Seeding innovation

Plant-based protein solutions making healthy eating more accessible

Proprietary Research

Cargill®

Plant-based products are rising to a whole new level of consumer interest and popularity, while prompting key strides in new product development. But for brands, keeping up with the pace of new product innovation and shifting consumer attitudes takes a constant effort.

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About the white paper

This white paper presents Cargill proprietary research, conducted in partnership with Decision Analysts, offering insights into the growing and highly innovative category of plant-based protein solutions. As consumers seek more protein and vegetables in their diets, they are increasingly looking toward plant-based proteins, either solely or in combination with animal-sourced proteins, as an important dietary option for both health goals and a better environmental impact.

This research provides information and statistics on consumer perceptions and usage of plant-based proteins, along with impressions and awareness of these ingredients in specific product categories including dairy, snacks, meat products, bakery items, nutritional beverages, frozen meals, frozen breakfast items, frozen pizza, and frozen snacks. This paper offers context on the category, as well as some key findings and important insights to help brands understand this evolving segment with respect to product development, purchasing behavior and the messaging that resonates with consumers.

Research participant background

GENDER AND AGE

47% **53%**

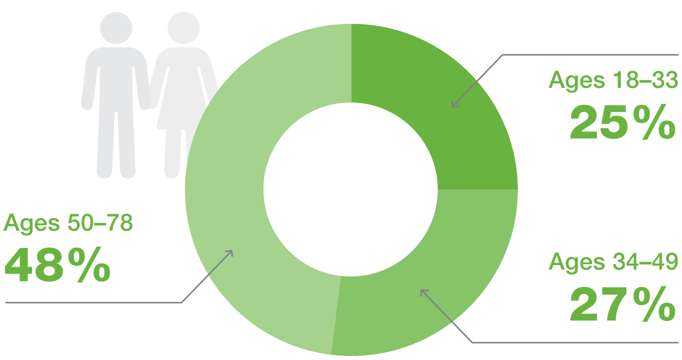
HOUSEHOLD SIZE

Average size:
2.4 individuals

CHILDREN'S AGES

<2 yrs: **6%**
2–4 yrs: **8%**
5–8 yrs: **10%**
9–12 yrs: **10%**
13–17 yrs: **12%**

Participants by age

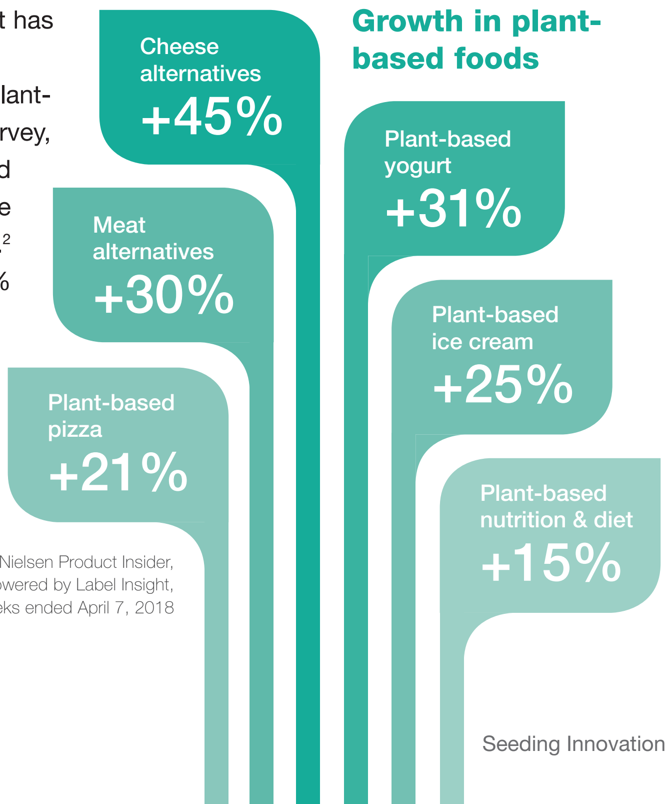


Executive summary

In the world of ever-evolving food trends, the plant-based phenomenon has moved into the realm of other-worldly, rising to a whole new level of consumer interest and popularity, while prompting key strides in new product development. But for brands, keeping up with the pace of new product innovation and shifting consumer attitudes takes a constant effort. At the epicenter of the trend is the growing use of plant-based proteins that meet widespread consumer goals for eating more healthfully, while also providing a diet that has a better impact on the environment.

