Dogs) which have <1% penetration
- **Leading plant-based products capture 50% more market share** – Sales were $1.5M higher for every 5% increase in the share of participants rating them the 'same or better' than the animal benchmark
- **Improvement is attainable** – Leader products regularly emerged across categories and were rated 'like very much' or 'like' nearly 2x more often than average products

### R&D Roadmap

Innovation in both flavor and texture are needed to close the gap to the animal product

- **Flavor is the top opportunity** –Plant-based products were described as 'savory' 35% less often and as having a 'weird aftertaste' or 'off-flavors' 5-6x more often than the animal; these differences were associated with a 1.5-2pts liking gap between animal and plant-based products
- **Texture innovation also key, nearly as important as flavor** – Plant-based products were described as 'juicy' 62% less often than the animal, leading to decreases in liking of 1.1pts; increasing tenderness and reducing mushiness are meaningful secondary priorities
- **Appearance improvements are valuable but lower priority** – Interior color was the largest appearance difference with the animal benchmark; improving exterior color and searing are secondary objectives

**Source:** NECTAR 2025 TOTI Sensory Database; Online Sources covering Retail Data; Team Analysis

**Dashboard access:** Explore the full dataset here

Leading Products and Categories

# The Potential of Plant-Based

# TASTY Award Winners

**The TASTY Awards:** A new program celebrating top-performing alternative protein products based on NECTAR's annual *Taste of the Industry* sensory research.

Qualification criterion:

- At least 50% of tasters must rate the product the "same or better" than the animal benchmark in overall liking.

Brands who pass this threshold are displayed in alphabetical order.

| | |
|---|---|
|  **Unbreaded Chicken Fillet** | Impossible, eat meati, SWAP, The Vegetarian Butcher, VIV ERA |
|  **Burger** | Beyond Meat, Heura, Impossible, Morning Star Farms, Redefine Meat |
|  **Chicken Nugget** | Impossible, Morning Star Farms |
|  **Breakfast Sausage** | gardein, Impossible |
|  **Turkey Deli Slices** | Prime Roots, Tofurky |
|  **Ham Deli Slices** | The Green Mountain |
|  **Meatball** | Impossible |
|  **Breaded Chicken Fillet** | The Vegetarian Butcher |
|  **Hot Dog** | Impossible |

**Dashboard access:** Explore the full dataset here

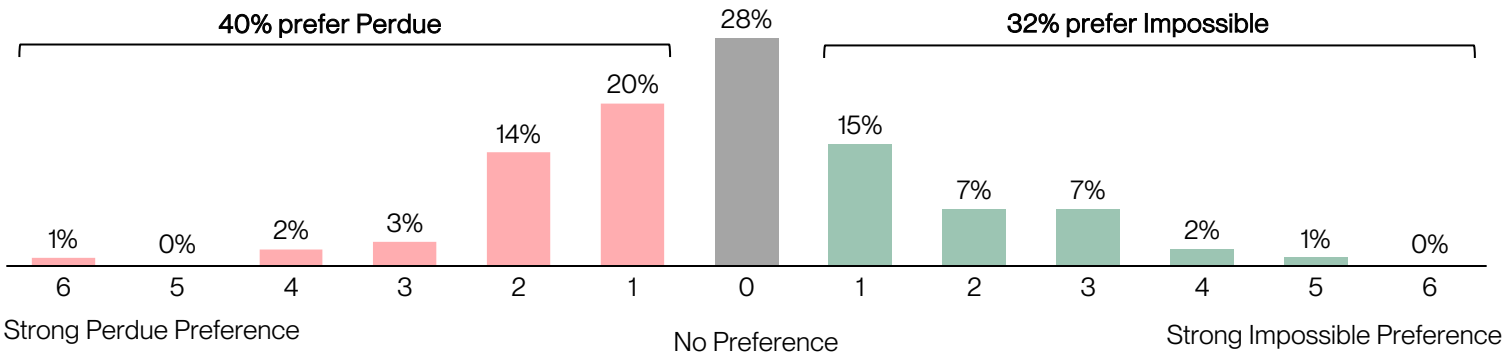
# Taste Parity is on the Horizon

NECTAR evaluated performance of the plant-based product against the animal at three thresholds:

- **No Statistically Significant Difference:** The chance of being preferred on overall liking in a future test is at least 10%
- **Taste Parity:** The chance of being preferred on overall liking in a future test is at least 50%
- **Taste Superiority:** The chance of being preferred on overall liking in a future test is at least 90%

How would you rate your OVERALL LIKING of XXX?

**Impossible Unbreaded Chicken vs Perdue,** Difference in Overall Liking (N=103)[1]




| No statistically significant difference with animal[2] | Taste parity over animal[2] | Taste superiority over animal[2] |
|---|---|---|
| ✓ | X | X |

## Takeaways

### There was no statistically significant preference for the animal benchmark against the top-performing plant-based products

- The animal failed to achieve statistically significant preference against four products (less than 90% change of being preferred on overall liking in a future test)
- The four products were Impossible Unbreaded Chicken Breast, Impossible Chicken Nuggets, Impossible Burger, Morningstar Farms Nuggets

### Taste parity is achievable

- Further improvement to the top-performing products could result in achieving parity, defined as equal likelihood that each product would be preferred on a future test

**Dashboard access:** Explore the full dataset here

1. Calculated using Wilcoxon Signed Rank Test which compares the difference in each participants rating for two products. Null Hypothesis: Animal <= Plant-based. Alternative Hypothesis: Animal > Plant-based.
2. Null Hypothesis: Perdue is less than or equal to Impossible; Alt Hypothesis: Perdue is greater than Impossible | Outcome: P = 0.314; We fail to reject the null hypothesis with statistical significance but have directional evidence that alternative hypothesis is correct: Perdue is better

# Several categories performed well against the animal benchmark

**How would you rate your OVERALL LIKING of XXX?,** % of participants (N=100)[1]


## Takeaways

### Meaningful number of participants rated plant-based products the same or better than the animal benchmark

- At least 40% of participants rated the plant-based product the same or better than the animal in the five categories above

### A diversity of proteins were amongst the top-performing categories

- Products replicating beef, chicken, and pork all achieved average ratings of 40% same or better

### Unbreaded chicken and burgers were top-performing categories

- Both categories were rated the same or better than the animal by nearly 50% of participants

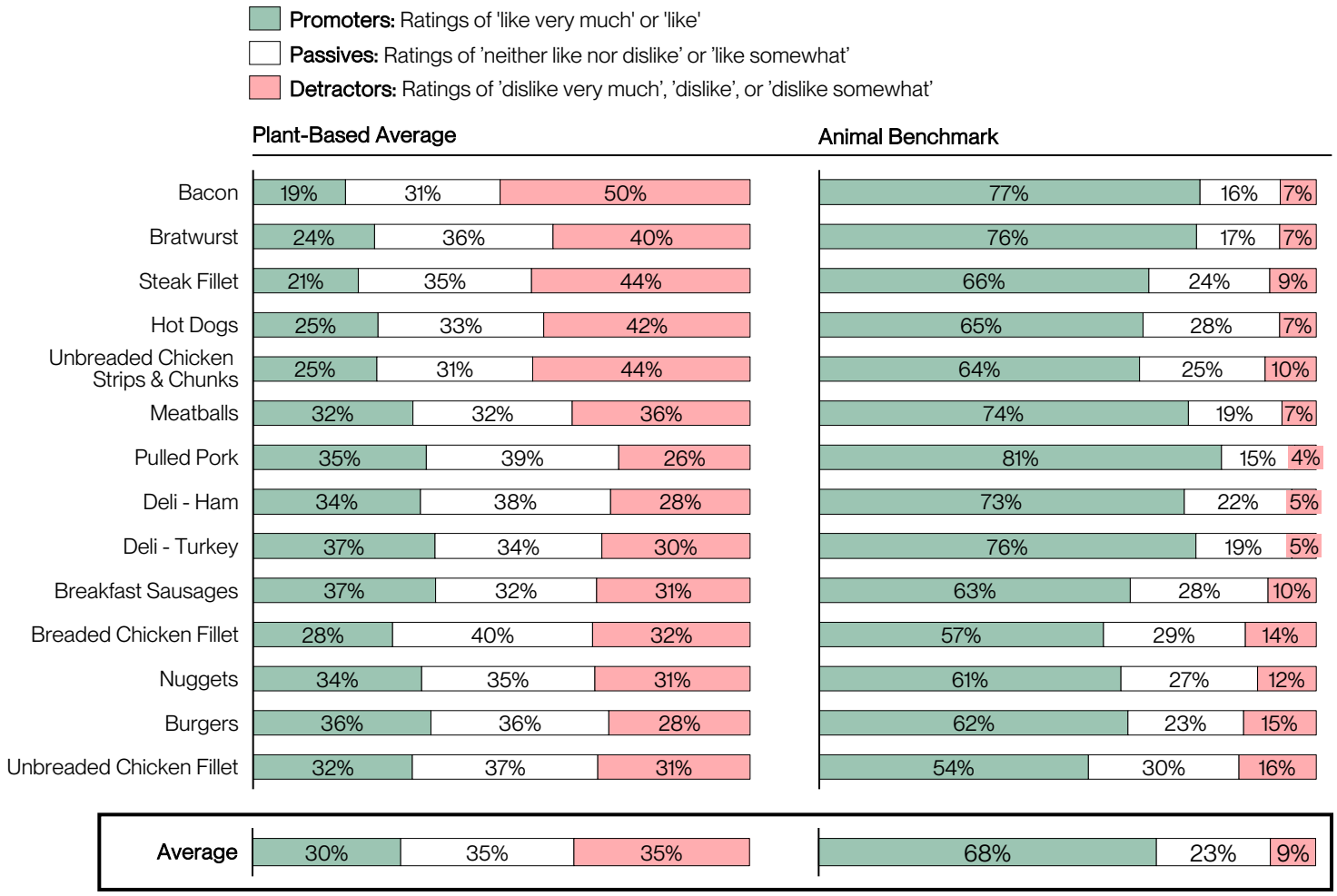
**Dashboard access:** Explore the full dataset here

