Category update on blended meat:

An analysis of the current U.S. market, consumer research, and key challenges, questions, and opportunities.

Photo credit: Choppy!

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An introduction to blended-meat products combining animal and plant ingredients

One emerging category within the alternative protein spectrum is a combination of two distinct product categories: plant-based meat and conventional meat. These are products in which some amount of conventional meat is reduced in favor of plant-based (or other alternative protein) ingredients, commonly referred to as "blended meat." In this white paper, we discuss types of blended-meat products on the market today (or that could be introduced in the near future), the current state of consumer insights, and open questions and potential research.

***A note on nomenclature:** Like with many new food categories, the language used to describe these products may evolve as more producers and products enter the market and more feedback is captured from consumers.*

For the sake of consistency, in this white paper we refer to products produced using a combination of alternative protein and conventional meat explicitly by their product components or otherwise as "blended meat."

Photo credit: Momentum Foods

Category context

The rapid growth of the alternative protein industry in the last decade has been driven by approaches that appeal to omnivores. Yet today, plant-based meat makes up approximately 1% of total meat sales in the United States, fermentation-derived products are just making their way to consumers, and cultivated meat is being sold in just a handful of locations across the globe. While these technologies scale and products continue to progress toward taste and price parity, other potential solutions, including combining conventional meat and alternative proteins, are gaining more attention. Despite not yet having widespread distribution or market appeal in the United States, blended meat may be able to capitalize on the interest of a third of U.S. consumers trying to reduce their meat consumption.

> *Among plant-based meat purchasing households, 95% also purchase conventional meat.*

There are three key consumer insights that underpin blended meat's potential:

Most consumers are meat-eaters

The vast majority, 97% of U.S. households, consume conventional meat. The retail conventional meat category alone is estimated to be worth well over $100 billion in 2023. In a 2022 Mintel report, 77% of U.S. consumers stated the belief that meat is a key component of an American diet. Additionally, among plant-based meat purchasing households, 95% also purchase conventional meat. While it's clear that meat consumption is ubiquitous in the United States , a subset of consumers do express interest in reducing their intake.

Many consumers are interested in reducing meat consumption

According to research from FMI, 33% of U.S. consumers say they are trying to reduce their meat and poultry intake (up from 28% in 2022). This appears to be primarily aspirational however as a December 2023 survey conducted by Morning Consult on behalf of GFI found that only 10% of consumers reported eating less meat in 2023. The same survey conducted by Morning Consult found that 59% claim to consider the negative health effects of meat consumption when choosing whether to eat it or not. The majority also consider the treatment of animals (56%), use of antibiotics (55%), and risk of foodborne illness (55%) in their decision. These data points reflect a sizable group of consumers looking to reduce their meat consumption, but only if the products filling in can meet their needs.

A majority of consumers want products that taste like conventional meat

An August 2023 survey conducted by Morning Consult on behalf of GFI found that the leading reasons for not trying plant-based meat again or for the first time were taste concerns (51% of lapsed consumers cited this) and a mere preference for conventional meat (44% of lapsed consumers cited this). According to FMI's report, 59% of consumers say they prefer that plant-based meat and seafood products taste, look, and feel like their conventional counterparts. Matching the meat experience appears crucial to reaching the omnivore market, a necessary step in achieving large-scale meat reduction.

It's these factors in combination that indicate there could be an opening for products combining conventional meat and alternative proteins that offer some of the benefits consumers are looking for from alternative protein products while still offering the familiarity, taste, and experience of eating conventional meat.

This report will look closely at the current market for these products in the United States, the latest consumer research, and discuss open questions and research topics relevant to the category going forward.