The convergence of these trends is prompting a boom in plant-based ingredients. According to a recent Nielsen Homescan survey, 39% of Americans are now trying to eat more plant-based foods.[1] Plant-based proteins, in particular, are sizzling hot and are expected to make up 33% of the overall protein market by 2054.[2]

This is driving phenomenal growth—well above the 2% increase for foods and beverages overall—in many plant-based food categories, with overall sales reaching $3.1 billion in revenue for 2017, according to Nielsen Data for the Plant-Based Foods Association.[3]



Source: Nielsen Product Insider, powered by Label Insight, 52 weeks ended April 7, 2018

Snapshot of key findings

It's not just about plants

Respondents are striving to eat more plants and protein in their diets. One in four consumers says more protein in the diet is always better, and at least six in ten are at least somewhat likely to check the ingredient list for protein. In general, protein has a strong health halo, with more than half of consumers saying they seek protein for its health value and energy benefits, while nearly half also associate it with satiety and building muscle.

There is a familiarity gap

While consumers are looking for more protein in foods, they are not overly familiar with plant-based proteins, and many consumers have lingering negative perceptions about the taste and texture of plant-based proteins from previous experiences. They also see them as hard to find and not as satisfying as meat-based products.

Protein source is increasingly important

While foods that inherently contain protein (such as meats, legumes, and nuts) are most preferred by respondents, consumers are increasingly receptive to products that are fortified with proteins. And nearly half of consumers now say the type of protein in foods is very important. This is especially true of consumers who are limiting their meat intake, seeking "clean label" products, or consuming plant-based proteins regularly.

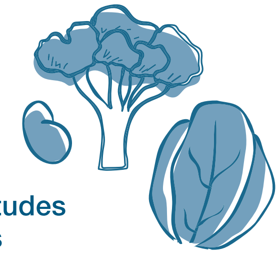
As more consumers continue to adopt plant-based eating, their motivations will become increasingly diverse, which will prompt continued innovation and disruption in a wide variety of product segments. Understanding these factors and how your products fit in will be essential in new product development strategy.

Plant-based eating: What is driving the shift?

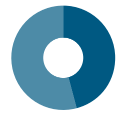
The growing prevalence of plant-based eating is due to its location at the intersection of various food and beverage trends. Take health: consumers are adding plants to their diets as they see the growing evidence that diets high in vegetables not only help manage weight, but also support overall wellness and reduce risk of health issues like cardiovascular disease and cancer.[4,5] This is resonating for people. According to the NPD Group, in the past 10 years, consumers under the age of 40 have increased their fresh vegetable intake by 52%.[6]

The growing incidence of food allergies is another factor. Close to 30 million Americans have some sort of lactose intolerance,[7] which is prompting people to look beyond animal-based dairy and propelling use of dairy alternatives such as nut-based milks.

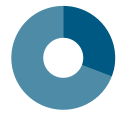
Beyond health concerns, consumers are also purchasing products aligned with their growing concern about animal-based products' environmental impact.[8] This concern is giving rise to higher rates of consumers practicing a flexitarian diet (consuming meat occasionally, but also embracing a vegetarian lifestyle).



Changing attitudes and behaviors



46% of Americans now agree that plant-based proteins are healthier than animal-based options



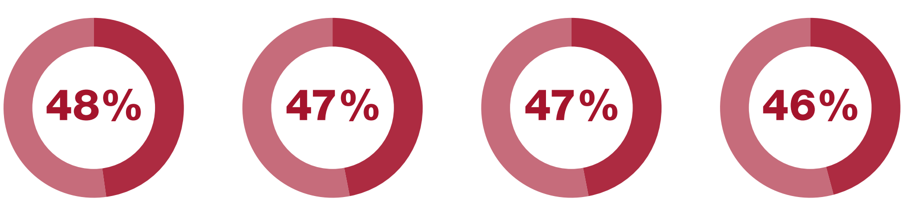
31% now report meat-free days in their diets