1. Number of participants was approximately 100 per test (average = 99.4)
2. Calculated by comparing the difference in each participants overall liking rating for the plant-based product and the animal benchmark

# Improvement is needed, worthwhile, and attainable

# Further R&D is needed

**How would you rate your OVERALL LIKING of XXX?, % of participants (N=100)[1]**




# Takeaways

## The average plant-based product was generally 'disliked'

- Products were disliked more frequently than they were liked (35% rated some form of 'dislike' while just 30% rated 'like very much' or 'like')

## There are large liking gaps between plant and animal-based products

- 68% rated the animal as 'like very much' or 'like' (versus just 30% for the plant-based average)

## There is wide variation in liking between plant-based categories

- The top plant-based categories were rated 'like very much' or 'like' nearly 2x more often than the bottom-performing category (Bacon)

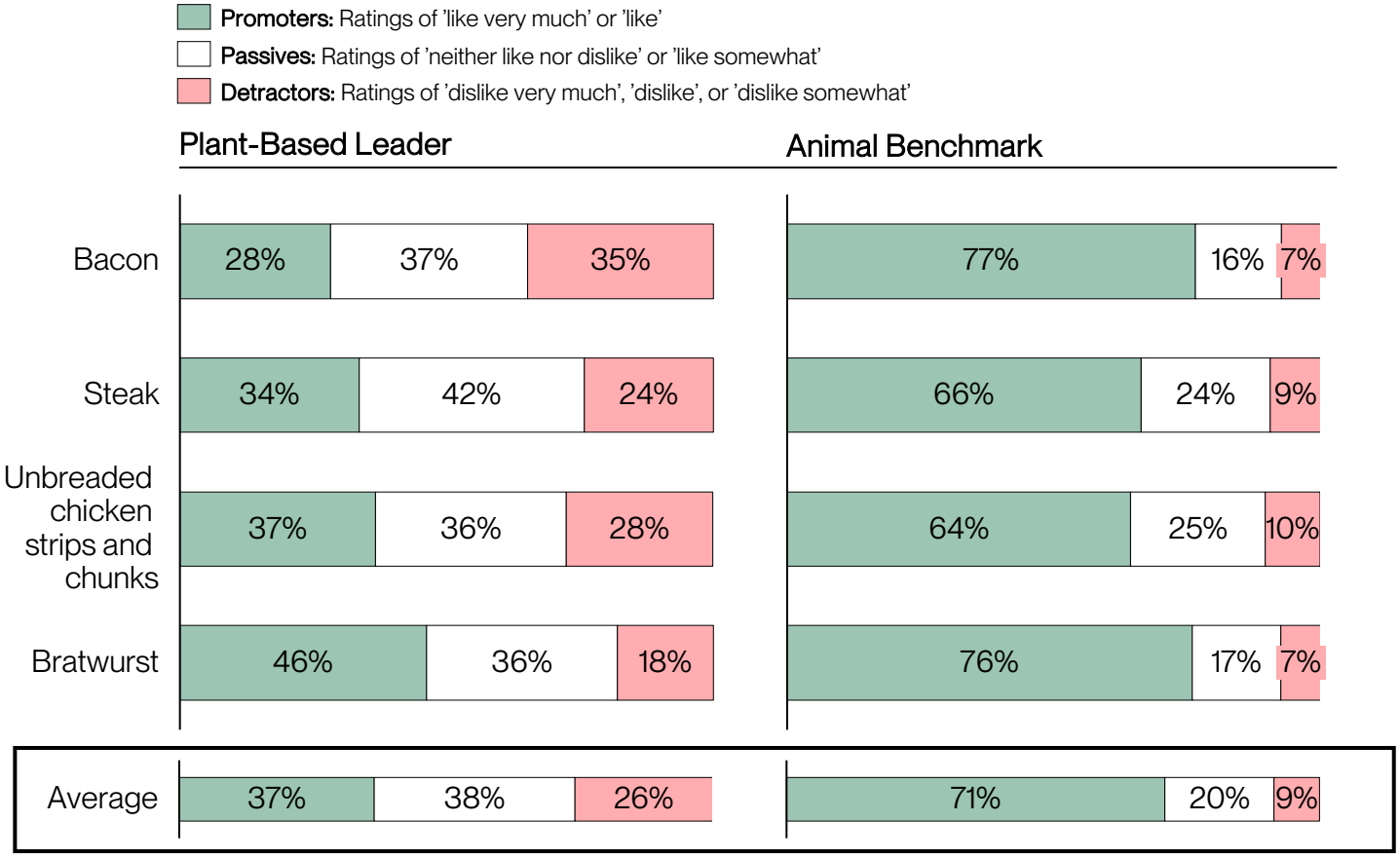
**Dashboard access:** Explore the full dataset here

1. Number of participants was approximately 100 per test (average = 99.4)

# Industry-wide innovation needed in key categories

Categories with the biggest gaps from leader to average products

**How would you rate your OVERALL LIKING of XXX?,** % of participants (N=100)[1]




## Takeaways

### Even leader products had large gaps in liking compared to the animal benchmark in many categories

- Just 37% rated the plant-based leader as 'like very much' or 'like,' versus 71% for the animal

### Upstream innovation in ingredients or processing could close gap

- Lack of strong leader products indicates consistent challenges faced across manufacturers

### Whitespace for leader product to emerge and grow the market

- No leader product is currently performing closely to the animal in the categories above

**Dashboard access:** Explore the full dataset here

1. Number of participants was approximately 100 per test (average = 99.4)

# Opportunity to target early adopters while overcoming resistant segments in the long term

**Most interested in plant-based meat**

- Middle-aged consumers (35-55)
- Females
- Flexitarians
- Consumers prioritizing health

**Least interested in plant-based meat**

- Younger consumers (18-35)
- Males
- Consumers prioritizing taste, price, and familiarity

Lower purchase intent — Higher purchase intent

Higher animal preference — Higher plant-based preference

**How likely would you be to purchase XXX?,** Mean Purchase Intent (1-7)

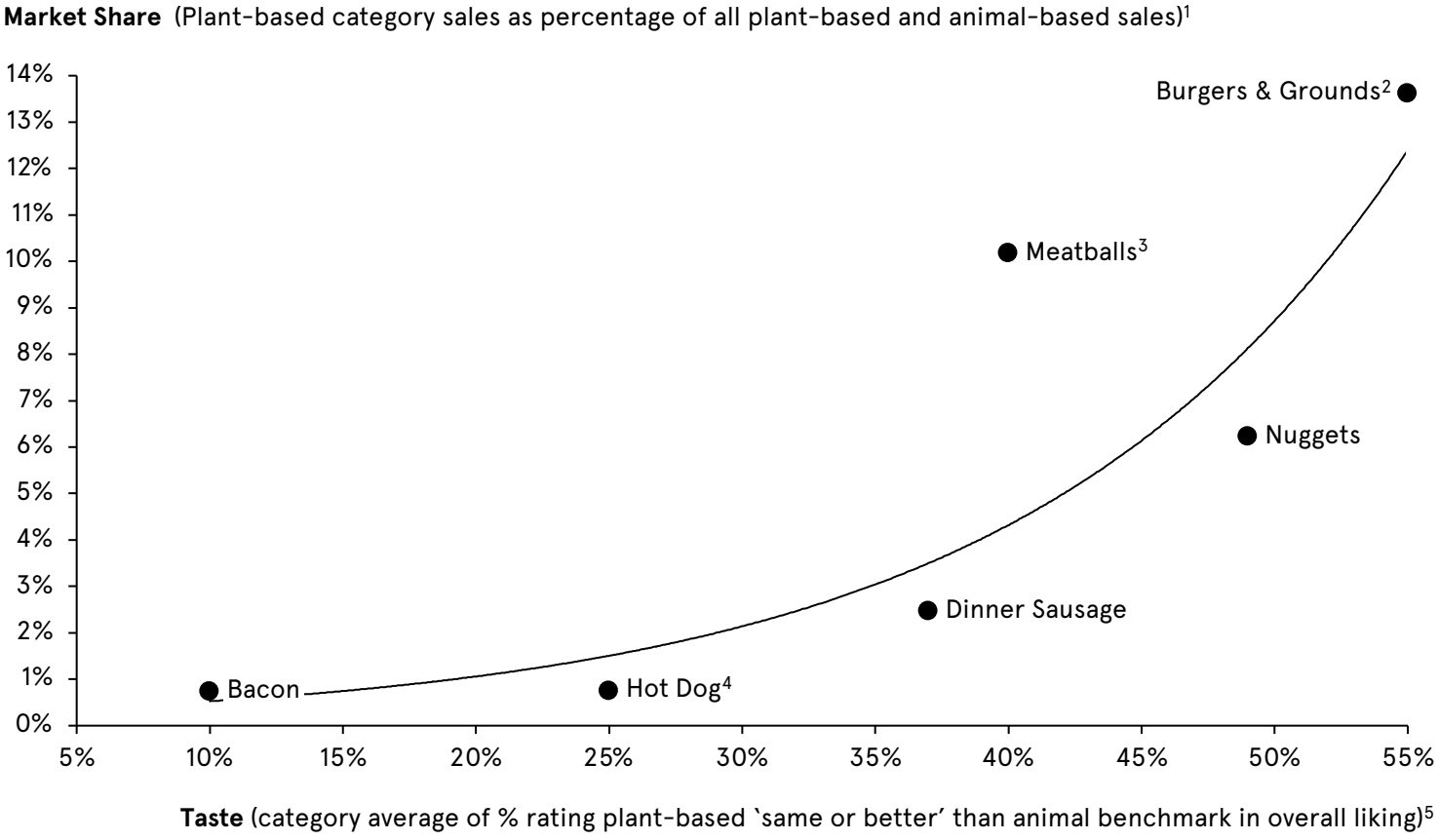
| Demographic | Segment | Plant-based meat product | Conventional meat product | Difference |
|---|---|---|---|---|
| Age | 18-25 | 4.6 | 5.8 | -1.2 |
| | 26-35 | 4.7 | 5.9 | -1.2 |
| | 36-45 | 4.8 | 5.7 | -0.8 |
| | 46-55 | 4.8 | 5.7 | -0.9 |
| | 55+ | 4.7 | 5.7 | -1.0 |
| Gender | Male | 4.7 | 5.9 | -1.2 |
| | Female | 4.8 | 5.7 | -0.9 |
| Dietary Preference[1] | Omnivore | 4.6 | 5.3 | -1.3 |
| | Flexitarian | 5.2 | 5.9 | -0.1 |
| Education | Some high school | 4.2 | 5.5 | -1.3 |
| | High school | 4.4 | 5.6 | -1.2 |
| | Some college | 4.5 | 5.4 | -1.0 |
| | Bachelor's degree | 4.9 | 6.0 | -1.0 |
| | Master's degree | 4.8 | 5.8 | -1.0 |
| | PH.D or higher | 4.5 | 6.1 | -1.5 |
| | Trade school | 4.5 | 5.9 | -1.5 |
| Consumption Drivers | Health | 4.9 | 5.7 | -0.8 |
| | Price | 4.6 | 5.8 | -1.2 |
| | Taste | 4.7 | 5.8 | -1.1 |
| | Convenience | 5.0 | 5.8 | -0.9 |
| | Familiarity | 4.2 | 5.6 | -1.4 |
| | Environment | 4.9 | 5.7 | -0.8 |
| | Animal welfare | 4.6 | 5.2 | -0.5 |