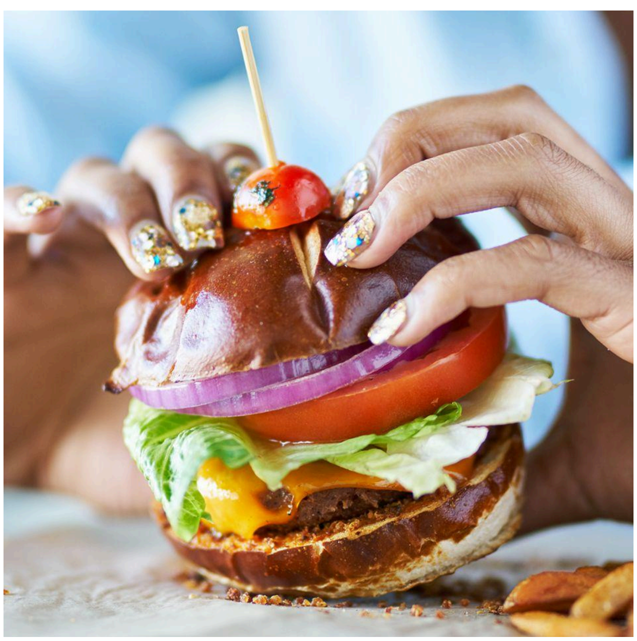
59% of consumers say they prefer that plant-based meat and seafood products taste, look, and feel like their conventional counterparts.

Types of ingredient combinations

> *Blended-meat products can be offered in many different ratios, categories, and combinations.*

Combining conventional meat with whole vegetables

The leading trend in the sector thus far is combining animal meat and whole vegetables such as mushrooms, lentils, legumes, and more. As early as 2014, the James Beard Foundation established an annual Blended Burger Project competition challenging participants to develop burger recipes with at least 25% fresh mushrooms. In 2018, Sonic launched a blended beef-mushroom burger, leading the way in the QSR (quick-service restaurant) space.



Below are notable examples of products that mix conventional meat and whole vegetable ingredients. Many of these items are positioned as a way to increase vegetable intake for kids or adults and limit certain nutritional components such as fat or cholesterol.

- BOTH's 50/50 burger incorporates grass-fed beef and seasoned vegetables in an equal ratio.
- Perdue's Chicken Plus line of kid-focused chicken products includes a quarter cup of chickpeas and cauliflower per serving.
- Additional brands offering pre-made blends of meat and vegetable ingredients in the United States include Grateful Market, Phil's Finest, and Kidfresh.
- Additional examples in other regions include: Quorn (Europe), Rebel Meat (Europe), Nanka (Asia Pacific), Harvest B (Australia), and Nestle's Maggi (South America)

One important note is that not all of these products explicitly state the percentage of meat displaced for vegetables. For the proposed benefits of blended meat to ring true, the ratio of conventional meat to other ingredients will be an important consideration.

Combining conventional meat with plant protein

Some blended products combine animal-based meat with isolated plant protein. In 2019, Tyson launched its Raised & Rooted brand featuring "The Blend" burger consisting of Angus beef and isolated pea protein (although Tyson has since pivoted the Raised & Rooted brand to a fully plant-based line of products). In 2020, Maple Leaf Foods launched a 50/50 line of products blending animal-based meat with pea protein. This line was later discontinued.

Despite early products failing to gain traction, recent introductions have provided evidence that this approach remains a focal point in the sector. In the summer of 2024, German retailer Lidl announced their new product containing 60% minced beef and 40% pea protein, citing a 37.5% reduction in CO2 and 33% reduction in cost compared to the store's ground-beef product. Additionally, a new twist on blends is evident in the alternative protein startup ecosystem with the launch of Momentum Foods, co-founded by former Beyond Meat R&D engineer Saba Fazeli. Products under the brand Choppy! feature a mix of 90% plant-based ingredients, such as soy and brown rice, and 10% animal ingredients, such as collagen and fat. The general intent is to produce products that are largely composed of alternative proteins but can better compete with conventional meat on taste and price.

Positioning alternative proteins as inputs for blended end products

Some brands have developed products and formulations that do not contain conventional meat, but that are designed to be combined with conventional meat by consumers or restaurants. As of 2024, these are primarily mycelium or mycoprotein ingredients. The Better Meat Co., which partnered with Hormel in 2021, produces their Rhiza mycoprotein to be sold B2B and used for blended or fully plant-based products. Mush Foods produces a 50 CUT mycelium ingredient for blending with conventional meat ingredients, a product recently launched in U.S. foodservice.

It's clear that organizations from newly formed startups to large food companies are engaging with the idea of blended meat and testing a variety of product types. The following sections will look more closely at the current U.S. retail market for these products and the available consumer research to uncover existing challenges and opportunities.

