THE GOOD FOOD INSTITUTE

Alternative Proteins:

2020 Consumer Research Priorities

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Introduction

Project Purpose

The purpose of this document is to create a list of highly actionable consumer research priorities for alternative proteins. The document will serve as a guide for our work and we also hope that this list will serve as a catalyst for social scientists to conduct research on consumer adoption in this area. To compile this list, we first consulted with other researchers in the alternative protein sector and then interviewed plant-based and cultivated meat companies regarding their consumer research needs.

Plant-Based Meat, Eggs, and Dairy

Commercially available for decades but at a critical inflection point due to recent technical innovation, plant-based meat products hold a tremendous potential to reduce demand for conventional meat provided that they meet consumers' desired product expectations and are marketed effectively. Currently a small body of market and scholarly research has examined consumer perceptions of such products. While market shares of plant-based meat, eggs, and dairy are increasing, we know that some consumers still have aversions and barriers to consuming plant-based meat. Research thus far has focused on consumer perceptions of plant-based meat, as well as both the perceived barriers to, and benefits of, these products. We suggest that it would provide the most immediate benefits if questions related to strategies to increase consumption were answered by both survey and experimental research, including:

- Identifying consumer segments to target
- Identifying the most in-demand plant-based meat dishes, attributes, and product types
- Testing the viability of choice architectural strategies in both stores and restaurants
- Developing and testing messaging strategies
- Conducting field case studies of taste tests and restaurant trials

It is imperative to identify the consumer segments most likely to buy plant-based products, what their journeys to plant-based meat consumption look like, and how they make shopping decisions. Answers to these research questions will be immediately actionable for a variety of stakeholders, including retailers, restaurants, manufacturers, entrepreneurs, regulators, and advocacy organizations.

While we consider all of the research questions high priority, answers to the following questions would provide the most immediately actionable insights:

- What are the consumer profiles of the population segments that represent the best opportunity for targeted marketing of plant-based meat, egg, and dairy products?
- What are the underlying attitudes and motivations for purchasing plant-based products?
- What are the most important product attributes (by consumer segment) in a plant-based meat product?
- What are the most effective communication strategies for accelerating consumer adoption of alternative proteins?
- What are the most effective taste/indulgent, meat-like, and healthy positive phrases?
- How does sampling of plant-based foods impact purchasing?

Cultivated Meat and Fermented Egg and Dairy Proteins

We are at a critical juncture where meat produced through cultivation and egg and dairy proteins produced through fermentation will soon be on the market, and yet consumer awareness is relatively low. We therefore have the rare and impactful opportunity to form consumer opinions now. It is far easier to form opinions than it is

to change them, and it is far more effective to lead a narrative than it is to react to others' narratives. To date, most research on cultivated meat has focused on identifying acceptance rates, benefits, and barriers. We now need to turn attention to the pragmatic effort of understanding (and then implementing) the best ways to bring this new food category into the world. Some research should focus on ways to appeal to an early adopter audience (those who will first purchase). However, it is also critically important to research how to form positive awareness among an early majority segment, so they will be primed for purchasing when supply increases and costs decrease. We suggest that the majority of consumer research on cultivated meat should focus on the formation of public opinion and employ a message design approach. Both quantitative and qualitative work would be helpful.

We categorized the cultivated meat consumer research priorities into three sections:

- Consumer segmentation
- Product attributes and development
- Messaging

While we consider all of the research questions high priority, answers to the following questions would provide the most immediately actionable insights:

- Do consumers prefer cultivated meat that is nutritionally identical to conventional meat or nutritionally improved?
- Which hybrid products including cultivated meat would consumers prefer, if at all? (e.g., 100% CM, CM + plant-based, CM + conventionally-produced, a combination of species)
- What is the projected market size for cultivated meat in different geographies?
- What are the best communication strategies for cultivated seafood? (nutrition, contaminants, environmental impact, etc.)
- What is the best (and worst) way to message about each benefit topic? (e.g., health, the environment, and animal protection).

Methodological Considerations

We recommend the following method considerations when conducting research on these topics:

Scope: We see the immediate priority as focusing research efforts on meat and seafood, but there is also utility in studying dairy and eggs. It will be useful for researchers to focus on a specific meat product type, as results may differ for beef, pork, and poultry, and may be especially different for fish and seafood.

Design: We suggest that selection of study design should be guided by the research question at hand. That said, most of the suggested research topics are best suited for an experimental design. For some questions, other methods (e.g., surveys, focus groups, observational studies) may be useful. To maximize ecological validity, we strongly recommend measurement of actual behavior in real-life settings. We have identified methodological recommendations for some but not all research questions.