**Dashboard access:** Explore the full dataset here

1. Omnivores are defined as eat meat 'regularly' while flexitarians eat meat 'only occasionally.'

# Better-tasting categories capture more share from the animal

Relationship between 2024 Retail Sales Data and Sensory Performance in 2025 TOTI




## Takeaways

### Increase in product quality leads to greater category penetration

- Burgers, Meatballs, and Nuggets have 5-15x greater market penetration than lower performing categories like Bacon and Hot Dogs

### Categories that fail to perform comparably with the animal product have much lower sales

- Categories that were only rated the 'same or better' than the animal product by 25% of participants have captured less than 1% of the market (e.g., bacon, hot dogs)

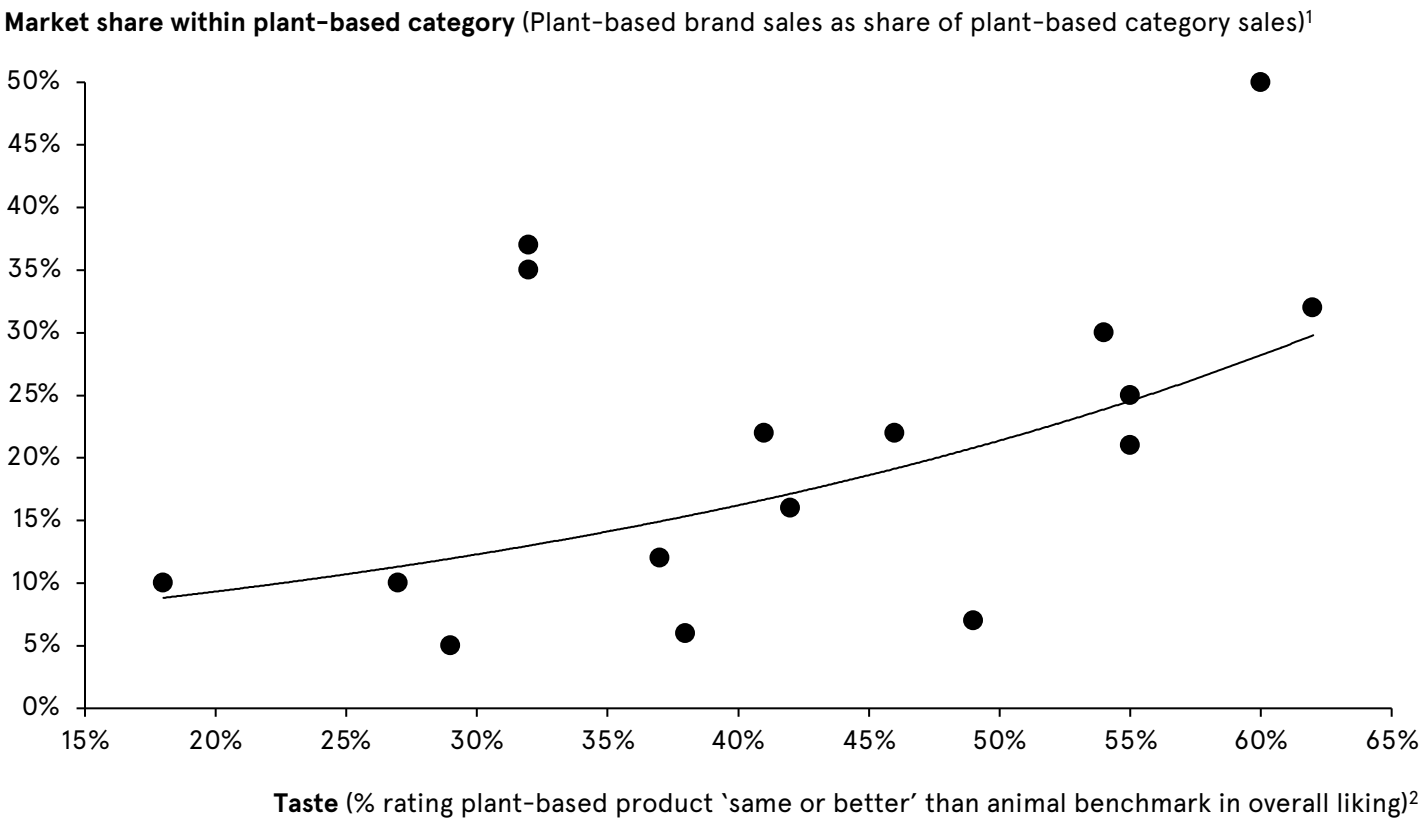
**Dashboard access:** Explore the full dataset here

**Source:** NECTAR 2025 TOTI Sensory Database; Online Sources covering Retail Data; Team Analysis

1. Calculated as the total plant-based sales of the product category in retail divided by the total retail sales of the product category (animal and plant-based)
2. Categories combined to account for variation in consumer habits for buying pre-formed burgers versus shaping the patties from grounds
3. Likely overrepresents plant-based penetration since it only includes pre-made animal meatballs (excluding all meatballs formed from grounds)
4. Excludes products launched in 2025 since sales data is from 2024
5. Calculated as the percentage of consumers rating the plant-based product the same or better than the animal on overall liking

# Better-tasting products sell more than their plant-based competitors

Relationship between 2024 Retail Sales Data and Sensory Performance in 2025 TOTI




## Takeaways

### Investment in R&D has strong financial returns

- Sales increased $1.5M for every 5% increase in 'same or better' rating in overall liking[3]

### The plant-based leaders captured >1.5x more sales than other plant-based products

- Average market share was 28% for plant-based leaders (versus 18% for other products)

**Dashboard access:** Explore the full dataset here

**Source:** NECTAR 2025 TOTI Sensory Database; Online Sources covering Retail Data; Team Analysis

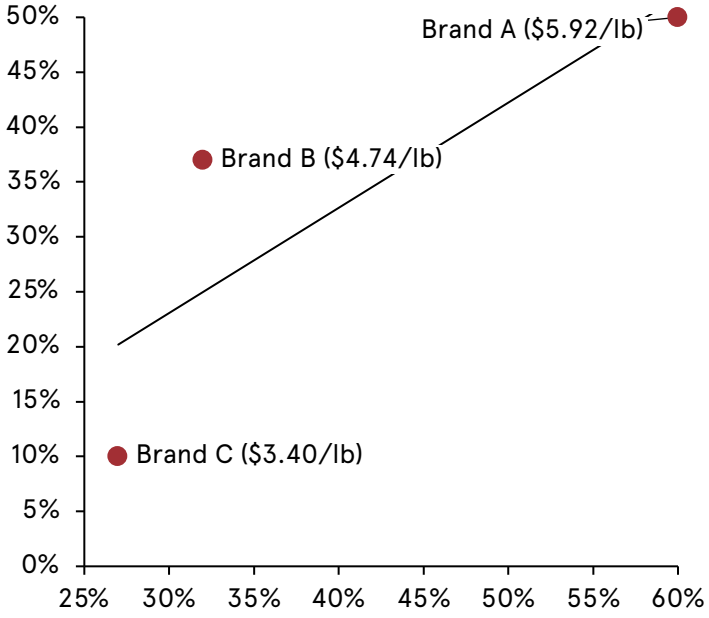
1. Calculated by as the total plant-based sales of the brand divided by the total retail sales of the plant-based product category
2. Calculated as the percentage of consumers rating the plant-based product the same or better than the animal on overall liking
3. Calculated by extrapolating a linear relationship between taste and price which showed that a 5% increase in the 'same or better' rating led to 2.6% increase in market share within the plant-based category, equivalent to $1.6M assuming an average market size of $62M