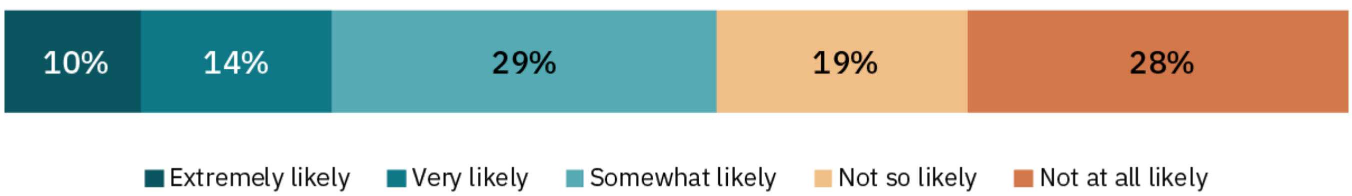
U.S. retail market

In the United States, retail dollar sales of products combining conventional meat and plant ingredients are a small category compared to the $1.24 billion plant-based meat category, or the much larger $100+ billion conventional-meat category. An ad hoc analysis of GFI-identified products* in SPINS' dataset found that, in 2023, U.S. retail dollars sales of blended meat were just $41 million. This is similar in magnitude to the emerging plant-based egg category, with dollar sales of $43 million in the same year.

It is important to note that sales for this category are consolidated into just a handful of items and even fewer brands. The scope and distribution of the category is limited, making this an extremely nascent segment in U.S. retail.

If you were offered a free sample of a product containing a blend of animal meat and plant-based ingredients, how likely are you, if at all, to try it?

% of respondent



Source: Poll by Morning Consult on behalf of GFI: n=2,214 U.S. adults, May 2024

**Items were considered to be in the blended-meat category if they consisted of a combination of conventional meat and plant-based ingredients. Additionally, the product needed to signal on the pack a reduction in the amount of conventional meat by identifying the value of added plant-based ingredients (ex: ½ cup of sweet potato per serving) or a decrease in certain nutritional components that represents the displacement of conventional meat (ex: 50% less saturated fat). This list of items is not exhaustive.*

Consumer insights

Consumer research is limited when it comes to these products. The following section presents available insights into consumer awareness, interest, and perceptions of meat items combining both animal and plant ingredients.

Awareness and trial

When asked directly, consumers report some interest in blended-meat products, although familiarity and trial are low. A May 2024 survey conducted by Morning Consult on behalf of GFI found that just 28% of consumers report having seen, read, or heard about products that contain a blend of animal meat and plant-based ingredients. For comparison, 58% of U.S. consumers stated they have seen, read, or heard about plant-based meat products in the same survey.

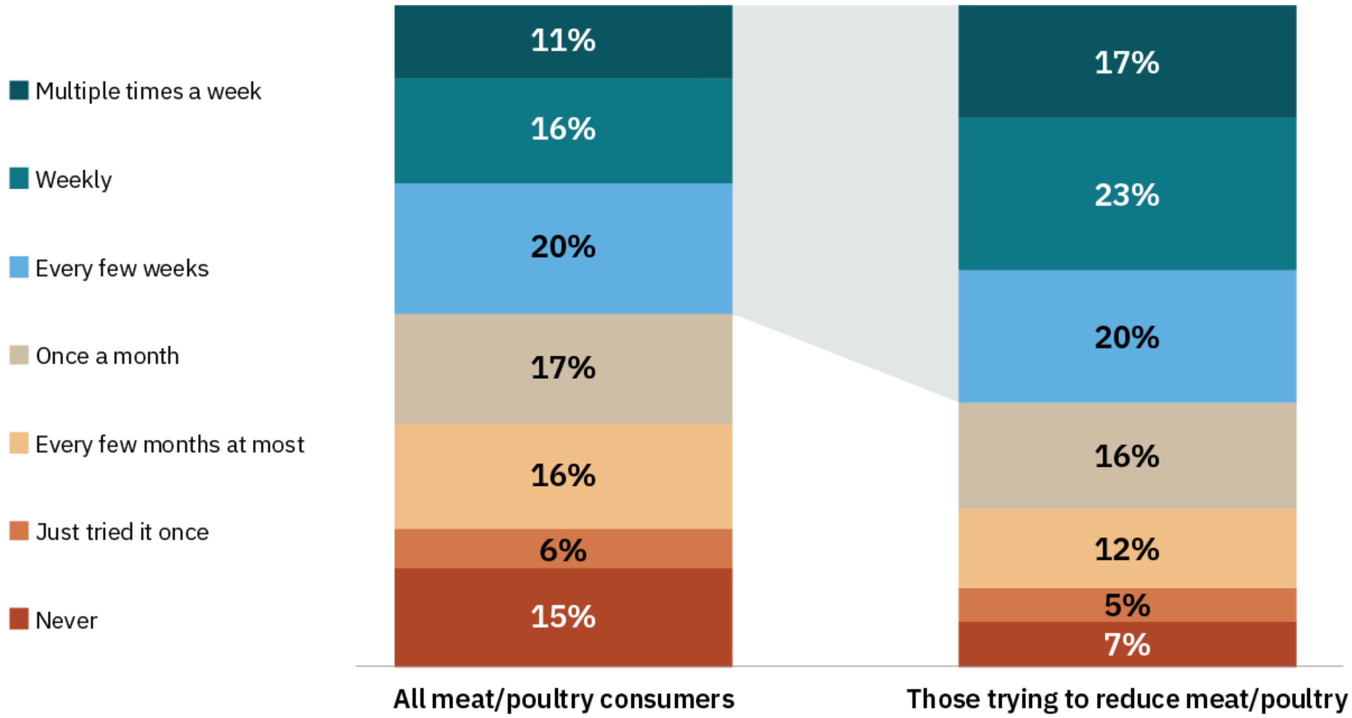
From the May 2024 survey, a quarter (24%) of consumers say they would be "very" or "extremely" likely to try products containing a blend of animal meat and plant-based ingredients, especially male consumers (29%) and Millennials (32%). The plurality (29%) of consumers say they are less certain ("somewhat likely") which may reflect the overall lack of familiarity with the category.