Sampling: A general population will be useful in some cases. However, we would like to see results broken down by consumer segment (e.g., target demographics such as age, income, dietary habits, region, category attitudes, and restaurant segment usage levels). Consider targeting specific populations that have a higher concentration of early adopter or early majority groups (e.g., flexitarians and millennials). It would also be worthwhile to study these across multiple geographic regions; however, the priority consumer group is the U.S. as well as countries with large populations

Outcome Measures: The findings will be most useful if projects begin with online studies and progress to applied settings and measuring actual dietary behavior. It would be especially useful to test appeal, taste perceptions,

willingness to try, purchase intent, and purchasing behavior. We also recommend the use of additional outcome measures that test for unintended consequences, such as an increase in conventional consumption among certain segments or an increase in certain types of meat over others.

Plant-Based Consumer Research Questions

1. Consumer Segmentation

Q: What are the consumer profiles of the population segments that represent the best opportunity for targeted marketing of plant-based meat, egg, and dairy products?
Sub-questions
How can the general population be profiled into multiple market segments, with each segment characterized by their (1) current dietary patterns, (2) sociodemographics, 3) shopping habits, (4) attitudes toward plant-based eating, and 5) motivations and barriers toward plant-based eating?
What percent of plant-based product sales volume does each group account for, both in retail and foodservice? What does this sales volume suggest about the market value for each segment?
In what plant-based product categories (e.g., meat, seafood, cheese, eggs) and product forms (e.g., nugget, patty, meatballs, sliced deli meat, bacon) are each consumer segment most interested?
To what degree does each segment have a preference for plant-based meat as compared to whole foods-based plant protein?
Is consumer openness to plant-based seafood the same as or systematically different from other forms of plant-based meat?
What are the characteristics of each segment that can be used to develop multiple consumer profiles for targeted marketing?

Q: How do consumers initially come into the plant-based products category? How do consumers progress in category engagement? (consumer journey map) *Recommended methodology: begin with focus groups or interviews*
Sub-questions
What types of plant-based foods(s) serve as a gateway towards greater plant-based eating? Do new entrants retain a preference for these gateway food(s) or do they shift toward other types?
What are the specific motivations and barriers for a first-time trial?
Where was the first trial (e.g., in a restaurant, at their friend's house, sampling in a grocery store)? How important was brand recognition?
How do the journeys of different customer segments compare? Are there typical pathways in which consumers segments shift their dietary patterns (e.g., dietary progression from meat reducer to flexitarian to vegetarian)? Do they exist along a spectrum in which one segment is likely to progress to a different segment?
How price elastic is each consumer segment?
To what extent do social influences impact the decision to start eating plant-based foods?

How do consumers overcome barriers to start eating plant-based foods? What resources do they leverage?
What motivates continued purchase?

2. Product Attributes and Development

2.1 Restaurant Menu - Preferred Dishes

Q: What type of plant-based items would consumers find most appealing on restaurant menus?
Sub-questions
What types of plant-based entrees are consumers most interested in purchasing?
How do these preferred plant-based dishes differ by restaurant type (e.g. QSR, casual, fine dining)?
What are the current top selling menu items or “power dishes”? What does that tell us about the dishes that should be made plant-based?
Which meal occasion (e.g. breakfast, lunch, dinner) scores highest for plant-based entree purchase intent?

2.2 Product Attributes (Retail and Restaurant Settings)

Q: In both retail and restaurant settings, what are the most important product attributes (by consumer segment) in a plant-based meat product?
Sub-questions
What product ingredients and flavors are most likely to drive plant-based meal purchasing?
Do plant-based meat products or whole foods plant-based products drive greater purchasing?
What consumer need-states are not currently being fulfilled by existing plant-based products (e.g., low-prep dinner, high protein breakfast, snacks)?
What plant-based products are not yet on the market that have high consumer appeal?
What are the stated and actual product attributes that drive purchasing?
What kind of products/forms are people most willing to substitute with plant-based products?
As indicated by shopalong data, how important is clean label (i.e., simple ingredient list) in driving purchase intent?
How important is the health/nutrition profile in driving purchase intent? Which health attributes are most important?
Which plant-based meat forms (e.g. sausages, burgers, meatballs, etc.) drive greater purchasing?

Q: What is the relationship between health and taste perceptions?
Sub-questions
Does health messaging moderate the effect of taste messaging? Does this effect differ between healthy positive and healthy negative messaging?
What is the best way to optimize messaging such that consumers perceive a product or dish to be both tasty and healthy?