# Case study: Meatballs and Nuggets

Better tasting products capture more market share

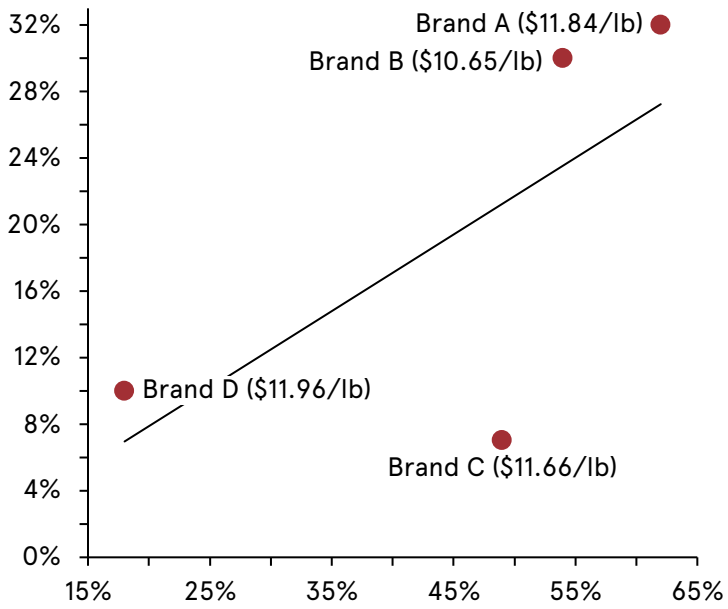
Relationship between 2024 Retail Sales Data and Sensory Performance in 2025 TOTI

**Market Share**[1]
(Brand sales as % of all plant-based meatball sales)




**Taste**[2]
(category average of % rating plant-based 'same or better' than animal benchmark in overall liking)

**Market Share**[1]
(Brand sales as % of all plant-based nugget sales)




**Taste**[2]
(category average of % rating plant-based 'same or better' than animal benchmark in overall liking)

# Takeaways

## Investment in R&D has strong financial returns

- Sales increased $2.1M for every 5% increase in 'same or better' overall liking rating in the nuggets category[3]
- Sales increased $1.4M for every 5% increase in 'same or better' overall liking rating in the meatball category[3]

## Tastes outweighs price in the meatball category

- Higher-performing meatballs outperform lower-performing products despite being more expensive

**Dashboard access:** Explore the full dataset here

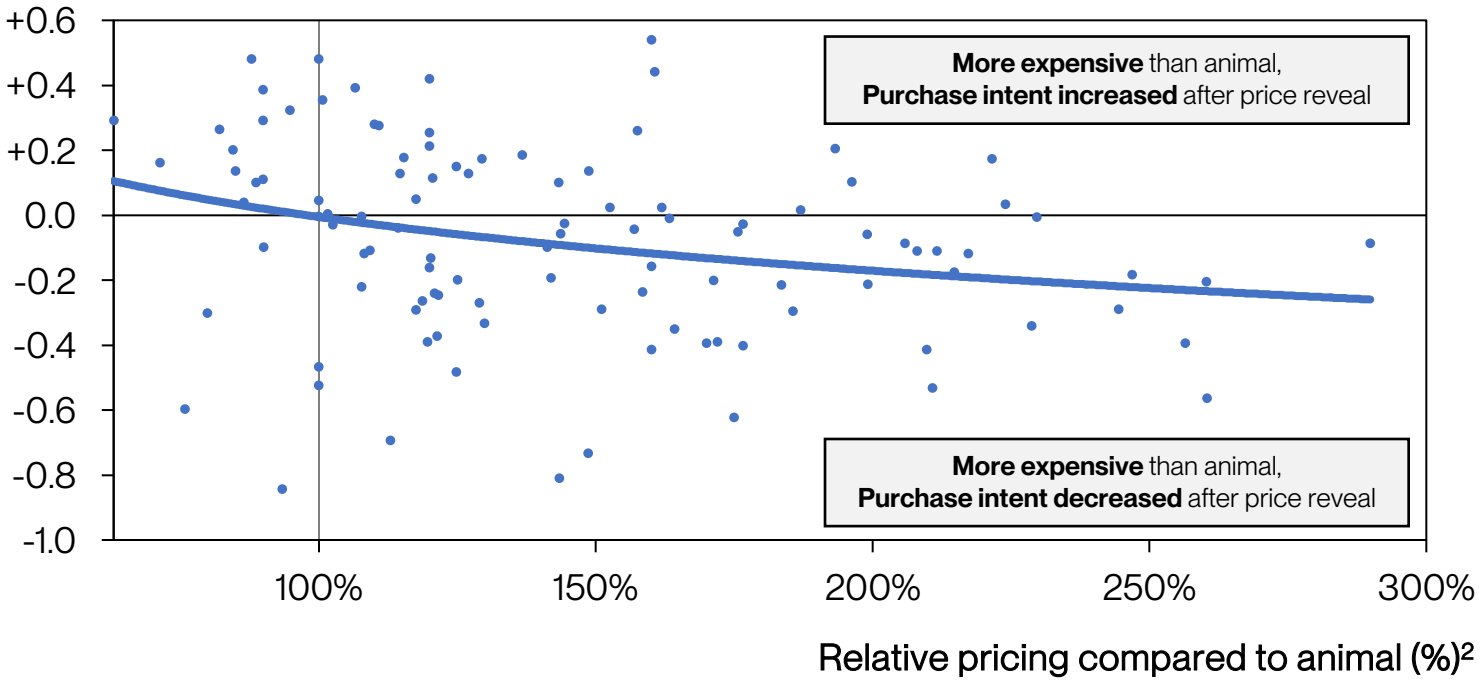
**Source:** NECTAR 2025 TOTI Sensory Database; Online Sources covering Retail Data; Team Analysis

1. Calculated by as the total plant-based sales of the brand divided by the total retail sales of the plant-based product category
2. Calculated as the percentage of consumers rating the plant-based product the same or better than the animal on overall liking
3. Calculated by extrapolating a linear relationship between taste and price. It showed that a 5% increase in the 'same or better' rating led to 4.9% increase in market share within the plant-based meatball category, equivalent to $1.4M assuming an average market size of $29M. It showed a 5% increase in the 'same or better' rating led to 2.3% increase in market share within the plant-based nugget category, equivalent to $2.1M assuming an average market size of $90M

# Price had a limited impact on purchase intent

Stated Purchase Intent after revealing in-store price and package weight alongside the animal benchmark

Change in purchase intent (mean difference)[1]




**Note:** Data may underweight impact of price since evaluation was conceptual

## Takeaways

### Price had a limited impact on purchase intent

- Overall changes in purchase intent as price increased or decreased were fairly small, ranging from +0.6pts to -0.9pts at maximum

### Consumers struggle to evaluate price difference when package weights vary

- Low correlation coefficient for relationship between relative pricing and change in purchase intent