Sources: "Taste is the Top Reason U.S. Consumers Eat Plant-Based Proteins;" "Meat-Free Days is the Top Reason for Eating Protein Alternatives Among U.S. Consumers." Mintel.com

Defining the plant-based consumer

Though plant-based eating is on the rise, not everyone is turning vegetarian (only 6% of Americans are true vegetarians and even fewer are vegan).[9] Consumers are now motivated to eat plant-based products by a variety of factors. They see plants and plant-based proteins as a means to control their weight, reduce sugar intake, eat cleaner and greener, plus boost their energy. Even if they still enjoy eating meat, more consumers view a flexitarian-style diet as a good compromise for their health while supporting their values. Though younger consumers under age 49 are among the most likely to be adopting a plant-based lifestyle, the trend does seem to transcend both generational and demographic groups.

Groups more likely than the average U.S. consumer to incorporate plant-based foods

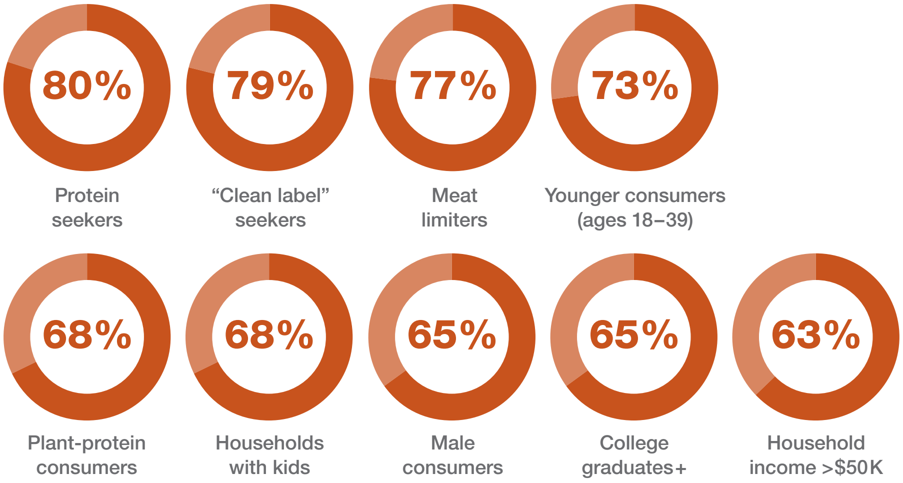


African Americans | Asian Americans | Caucasian millennials | Hispanic consumers

Source: "Plant-Based Food Options are Sprouting Growth for Retailers." Nielsen.com

Plants and protein—a dynamic duo

The desire for more plants in the diet and protein's healthy halo are dual forces driving the plant-based protein segment. Both have appeal for a majority of consumers. Just more than half of the respondents in this study say they are very or extremely open to plant-based proteins. And while most (60%) are at least somewhat likely to seek protein in products, this study identified certain key consumer segments as more likely than average to check the ingredient list for protein.



The quest for more protein

Overall, protein in the diet is important to consumers. Nearly half of respondents say they are trying to get more protein in their diets. But when it comes to consumption, this desire is not always reflected. About two in ten say they don't get as much protein as they should, and few respondents cite following a high protein diet.

While the majority does not aim for a particular amount of protein, nearly two in ten did say they strive to meet the U.S. Food and Drug Administration (FDA) recommended dietary allowance (RDA) of 50 grams per day of protein on average. Those who say they are on a high-protein diet and those who view more protein as always better tend to skew younger and male.

This general approach to protein consumption may arise from limited understanding; few consumers indicate much knowledge about protein or how much they need to consume. For example, only one in ten respondents expressed confidence in their understanding of the difference between a complete protein (one that contains all the essential amino acids), while nearly 60% said they were not very confident or not confident at all.