Q: In both retail and restaurant settings, how do plant protein types impact purchase intent?
Sub-questions
To what extent do consumers desire a specific plant protein *exclusion and what are their reasons for this preference*? (e.g., soy-free, gluten-free, no fungi))
To what extent do consumers desire a specific plant protein *inclusion and what are their reasons for this preference*? (e.g., pea protein, soy protein, fungi)

Q: In both retail and restaurant settings, how does consumer acceptance of a conventional meat/plant-blended product compare to a 100% plant-based one?
Sub-questions
How does the appeal of a meat/mushroom hybrid burger compare to both conventional and 100% plant-based burgers?
Does describing the product as a) containing plant ingredients or b) having a reduced meat content impact purchase intent?

3. Choice Architecture and Nudges

3.1 Grocery Location and Signage

Q: How do consumers shop meat and dairy categories in store? How does this inform recommended category placement of plant-based products to increase purchases? *Recommended methodology: shop-along/observational study followed by a quantitative survey*
Sub-questions
In what order do consumers evaluate product characteristics (e.g., do they first decide on brand, usage, type of "meat," format, flavor, or a specific meal)? Which are the most important when deciding what to purchase?
How does this compare to how consumers shop the meat shelf? Are the same product characteristics evaluated in the same order?
How does product placement within the store affect purchasing? (i.e., plant-based meat being in a protein aisle vs. being in a separate vegetarian section)? What are the most effective product placement strategies for each product category and consumer segment?

Q: What is the optimal plant-based protein category in-store signage?
Sub-questions
Does signage increase purchase intent for plant-based products? Or is it highest when plant-based products are mixed in with conventional animal products and not specifically highlighted through signage?
How do consumers react to differently labeled in-store category signage (e.g., meat alternatives, meat substitutes, plant-based meats, plant-based proteins)?

3.2 Restaurants

Q: What is the best way to position plant-based products on a menu?
Sub-questions
What is the effect of listing a plant-based item as default (instead of a conventional meat item)?
What is the effect of offering plant-based items as premium upgrades? (e.g., "Make it plant-based patty for $2 more")
What is the effect of listing plant-based items first in a list of choices?
What is the effect of V or green leaf label?
What is the effect of listing a plant-based menu item as a "chef's recommendation"?

Q: What is the effect of the use of descriptor terms for plant-based products on menus? Note: sub-questions duplicated in packaging section
Sub-questions
What are the most effective Indulgent/taste terms to use on menus? (e.g., salty, peppered, filling, hearty, savory, roasted, seasoned)
What is the most effective plant-based descriptor term to use on menus? (e.g., plant-based, vegan, vegetarian, meat-free, meatless, plant protein, plant-based protein)
What are the most effective protein phrases to use on menus? (e.g., high protein, good source of protein)
What are the most effective meat-like terms to use on menus? (e.g., burger, juicy, barbeque, flame grilled, nuggets, Chik-n, all american)
What are the most effective “healthy positive” phrases to use on menus?

Q: What is the optimal product location in self-serve restaurants?
Sub-questions
What is the effect of placing plant-based items at the beginning of the buffet line?
What is the effect of placing plant-based items adjacent to conventional meat products?

Q: What is the effect of the use of descriptor terms on packaging? Note: sub-questions duplicated in restaurant section
Sub-questions
What are the most effective indulgent/taste terms to use on-pack? (e.g., salty, peppered, filling, hearty, savory, roasted, seasoned)
What are the most effective meat-like terms to use on-pack? (e.g., burger, juicy, barbeque, flame grilled, nuggets, Chik-n, all american)
What are the most effective “healthy positive” phrases to use on-pack?

Q: Certification labeling: What is the effect of certification labels on pack?
Sub-questions
What type of certification label drives the greatest purchase intent? (e.g., vegan certification vs. plant-based certification vs. no certification, environmental certification)

4. Messaging

Q: What are the most effective communication strategies for accelerating consumer adoption of plant-based meat? *Recommended methodology: Integrate theory and empirical testing in a cycle of message design, resulting in the development of an overarching narrative and individualized messages.*
Sub-questions
What is the best narrative to explain plant-based meat to non-technical audiences? Develop and test an overall narrative to explain the process and product to a general consumer audience in an understandable, familiar, and transparent way. Considerations for developing/testing aspects of a narrative: ● What is the most effective nomenclature? ● What are the most effective message frames? ● What are the unifying message frames across consumer segments? ● What is the best way to address barriers? We aim to address these same questions to address other non-plant-based alternative protein choices such as fungi and microflora-produced animal proteins, which are technically not plant-based.