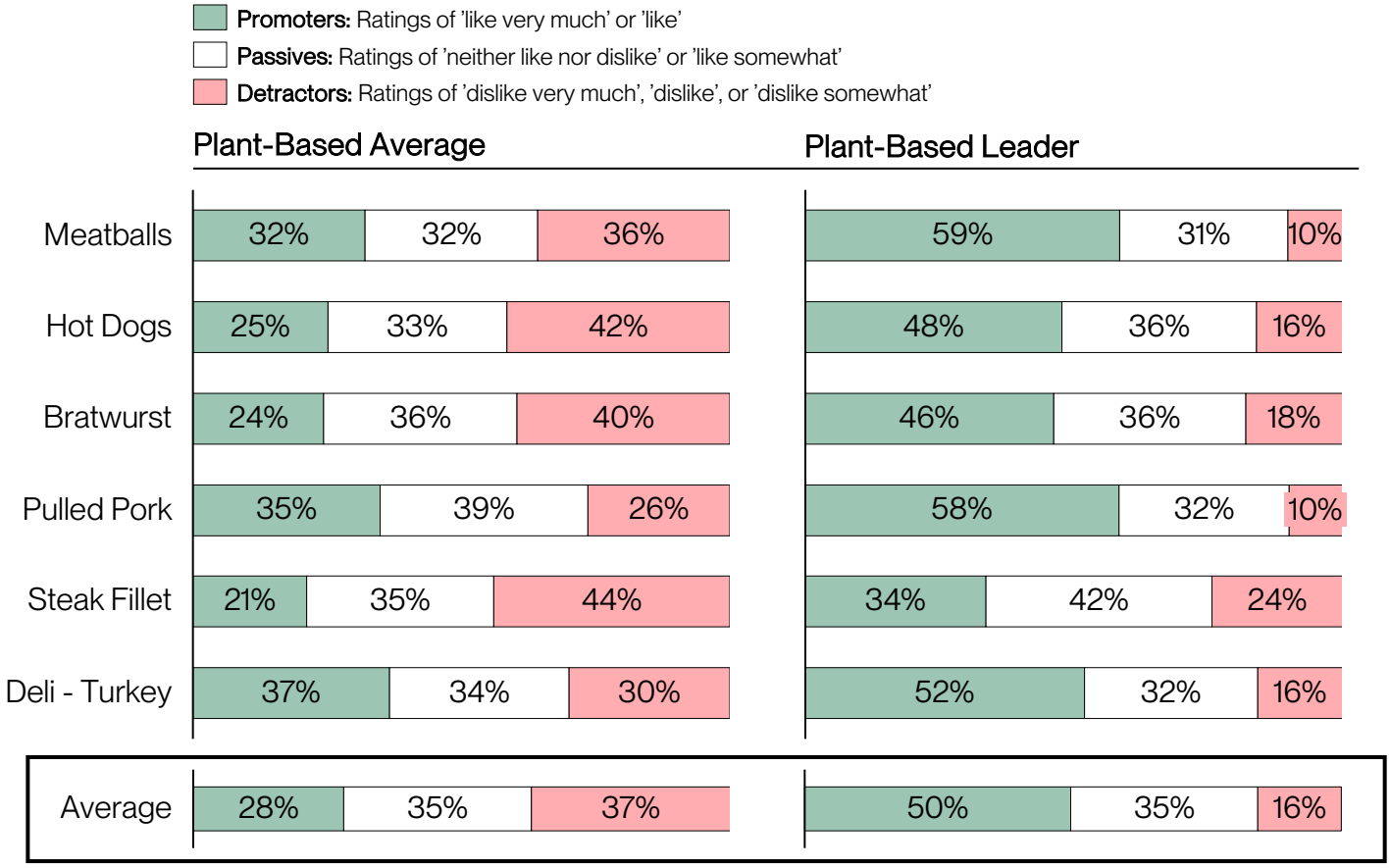
**Dashboard access:** Explore the full dataset here

1. Calculated by comparing Mean Expected Purchase Intent and Purchase Intent after Pricing Reveal. Mean Expected Purchase Intent is projected using historical data comparing overall liking ratings and purchase intent ratings.
2. Calculated as Price of Animal Product per Gram divided by Price of Plant-Based Product per Gram. Pricing data pulled from comparable stores on Instacart or other websites as needed. When not available, manufacturers were consulted on expected price differences.

# Improvement is achievable

Categories with the biggest gaps between leader to average products

**How would you rate your OVERALL LIKING of XXX?,** % of participants (N=100)[1]




# Takeaways

## Large gaps between average and leading products show improvement is feasible

- Plant-based leaders were rated 'like very much' or 'like' by 50% of participants, versus just 28% for the average plant-based product

## Flavor provided an opportunity for leading products to differentiate

- Categories with bolder flavors had bigger gaps in liking between the average and leading products

## More R&D needed in beef and pork relative to chicken

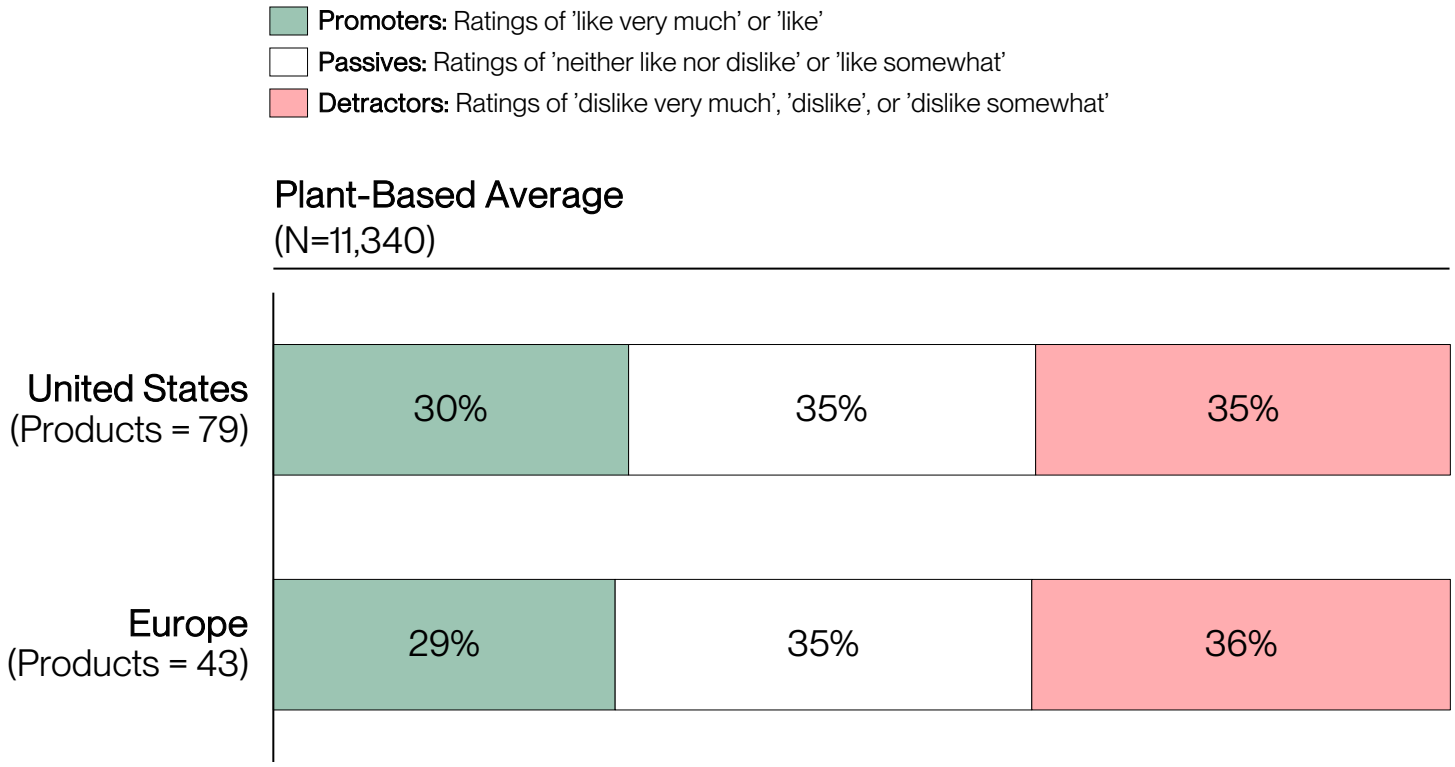
- No chicken products appeared amongst the products with big gaps from the average to leader

**Dashboard access:** Explore the full dataset here

1. Number of participants was approximately 100 per test (average = 99.4)

# European and US products are equivalent in overall liking

**How would you rate your OVERALL LIKING of XXX?,** % of participants




## Takeaways

### European and American products were equally liked

- No meaningful differences in liking for products based on region

### Limited differences in taste preferences between US and EU consumers likely

- Equivalent performance of American and European products indicates that IP is exportable

### European products can compete in the US market

- Though developed in Europe, these products performed equally well with American consumers as products developed in the United States

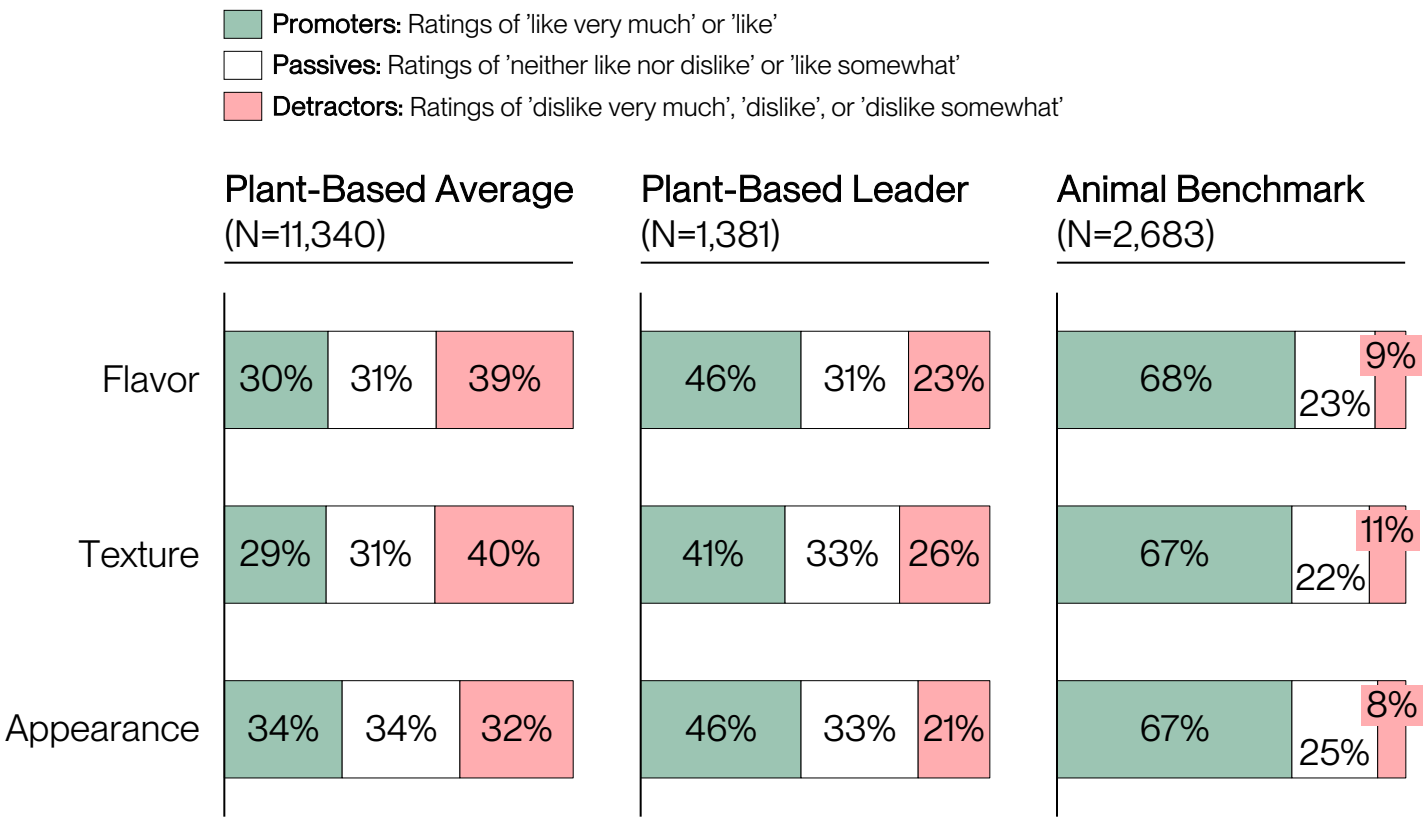
**Dashboard access:** Explore the full dataset here