From the same survey, 43% of consumers report having eaten products that contain a blend of animal meat and plant-based ingredients before, with 27% of all consumers eating it monthly or more frequently. This is very similar to plant-based meat—44% of consumers report having eaten plant-based meat at some point with 26% of all consumers eating it monthly or more frequently. These rates of self-reported consumption are comparable for blended meat and plant-based meat despite plant-based meat being a much larger category in retail (see 'U.S. retail market,' above). While category sales are small for blended-meat products in the retail sector, self-reported consumption data suggests that many consumers already perceive themselves to be active in the category.

One explanation for this might be that consumers are already combining meat and vegetable ingredients in their everyday cooking, essentially making their own blends. FMI's 2023 Power of Meat report shows that 33% of U.S. meat-eaters were actively trying to reduce their consumption of meat and poultry in 2023. Among those folks, 60% say they are blending vegetables or mushrooms with conventional ground meat at least every few weeks. Among all meat-eating respondents, 47% indicate they are preparing blends at least every few weeks, up from 31% in 2022, suggesting more meat eaters are turning to this approach.

Preparing blended vegetable/mushroom with ground meat

% of respondents, 2023



Source: FMI Power of Meat Report, 2023. Among all 1,607 meat eating respondents and the 527 respondents who answered 4 or 5 to the agreement statement on trying to reduce their meat/poultry consumption

Datassential's Plant-Forward Opportunity Report, which surveyed respondents in the United States, highlights relatively higher consumer interest in trying blended products in a foodservice context:

- 60% of respondents are open to trying dishes that mix animal and plant proteins.
- 31% of respondents say they are likely to order dishes of meat blended with grains or veggies in the next year.

Blended meat's limited product distribution and lack of widespread category messaging make measuring awareness and appeal a challenge. Current research suggests that consumer awareness of these products is low but signs of interest do exist.

Product perceptions and motivators

The top-cited reason among U.S. consumers for not trying or repurchasing plant-based meat is taste and a preference for conventional meat. Additionally, consumers report high prices and concerns about plant-based meat being less nutritious or nutrient-dense as key barriers also holding them back from increased consumption. Blended products offer the possibility of introducing consumers to plant-based foods in general or their specific benefits while preserving familiar sensory aspects of conventional meat.

As one example, swapping out some amount of conventional meat for mushrooms has been noted to add juiciness and umami flavor while also reducing sodium content without sacrificing overall flavor.

In a recent sensory study, NECTAR, a Food System Innovations initiative, found that the leading blended burger item outperformed the leading plant-based burger option on overall liking scores in a blind taste test. However, the blended burger still underperformed the conventional burger by a significant margin. Another sensory study also suggests a gap remains between blended products and conventional meat but that variations in product formulation play a significant role in the size of that gap. More research is needed to understand optimal product formulations but these findings signal the potential for blended products to better meet key consumer needs such as taste in the near term.