Q: What are the best approaches for messaging the health benefits of plant-based meat? *Recommended methodology: experimental studies testing types of messages, frames, message senders, and message channels*
Sub-questions
What is the most effective way to communicate about health? How do health motivators and barriers differ between meat and seafood?
What is the best way to combine health and sensory appeal messaging to optimize purchase intent?
To what extent do health messages negatively impact taste expectations?
Does sensory appeal/taste moderate the effect of a health message? (i.e., if a product is presented as tasty vs not tasty)
When more immediate benefit cues (e.g., taste/familiarity/convenience) are used as a primary message, can health be an effective secondary message? (i.e., is “scream taste and whisper health” an effective approach?)

Q: What are the best approaches for messaging the *sensory appeal* of plant-based meat?
Sub-questions
What is the most effective way to message about sensory appeal (e.g., indulgent language)?

Q: What are the best approaches for framing *the benefits* of plant-based meat?
Sub-questions
How are consumer decisions impacted by negative messaging of meat (e.g., consuming animal meat increases cholesterol) versus positive messaging about the benefits of plant-based protein (e.g. consuming plant-based meat helps lower cholesterol)?
What is the best approach for messaging about *convenience*?
What is the best approach for messaging about *familiarity*?
What is the best approach for messaging about meal context (e.g., explain how plant-based meat can work well within an entire meal or setting)?

Q: What are the best approaches for *messaging about social norms* around plant-based meat?
Sub-questions
How do dynamic normative messages (showing the popularity and trend) influence plant-based meat consumption?
How do dynamic normative messages differ between positive and negative frames (e.g. everybody is beginning to eat more plant-based meat versus everybody is beginning to eat less conventional meat)?
How is the effectiveness of dynamic normative messages impacted by message source?
What type of messages have "viral capacity" (i.e., ability of message to facilitate word-of-mouth repeat)?

5. Field Case Studies

Q: How does sampling of plant-based foods impact product trial? *Recommended methodology: case study*
Sub-questions
To what extent does sampling drive purchasing? Is in-store or in-restaurant product sampling more effective in driving purchasing?
Does product sampling drive incremental purchasing (e.g., offering a plant-based slider as an appetizer)?

Q: What are the key takeaways from restaurants that have implemented plant-based dishes on their menu? *Recommended methodology: case study, sales data, profitability*
Sub-questions
What contributed to the restaurant's level of success?
How does inclusion of plant-based food offerings impact consumer perception of the restaurant or visits to the restaurant (broken out by consumer segment)?

Q: What are the key takeaways from programs that have successfully influenced institutions to offer more plant-based foods? *Recommended methodology: case study*
Sub-questions
What contributed to the program's level of success in influencing institutions to offer more plant-based foods?

Q: What are the key takeaways from retailers that have shelved plant-based meat, eggs, and dairy products directly adjacent to their conventional counterparts? *Recommended methodology: case study*
Sub-questions
What was the retail sales impact of changing the merchandising location of plant-based meat to be adjacent to conventional meat?
What was the retail sales and impact of changing the merchandising location of other plant-based categories (e.g. cheese, yogurt, butter) to be adjacent to their conventional counterparts?

Cultivated Consumer Research Questions

1. Consumer Segmentation

Q: Early adopters segment: What is the profile or persona of innovators, early adopters, and early majority? *Recommended methodology: Laddering interviews to get a profile of early adopters*
Sub-questions
What are the detailed demographic and attitudinal targeting information for innovators, early adopters, and early majority consumer segments? How price elastic is each segment? What is the market size?
Is consumer openness to cultivated seafood the same as or systematically different from other forms of cultivated meat?
What consumer segments should be targeted first (based on highest purchase intent and price ceiling)?
What is a profile or persona of each target consumer group?
To what degree does purchase intent differ by sociodemographics and geographic regions?
To what degree is each segment concerned about genetic engineering or views cultivated meat in the same category as genetic engineering?
What meat product attributes does each segment value at the point of purchase? To what degree do consumers value the nutritional content of conventional meat, and what are their nutritional expectations for cultivated meat? (e.g., protein values, amino acid content, fat content, omegas)
At the point of purchase, to what degree are consumers concerned about processed or ultra processed foods? What aspects of cultivated meat production is of concern?