Product Development Opportunities

# R&D Roadmap to grow sales

# Improvements to flavor and texture should be prioritized

**How would you rate your OVERALL LIKING of XXX?,** % of participants




## Takeaways

### Leading plant-based products tend to differentiate against average products on flavor

- The gap in share of promoters (ratings of 'like very much' or 'like') from the plant-based average to the plant-based leader was largest on flavor (1.5x more 'promoters')

### Texture improvements are the biggest opportunity for the plant-based leader to close the gap to the animal benchmark

- Texture was rated lower than flavor and appearance for the plant-based leader

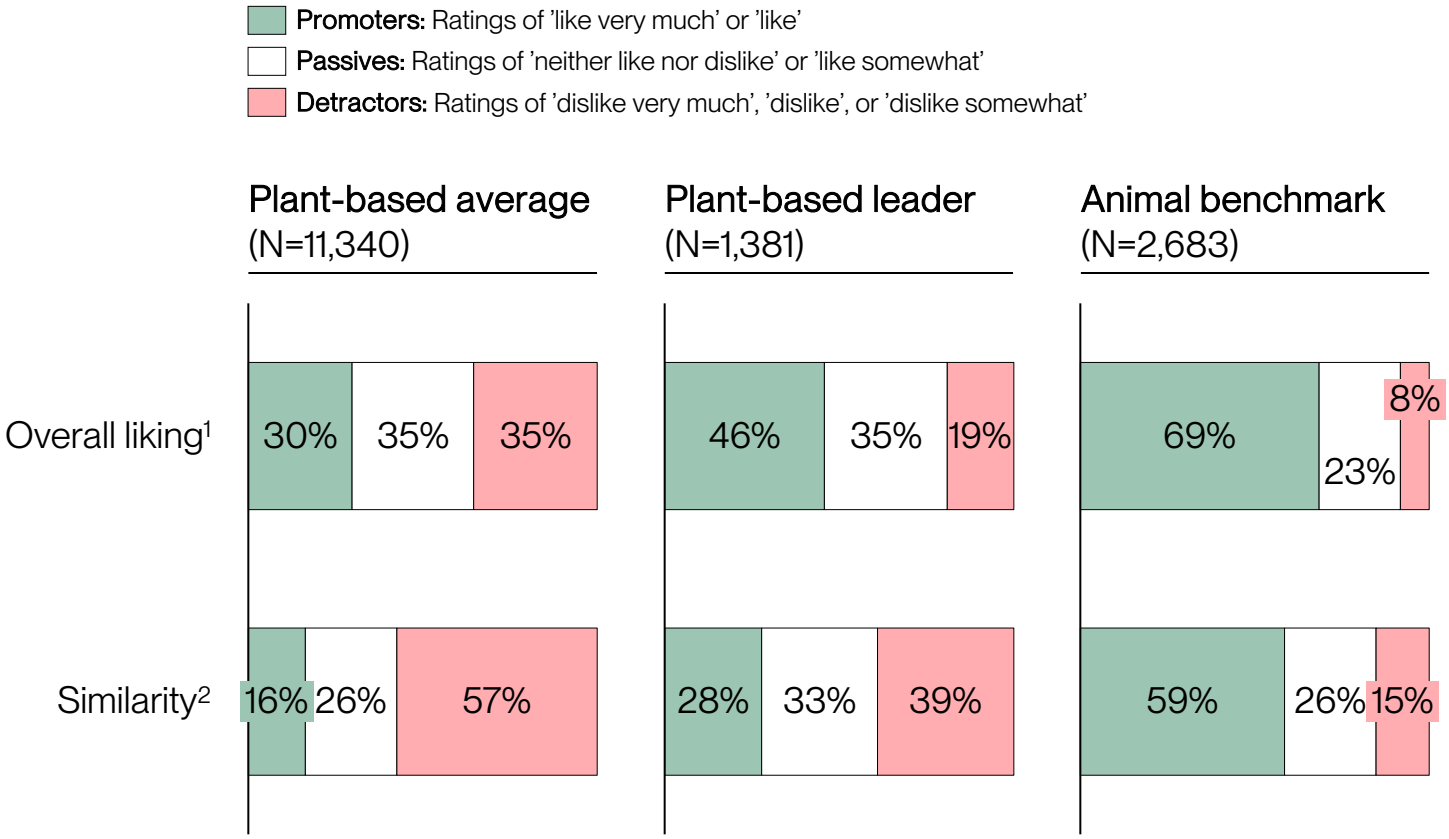
### Appearance is the lowest priority for R&D

- Appearance was rated higher than flavor or texture for the plant-based average

**Dashboard access:** Explore the full dataset here

# Similarity remains a challenge, even for leading products

Comparison between similarity and liking ratings




## Takeaways

### Further improvement is needed to truly mimic animal products, even for leading products

- Just 28% rated the leading products as 'very similar' or 'similar' while 39% rated them dissimilar to some degree
- The gap in similarity between leading plant-based products and the animal benchmark was much larger than the gap in liking

### Products can be liked without being similar

- Nearly twice as many participants rated products as 'like very much' or 'like' than rated products 'very similar' or 'similar'

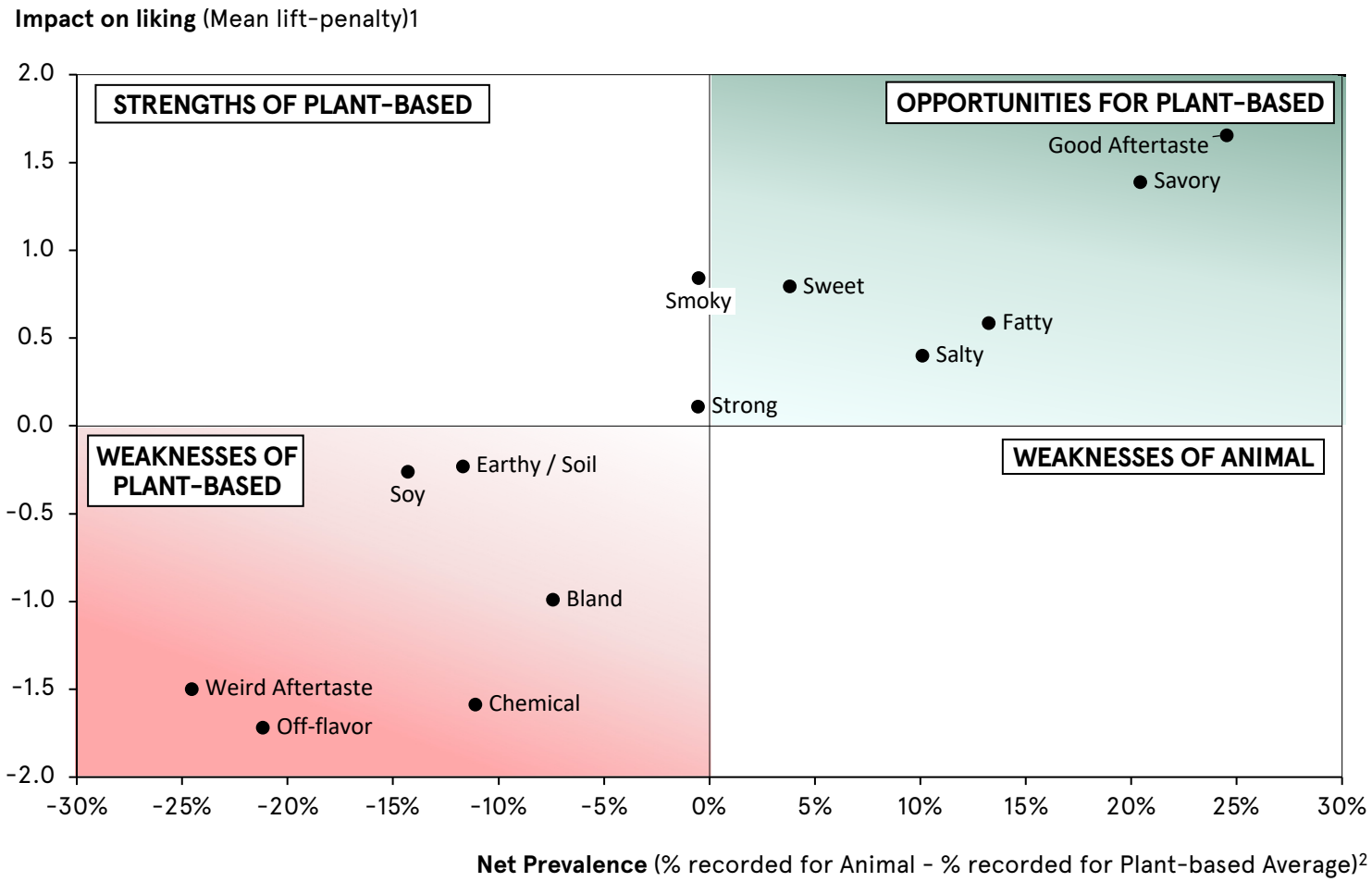
**Dashboard access:** Explore the full dataset here

1. Responses to: How would you rate your OVERALL LIKING of XXX?
2. Responses to: How SIMILAR is XXX to [product category] you typically consume?