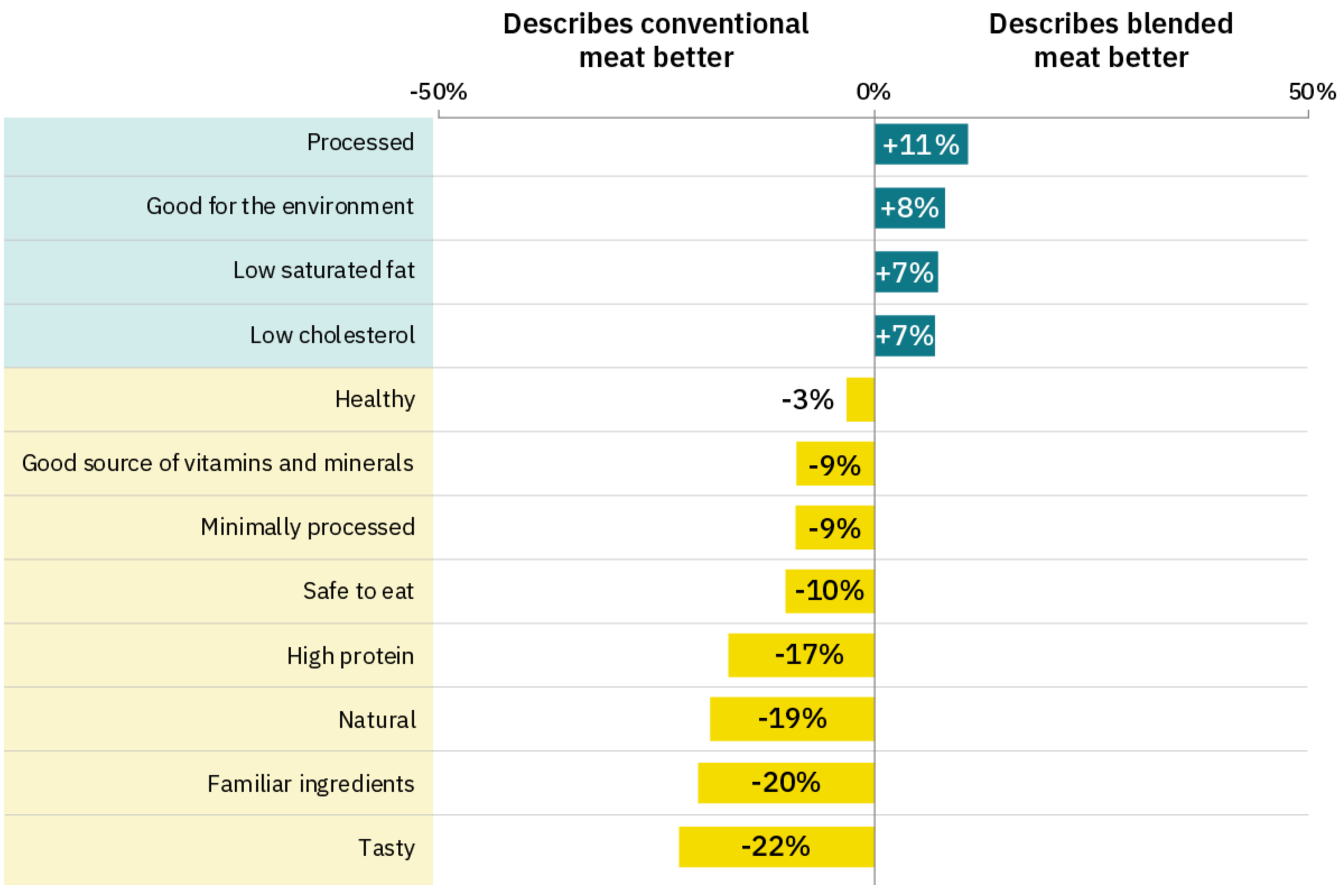
Additionally, companies may have the added benefit of being able to experiment with cost-effective ratios and combinations that optimize taste, texture, cost, and other attributes desired by consumers. On the health front, adding plant-based ingredients to blended meat products can offer nutritional benefits such as less fat, cholesterol, calories, and sodium, and more dietary fiber compared to conventional meat on its own.