2. Product Attributes and Development

Q: Products for early adopters: Which products do early adopters find most desirable?
Sub-questions
Which animal species would early adopters most desire as cultivated meat and seafood? (e.g., beef, chicken, salmon, tuna). What are the underlying reasons for these preferences? What type of end product and experience do consumers prefer for each species (e.g., burgers, grilled fish, beef at a steakhouse). How does this differ by geography and culture?
In which form would early adopters prefer cultivated meat? (e.g., chicken nuggets, burgers, processed/unprocessed)
Do consumers prefer cultivated meat that is nutritionally identical to conventional meat or nutritionally improved? What are the specific added benefits to cultivated meats that early adopters would find desirable, if at all? (e.g., red meat with reduced saturated fat, addition of omega fatty acids)

Which hybrid combination products including cultivated meat would prefer, if at all? (e.g., 100% CM, CM + plant-based, CM + conventionally-produced, a combination of species)

3. Messaging

Q: What are the most effective communication strategies for leading the formation of public opinion about cultivated meat, thus setting the stage for effectively bringing the products to market? *Recommended methodology: Integrate theory and empirical testing in a cycle of message design, resulting in the development of an overarching narrative and individualized messages that effectively lead the introduction of the new food category into the market.* Note: We have already completed a U.S. project on this topic, but replication studies and similar studies in other markets would be helpful.
Sub-questions
What are the best communication tools to explain cultivated meat to non-technical audiences? Develop and test communication tools (e.g., videos, infographics) to explain the process and product to a general consumer audience in an understandable, familiar, and transparent way. Considerations for developing/testing aspects of a narrative: ● What is the most effective nomenclature (i.e., appealing to consumers, neutral, descriptive, differentiating) in English and in other languages? This could include the name for the product, but also nomenclature for aspects of the underlying science and technology. ● What is the best messaging strategy to directly or indirectly address barriers (e.g., fear, naturalness, disgust)? ● What are the best visuals for explaining the process and benefits of the technology? ● What type of messaging overcomes concerns about genetic engineering? ● What are the elements of a narrative that attracts a high end market?
Which aspects of the production process do consumers want to know about? Which inputs do consumers want to know about? (e.g., scaffolding, media, microorganisms). What are consumer attitudes toward animal use in securing a cell line?
What are the best messaging strategies for communicating an exciting and novel eating experience? (e.g., innovative taste profiles, pioneering of the future, status signalling).
What are the trigger points that turn consumer attitudes from neutral to accepting of cultivated meat technology?
Are certain messages better suited for a particular platform? Develop and test the effect of using different communication platforms (e.g., websites, videos, blog) with different target audiences.
What are the best communication strategies to differentiate cultivated meat from plant-based meat?
What are the best communication strategies for cultivated seafood? (nutrition, contaminants, environmental impact, etc.)
What are the best communication strategies to differentiate cultivated meat from conventional meat, while still communicating the sameness of the end-product to conventional meat?
Is it effective to show the benefits of cultivated meat production by making a comparison to conventional meat production?

What are the most effective frames (i.e., storylines or emphasis of some ideas over others) for developing messages about cultivated meat? How do these differ among consumer segments?
What is the best (and worst) way to message about each benefit topic? (e.g., health, the environment, and animal protection). Is there a negative effect of any of these messages?
For a general audience, what types of messaging resonates most within each benefit frame (environment, health, safety, animal protection, other)? How does this differ between cultivated meat and seafood? ● Environmental messaging, e.g., water use, climate change, land use ● Contaminants in seafood, e.g., PCBs, mercury, microplastics, trace metals, trace pharmaceuticals, bioaccumulation ● Health messaging, e.g., bacterial contamination, animal disease, nutrient profile, or antibiotic use ● Safety messaging, e.g., salmonella-free ● Animal protection messaging, e.g., lack of slaughter, problems with conventionally-produced meat ● Other messaging frames such as patriotism and religion

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Keri's research advances the plant-based and cultivated meat market sectors by generating effective messaging that helps consumers make sustainable, healthy, and just food choices. She is also a Visiting Scholar with the School of Social and Behavioral Sciences at Arizona State University (ASU). Keri earned her Ph.D. in Communication from ASU's Hugh Downs School of Human Communication and completed postdoctoral work in Science Communication with ASU's School for the Future of Innovation in Society.

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Caroline works with leading manufacturers and retailers to increase the quality, quantity, and availability of plant-based products. She also advises on marketing and merchandising best practices for the plant-based foods industry. Caroline most recently served as the Director of Marketing for Celestial Seasonings and has held positions in brand management, finance, and consulting. She graduated from the University of Colorado at Boulder with a B.S. in business administration and finance.

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About GFI

The Good Food Institute is a global nonprofit building a sustainable, healthy, and just food system. With expertise across the scientific, regulatory, industry, and investment landscape, we are accelerating the transition of the world's food system to alternative proteins, using the power of food innovation and markets.