# **Flavor:** Top R&D Opportunities

Prioritization framework for identifying differences in sensory profile that have a large impact on liking

**Penalty analysis on flavor using check-all-that-apply responses,** Mean drop/lift and Prevalence




**Explore category-level penalty analysis and qualitative feedback here.**

# Takeaways

## Top opportunities to improve flavor of plant-based products are:

### Very high impact

- Improve aftertaste
- Increase savoriness
- Reduce off-flavors

### High impact

- Reduce chemical-like flavors

### Moderate impact

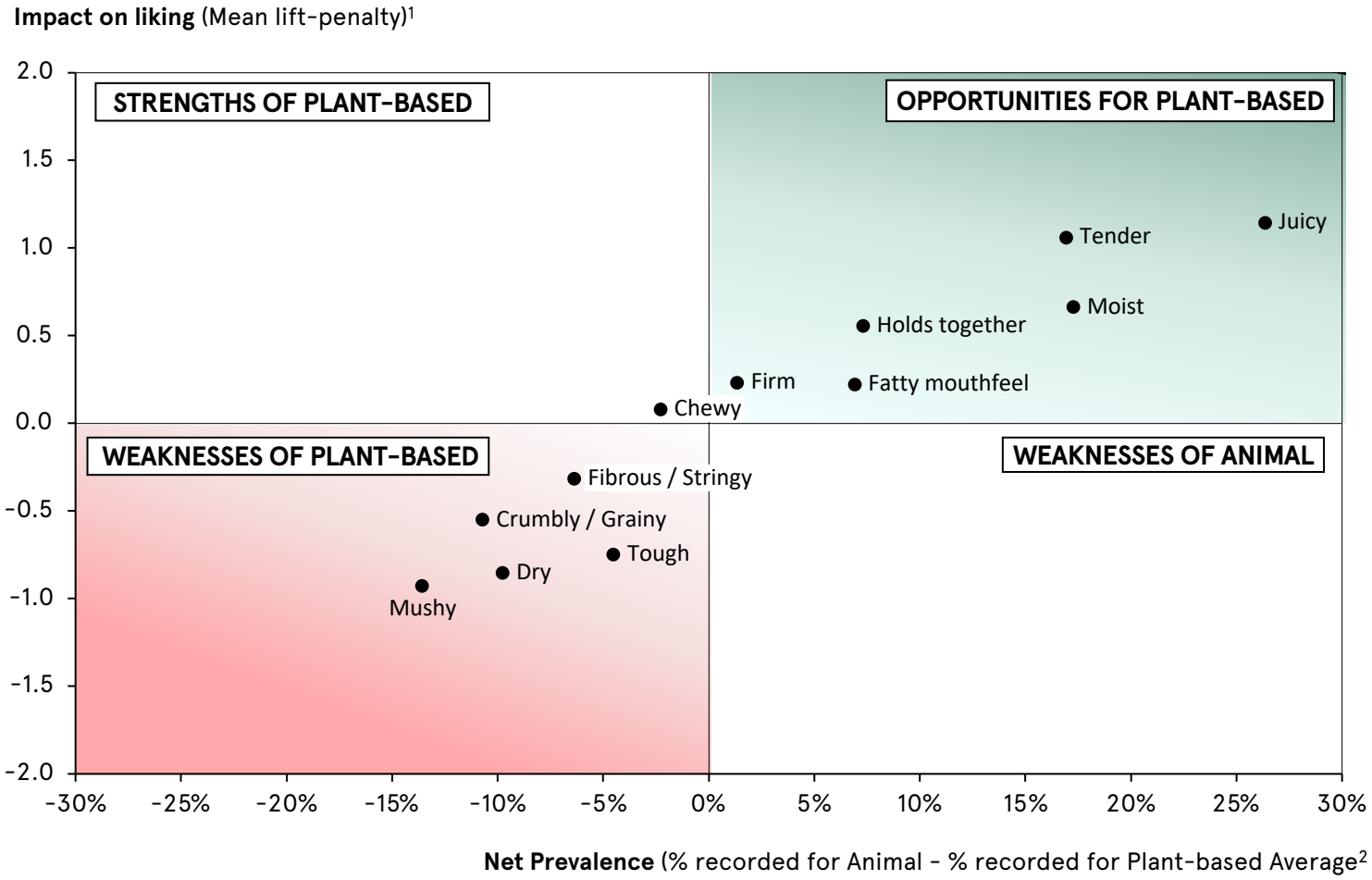
- Increase fattiness
- Increase saltiness
- Reduce blandness

1. The average change in overall liking on 7pt scale for products for all responses using the relevant attribute as a descriptor compared to the mean liking for all products tested in this category. Calculated as mean liking of products with the associated response minus mean liking of all products for all responses.
2. Calculated as the share of participants selecting that attribute for the animal minus the share of participants selecting that attribute for the plant-based product

# **Texture:** Top R&D Opportunities

Prioritization framework for identifying differences in sensory profile that have a large impact on liking

**Penalty analysis on flavor using check-all-that-apply responses,** Mean drop/lift and Prevalence




**Explore category-level penalty analysis and qualitative feedback here.**

# Takeaways

## Top opportunities to improve texture of plant-based products are:

**Very high impact**

- Increase juiciness

**High impact**

- Increase tenderness
- Reduce mushiness

**Moderate impact**

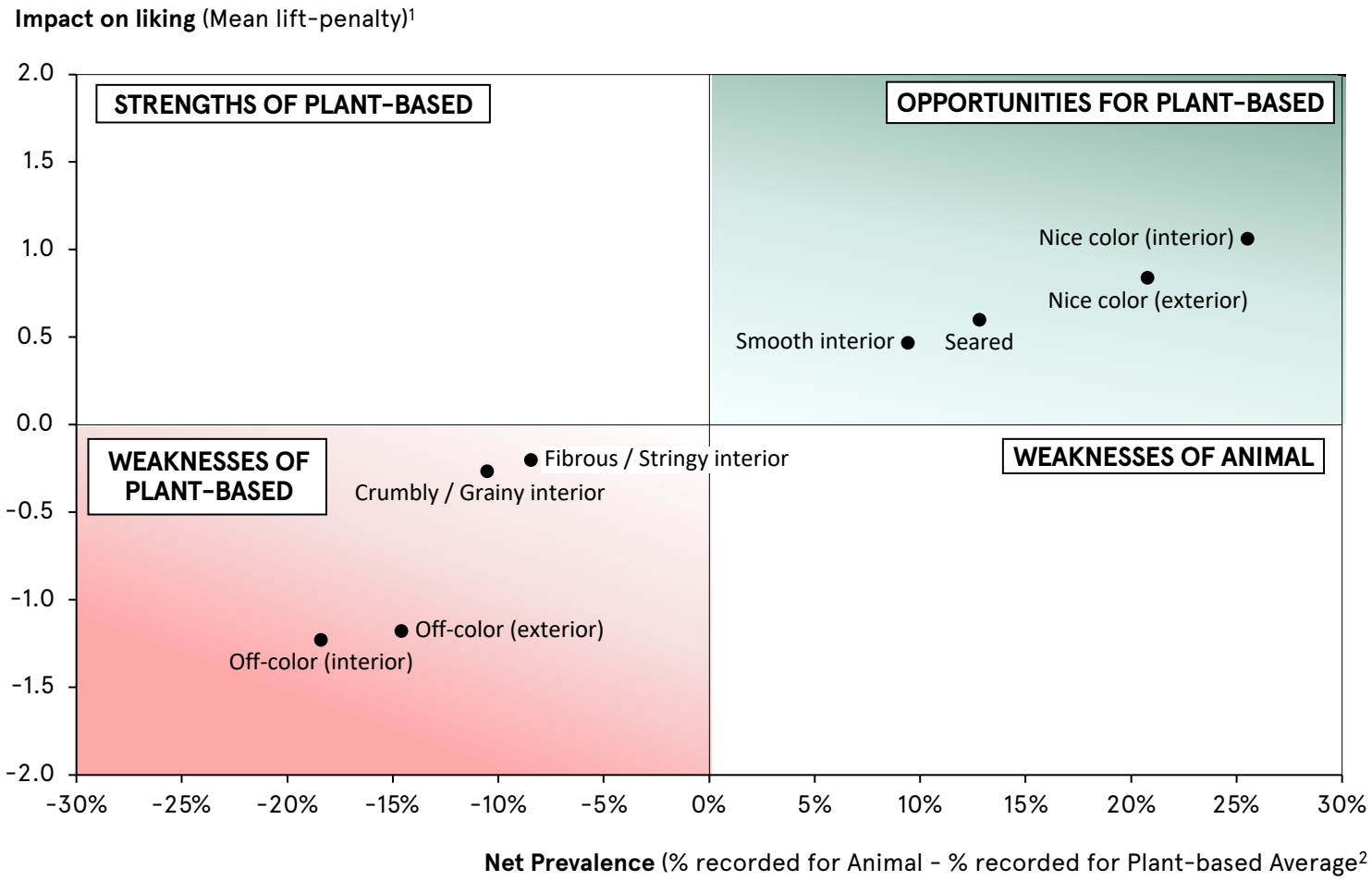
- Increase moistness
- Reduce dryness
- Reduce crumbliness / graininess