Current protein consumption

6% I'm on a high-protein diet with a daily protein goal

26% More protein is always better

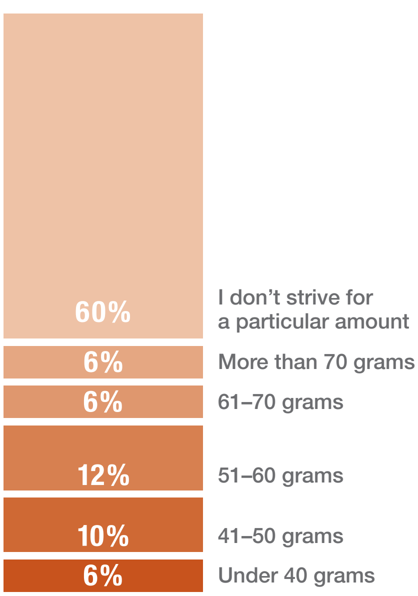
17% I try to meet the FDA's recommended daily amount

17% I don't get as much protein as I should

2% I'm trying to reduce my protein consumption

31% I just eat what I want and don't pay attention to how much protein I consume

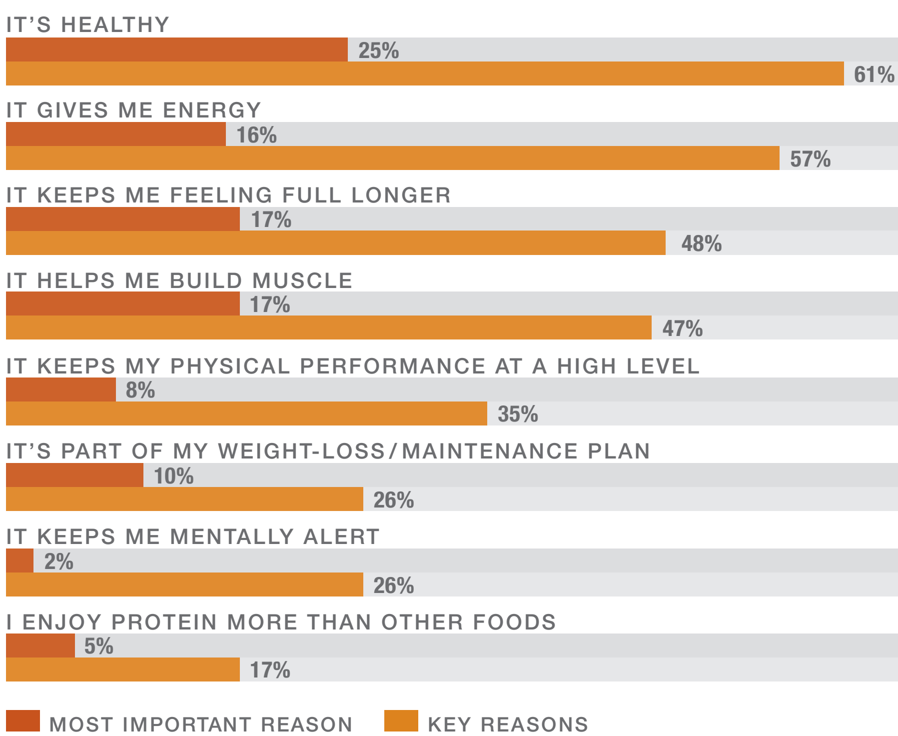
Daily protein goal



Protein perceptions

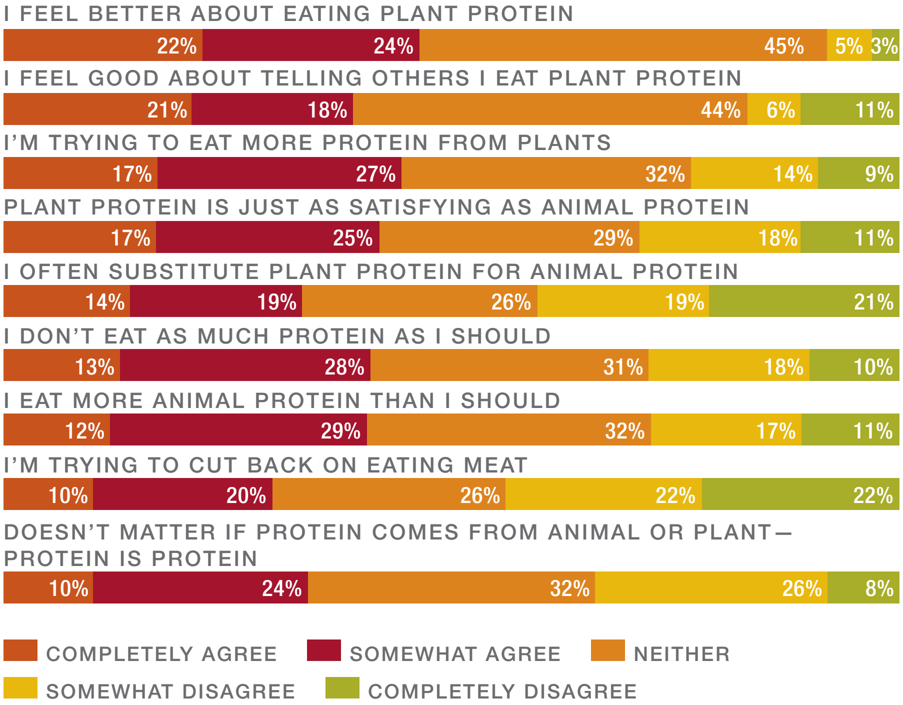
Respondents seek protein for a variety of health reasons. In particular, parents seek protein for mental alertness and enjoyment. Women are likely to want protein for satiety and weight management, while men consume protein for physical performance and muscle strength.

Reasons for seeking protein



Nearly half of respondents agree that they feel better about eating plant protein, and almost as many are trying to eat more proteins from plants. That said, more disagree that they are trying to cut back on meat (44% bottom-two boxes) than agree (30% top-two boxes).