So what do consumers think about meat items that combine both animal and plant ingredients and what would motivate them to purchase?

Relative to conventional meat, blended-meat products tend to be perceived as better for the environment, lower in saturated fat, and lower in cholesterol but also more processed, according to Morning Consult's May 2024 survey. For consumers considering blended-meat products, other research shows that health consistently shows up as a top motivator. Among younger consumers, sustainability appears to play a relatively larger role as a potential purchase motivator compared to the average consumer.

Perceptions of blended meat relative to conventional meat

% who believe it describes blended meat better, minus % who believe it describes conventional better



In your opinion, do each of the following attributes describe products made with a blend of animal meat and plant-based ingredients or conventional meat better? % who believe describe blended meat better, minus % who believe describe conventional meat better. Poll by Morning Consult on behalf of GFI: n=2,214 U.S. adults, May 2024

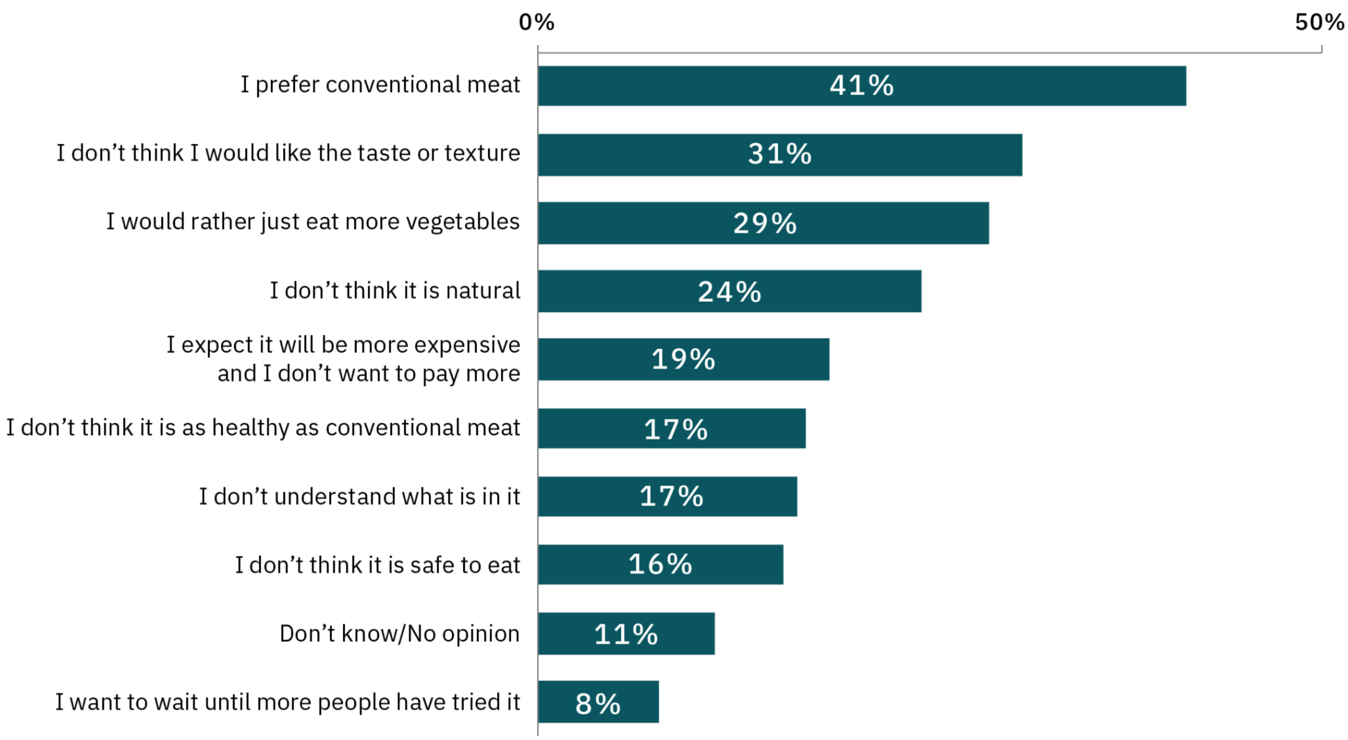
On the flip side, consumers cite a variety of reasons for not being interested in blended meat. In the May 2024 survey, consumers who said they were unlikely to try or buy blended meat indicated a preference for conventional meat, taste, and texture concerns, and a desire to just eat more vegetables as the leading barriers. The same survey showed that many consumers perceive blended meat as less tasty, less familiar, less natural and not as high in protein as conventional meat. There's also the risk of blended ingredients being potentially viewed as "filler" or reminiscent of "meat extenders," which may make blended-meat products less desirable for consumers.