1. The average change in overall liking on 7pt scale for products for all responses using the relevant attribute as a descriptor compared to the mean liking for all products tested in this category. Calculated as mean liking of products with the associated response minus mean liking of all products for all responses.
2. Calculated as the share of participants selecting that attribute for the animal minus the share of participants selecting that attribute for the plant-based product

# **Appearance:** Top R&D Opportunities

Prioritization framework for identifying differences in sensory profile that have a large impact on liking

**Penalty analysis on flavor using check-all-that-apply responses,** Mean drop/lift and Prevalence




**Explore category-level penalty analysis and qualitative feedback here.**

# Takeaways

## Top opportunities to improve appearance of plant-based products are:

**Very high impact**

- Improve interior color

**High impact**

- Improve exterior color
- Improve searing

**Moderate impact**

- Create smoother interior

1. The average change in overall liking on 7pt scale for products for all responses using the relevant attribute as a descriptor compared to the mean liking for all products tested in this category. Calculated as mean liking of products with the associated response minus mean liking of all products for all responses.
2. Calculated as the share of participants selecting that attribute for the animal minus the share of participants selecting that attribute for the plant-based product

# The nutrition profiles of plant-based products generally led to slight increases in purchase intent

Impact of nutrition on product performance and purchase intent

Lower — Higher

| Characteristic of nutrition panel | Change in purchase intent after nutrition panel reveal (mean difference)[1] | Impact on overall liking (mean difference)[2] | Relevance to consumers (% selected)[3] | % of plant-based products with attribute |
|---|---|---|---|---|
| Calories: 0 - 120 | 0.4 | -0.2 | 15% | 24% |
| Dietary fiber: 3 - 5g | 0.2 | 0.1 | 7% | 29% |
| Total fat: 0 – 7g | 0.2 | -0.2 | 15% | 36% |
| Sodium: 150 – 330mg | 0.2 | -0.1 | 25% | 23% |
| Protein: >15g | 0.1 | 0.0 | 25% | 40% |
| Few ingredients | 0.1 | NA | 6% | NA |
| Protein: 10g – 15g | 0.1 | 0.2 | 26% | 30% |
| Lots of ingredients | -0.1 | NA | 10% | N/A |
| Total fat: >12g | -0.2 | 0.1 | 16% | 27% |
| Unrecognizable ingredients | -0.2 | NA | 12% | NA |
| Sodium: >600mg | -0.4 | 0.1 | 33% | 13% |

## Takeaways

### Protein and Sodium are most relevant

- Sodium and protein, regardless of the quantity, were most relevant
- Protein levels above 10g were frequently notice by consumers and were associated with increases in purchase intent

### Lower fat and calorie levels may be appealing but are also associated with lower product performance

- While both attributes led to a higher purchase intent (+0.2 to +0.4), they were also associated with a lower overall liking score by about the same magnitude (-0.2)

**Dashboard access:** Explore the full dataset here

1. Participants were surveyed on purchase intent after trying the product, then given the nutrition label for that product, and surveyed again on purchase intent to isolate the impact of nutrition facts on purchase intent
2. Difference in overall liking between products that include the corresponding attribute and the mean liking across all plant-based products
3. Percentage of the time the nutrition attribute was included and explicitly selected as a factor for purchase intent rating. Answer options were more generalized instead of including specific quantities (e.g., "Calorie count" or "Amount of protein")

# Most ingredients are overlooked while a few meaningfully impact purchase intent

Impact of ingredients on product performance and purchase intent

Lower — Higher

| Characteristic of nutrition panel | Change in purchase intent after nutrition panel reveal (mean difference)[1] | Impact of ingredient inclusion on overall liking (mean difference)[2] | Relevance to consumers (% selected)[3] | % of plant-based products with attribute |
|---|---|---|---|---|
| Potato | 0.5 | 0.2 | 13% | 30% |
| Mushroom | 0.5 | -0.3 | 25% | 12% |
| Mycelium | 0.4 | -0.7 | 13% | 3% |
| Coconut Oil | 0.4 | 0.0 | 7% | 30% |
| Pea | 0.1 | 0.0 | 16% | 43% |
| Soy | 0.0 | 0.0 | 15% | 66% |
| Sunflower Oil | -0.1 | 0.0 | 6% | 52% |
| Wheat | -0.3 | 0.0 | 10% | 50% |
| Methylcellulose | -0.3 | 0.1 | 6% | 55% |
| Canola Oil | -0.4 | 0.0 | 7% | 49% |

## Takeaways

### Coconut Oil outperformed Sunflower and Canola Oil

- Highest consumer perception with no meaningful impact on taste

### Ingredients had a limited impact on purchase intent for most participants

- No attribute was selected by more than 25% of participants

### Mushroom and mycelium are appealing but underperforming ingredients

- Both were associated with a positive change in purchase intent (0.4-0.5pts) but lower overall liking ratings

**Dashboard access:** Explore the full dataset here

1. Participants were surveyed on purchase intent after trying the product, and then given the nutrition label for that product, and surveyed again on purchase intent to isolate the impact of nutrition facts on purchase intent
2. Difference in overall liking between products that include the corresponding ingredient and the mean liking across all plant-based products
3. Percentage of the time the ingredient was included and explicitly selected as a factor for purchase intent rating

Final Takeaways

# Conclusion

# Conclusion

## Making Sense of the Present

Continued innovation offers a pathway to a more sustainable future

This report demonstrates that taste parity with animal products is within reach—several plant-based meat products already perform remarkably well on overall liking, with some achieving no statistically significant difference from animal products in blind tastings.

As a non-profit and independent sensory research initiative, NECTAR's commitment to objective, bias-free evaluation provides the industry with trustworthy data upon which to base critical decisions. Our blind testing protocols, diverse participant base, world-class advisory board, and rigorous statistical methodologies create a level playing field where products are judged solely on their merits. This approach cuts through marketing claims and industry hype to deliver insights grounded in real consumer experiences that have the potential to drive meaningful impact.

## Taking Action for the Future

Investment in taste-forward innovations delivers tangible returns

The data reveals a compelling business opportunity: better-tasting categories achieve 10x greater market penetration, on average, while leading products within categories capture 1.5x more market share on average.[1] The path forward requires focused R&D efforts and continued investment in product refinement.

For the plant-based category to realize its full potential, all stakeholders must play a role:

- **Brands and manufacturers** must embrace an iterative, taste-centric development approach. The report's pre-competitive sensory insights provide a roadmap for focused innovation where it matters most.
- **Retailers and foodservice operators** should recognize their crucial role as venues for consumers to discover plant-based innovations and prioritize products that deliver on taste claims.
- **Investors and funders** looking for climate solutions would be well-served to consider the outsized impact potential of plant-based products that can achieve mainstream adoption through superior taste.
- **Researchers and academics** can build upon NECTAR's foundational work, using our methodologies and findings to advance understanding of consumer preferences and sensory science in sustainable foods.

To explore how this objective data can inform your strategy or to participate in future research, contact NECTAR's Director Caroline Cotto (caroline@nectar.org).

**Dashboard access:** Explore the full dataset here

1. Based on analysis of NECTAR 2025 TOTI Sensory Database and comparison to Online Sources covering Retail Data for the bacon, hot dog, meatball, and chicken nuggets categories

# Key Stakeholders

## NECTAR

NECTAR is a nonprofit initiative of Food System Innovations dedicated to accelerating the protein transition by leveraging large-scale sensory data to improve the taste of plant-based foods. NECTAR's mission is to empower the alternative protein industry by providing actionable data and fostering collaboration. Through its research and awards programs, NECTAR supports brands in enhancing consumer satisfaction and driving market growth. By focusing on taste, NECTAR aims to drive meaningful market adoption and accelerate the transition to a more sustainable food system. Learn more at www.nectar.org.

## Food System Innovations

Food System Innovations (FSI) is a philanthropic impact platform investing in a humane and sustainable future of food. As an impact platform, FSI is a strategic hub that accelerates change by combining multiple tools and approaches, acting as both a funder and operator, directly implementing programs while empowering others through grants, investments, and capacity building. Learn more at www.fsi.org.

## Palate Insights

Palate Insights is a product feedback platform pioneering authentic, affordable, and agile tools exclusively for the sustainable food industry. Palate helps companies get consumer feedback through pop-up events with their restaurant and grocer partners and chef feedback through their panel of 500+ Executive Chefs. Learn more at www.palateinsights.com.

**Dashboard access:** Explore the full dataset here

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