Protein usage



Can plants fit the bill?

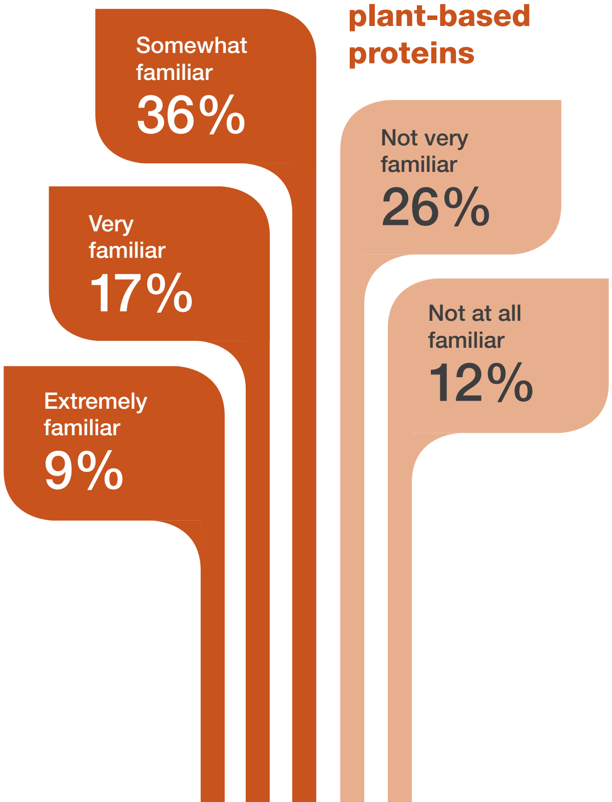
Although consumers are generally positive about plant-based proteins, they are still relatively unfamiliar with these ingredients. They most often regard them as "healthier" and "better for you," primarily due to a better fat profile. Fewer calories and ease of digestion are seen as the top benefits of plant protein. Again, these attitudes are most common among regular protein seekers and label checkers.

Again, protein seekers, label checkers and those following a vegetarian or flexitarian diet tend to be more positive than average in their statements about plant proteins (top-two boxes):

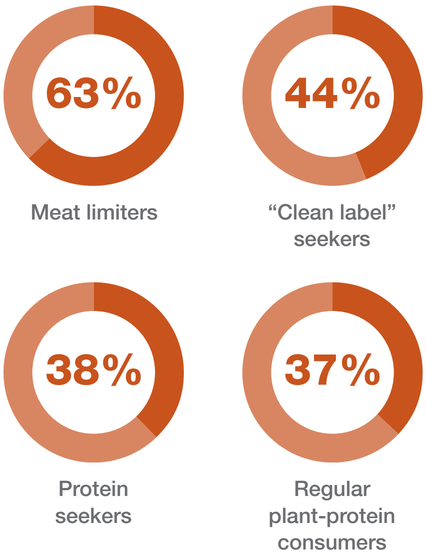
PROTEIN STATEMENTS	TOTAL	PROTEIN SEEKERS	LABEL CHECKERS
I feel better about eating plant protein	46%	59%	63%
I feel good about telling others I eat plant protein	39%	56%	52%