As discussed in the *Consumer dynamics* section of GFI's latest plant-based meat and seafood sales analysis page, many of these motivators and barriers match those of plant-based meat.

Overall, this suggests that blended products may appeal to some omnivorous consumers who value the sensory experience of conventional meat, but who also value the health benefits of eating vegetables or eating less meat and want to reduce their meat consumption incrementally. On the other hand, many consumers who are not familiar with blended meat but who have heard of or tried plant-based meat may not see blended meat as offering additional or distinct benefits compared to plant-based meat. More research is needed to better understand consumer preferences, perceptions, and interest in this category to validate a market for these products.

Why are you unlikely to try or buy products that contain a blend of animal meat and plant-based ingredients? Select up to three reasons.

% of selected as one of up to three shown



Source: Poll by Morning Consult on behalf of GFI: n=2,214 U.S. adults, May 2024; among n=1,244 who were very/somewhat unlikely to purchase blended meat.

Opportunities and challenges

Many opportunities and challenges exist on blended meat's pathway to capitalizing on its potential to earn a meaningful share of the total meat market.

As alternative protein innovations continue to scale and new technologies are developed, new types of product formulations may emerge. Tapping into up-and-coming alternative protein technologies like biomass fermentation, precision fermentation, and cultivated meat while optimizing and marketing plant protein and whole-vegetable combinations are opportunities in the category.

One challenge facing blended meat is category, product, and brand positioning, as well as consumer communication. These products will need to offer to consumers a clear value proposition to differentiate them from conventional and plant-based meat products and to motivate purchase. Companies will need to consider if products should be positioned on a spectrum between conventional meat and plant-based—for example, enabling consumers to make incremental improvements on the typical drivers toward plant-based choices such as improved health. Appealing to consumers who would prefer a conventional burger but want the benefits of a little bit of plant-based may be a distinct marketing play compared to appealing to consumers unsatisfied with current plant-based product delivery on key benefits like taste (e.g., adding conventional meat or ingredients like animal fat to an otherwise plant-based product). And companies will also need to understand how to build awareness and trial to reach a broad audience of meat-eating consumers.

Additional market and consumer research on the topic of blended meat will shed light on the potential for category growth. Market and consumer research questions to consider include:

- *What is the best nomenclature for the category to drive appeal and clarity? Would category-wide nomenclature be beneficial?*
- *What is the value proposition for different consumer groups?*
- *What are the perceived benefits and purchase drivers for consumers? How do these compare to conventional meat and plant-based meat?*
- *What is the willingness of consumers to buy these products and pay more for them compared to conventional meat?*
- *Which blend types are most appealing to consumers and perform best in different formats and contexts?*
- *If products were more widely available, what would trial and adoption look like?*
- *What is the total addressable market size?*
- *What drives retailer and foodservice operator interest in blended products and how do product features differ for retail vs. foodservice sales to consumers?*
- *In retail, where should blended products be shelved to maximize sales?*

Conclusion

Blended meat is currently a very small category in terms of products and sales, and most consumers report low familiarity with the category. Open questions remain around the value proposition and growth potential. However, a portion of consumers are open to trying products that combine alternative and animal proteins, and the category appears to have the potential to serve as an entry point for the increasing number of consumers looking for ways to reduce their conventional meat consumption. This may be one approach to help create a bridge to a future where alternative proteins taste as good or better and cost the same or less as conventional meat.

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The Good Food Institute is a nonprofit think tank working to make the global food system better for the planet, people, and animals. Alongside scientists, businesses, and policymakers, GFI's teams focus on making plant-based and cultivated meat delicious, affordable, and accessible. Powered by philanthropy, GFI is an international network of organizations advancing alternative proteins as an essential solution needed to meet the world's climate, global health, food security, and biodiversity goals. To learn more, please visit gfi.org.