At the same time, many consumers do have established perceptions about plant-based proteins. The most common barriers to consuming plant protein include not liking the taste or texture of these ingredients, and the opinion that these products are not easily available or as satisfying as traditional meat-based products.

Familiarity with plant-based proteins



For example, familiarity is higher than average (top-two boxes) for:



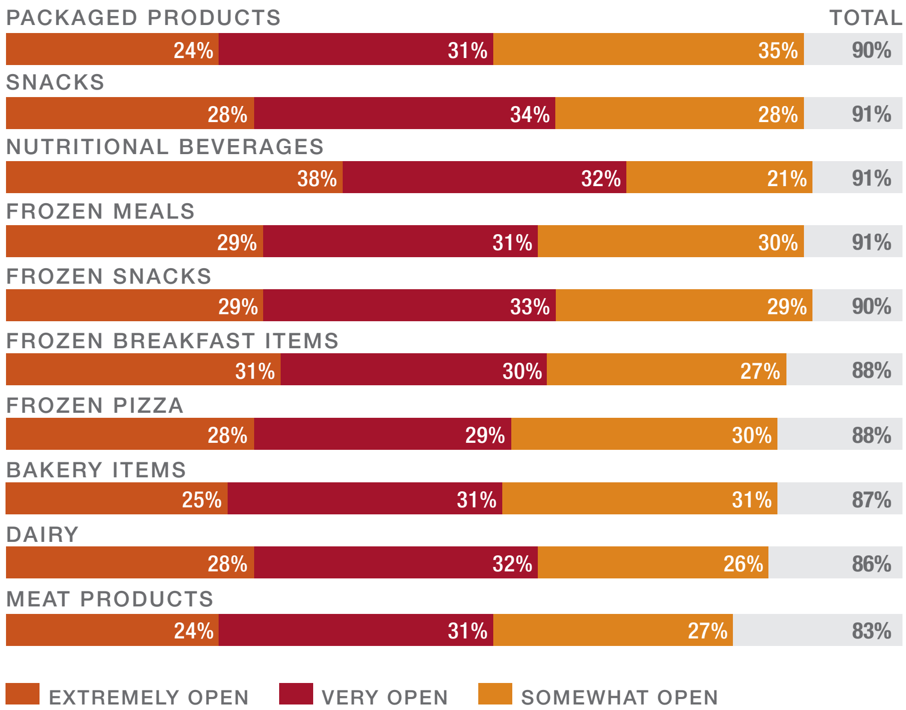
Overall, respondents are open to buying products with plant-based proteins. Rejection of plant-based products is very low, at less than one in ten.

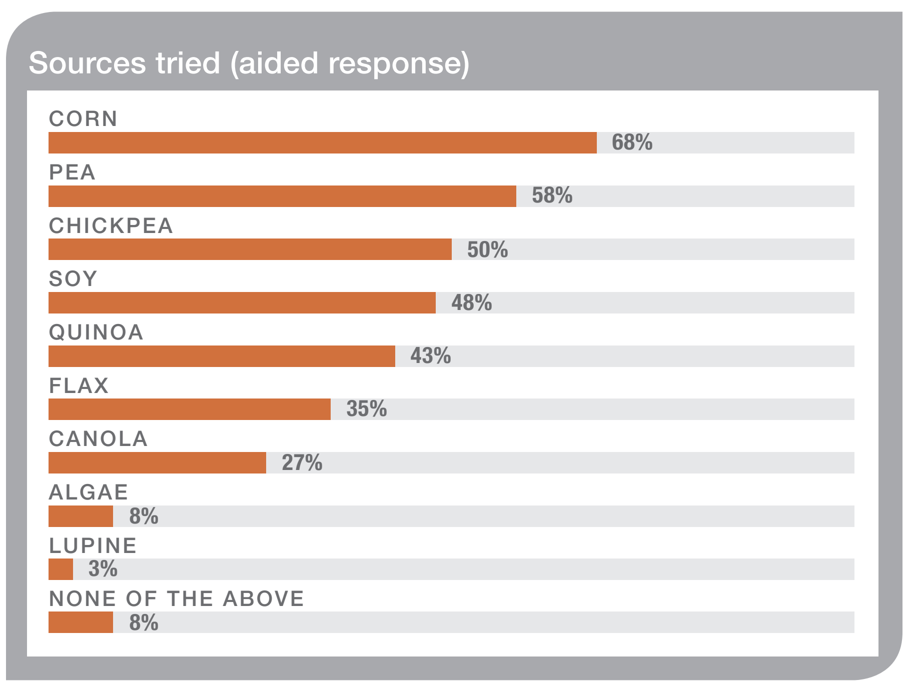
Interest in plant-based proteins is highest in nutritional beverages, but respondents also noted strong interest in a plant-based protein boost in snacks and dairy.

Awareness of specific protein sources is also somewhat lacking, at one in four, but knowledge of these sources exceeds general familiarity. Legumes are most mentioned, with awareness at 50%, and nuts are second, with recognition at about one in three.

That said, the source of plant-based protein is becoming increasingly important, with nearly half of consumers now describing this as "very important" and more than eight in ten saying it is at least "somewhat important."

Openness to plant-based proteins





Interest in plant protein sources generally corresponds with those that respondents have tried, with corn and peas topping the list. However, there are some sources with higher interest than trial, such as chickpea, quinoa, flax, canola, algae, and lupine.

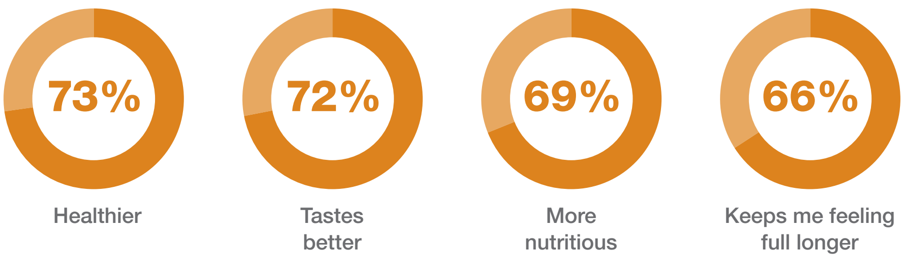
Application spotlights

While consumers are interested in getting a boost of plant-based protein in a wide variety of products, a few key categories have been identified as having distinct opportunity. The following provides a snapshot of three:

1 Dairy alternatives: Ahead of the curve

Plant-based milks have forged a trail in the disruption of the category, which is now spreading to additional applications such as plant-based yogurts, cheeses, and ice cream. The entire segment has reached $2.2 billion, with projected growth for these latter categories at +19.8%.[10]

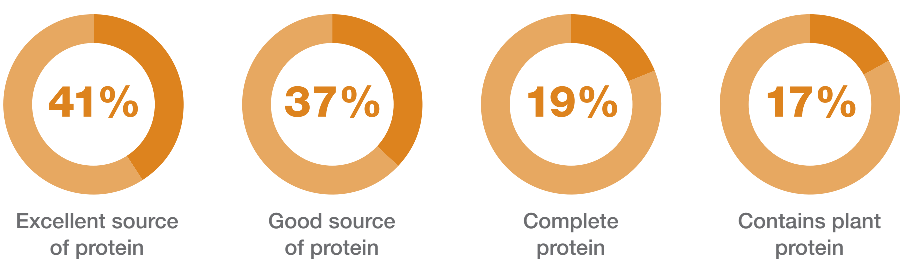
Consumers have high taste and nutrition expectations for these products (top-two boxes)



2 Snacking: A healthier approach

Snacks are seen as one of the key opportunities in plant-based foods because they address other consumer desires for protein and vegetables in a convenient, accessible format. One third of respondents said they are “very” to “extremely likely” to look for protein in the snacks they buy. In this category, not liking the taste is more of a barrier than in the studied categories overall. Plant-protein snacks that tout good taste, health, nutrition, and satiety are most appealing.

Top protein-related claims in snacks

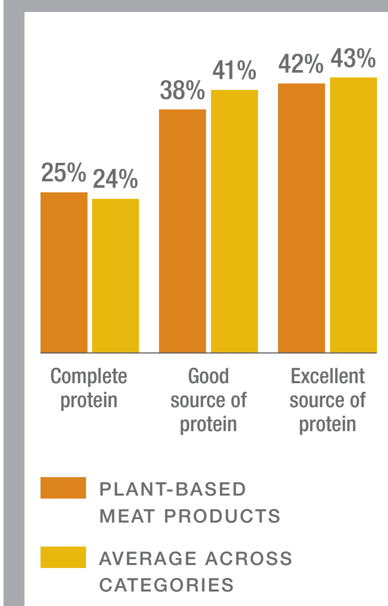


3 Meat alternatives: Innovative strides

The meat analogue category likely has some of the more difficult perceptions to overcome, but growth of plant-based meats still jumped 30% in 2018,[11] according to Nielsen retail sales data. That is due in part to product developers who have exceeded consumer expectations in taste and texture. Consumers are concerned about taste and nutrition when they consider these products, but they also feel good about eating them—and seven in ten believe they help manage their weight.

Taste, texture, and satisfaction remain key barriers to consuming plant-based meats, but they are fairly close to average when consumers are looking for a source of protein.

Protein-related claims in meat alternatives



Conclusion: Planting potential

The research clearly shows that most people are receptive to the idea of plant-based proteins, but there are still gaps in both awareness of these ingredients, as well as perceptions about their ability to provide expected taste, texture, and satisfaction. Product developers will need to continue to push the envelope with respect to meeting those expectations—and then communicate the value and functionality of plant-based proteins. Here are some key takeaways:

Dispel taste and texture concerns. These elements are a key barrier to purchase for consumers in most applications. So product prototypes and testing are a critical part of product development to ensure that there is no decline in these attributes.

Communicate the value. Brand marketers still have a ways to go in educating consumers about the value and benefits of plant proteins. Following are two important elements on which to focus:

1 **Plant proteins are more than window dressing.** Show that plants provide value beyond a protein boost: they offer health and nutrition benefits, lower calories and fat, and versatility in foods and beverages.

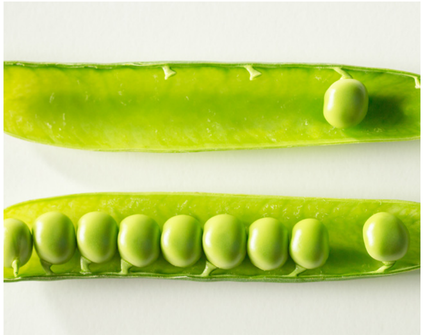
2 **Build the bigger picture.** Touting the environmental and ethical benefits of plant protein as compared to meat will become increasingly important. Already, selling the environmental benefits of plant protein is less polarizing than discussing ethical issues like animal treatment in food production. But this does not have to be an all-or-nothing proposition. Leading consumers toward a compromise which reduces their animal protein intake with foods and beverages that provide plant-based proteins is a more acceptable option than eliminating animal protein altogether.

Ingredient spotlight: Pea is for protein

Although soy proteins have been one of the most popular plant-based proteins in product development, the humble pea has emerged as an important and functional solution in today's plant-protein category. Peas have a lot going for them. They are protein-packed, and certain suppliers' ingredients are now available in non-GMO Project Verified and USDA Certified Organic versions for label-friendly formulations. To top it all off, those benefits are delivered with a creamy, delicious flavor, smooth mouthfeel and clean finish designed to please the most particular of palates.

Cargill has partnered with pea protein manufacturer PURIS™ to offer all those attributes while also enhancing foods' protein content without altering taste. The PURIS™ range of protein products is exceptionally versatile, adding functionality to applications ranging from gluten-free bakery to high-protein beverages and beyond. Sensory testing consistently gives PURIS™ pea protein high marks for taste.

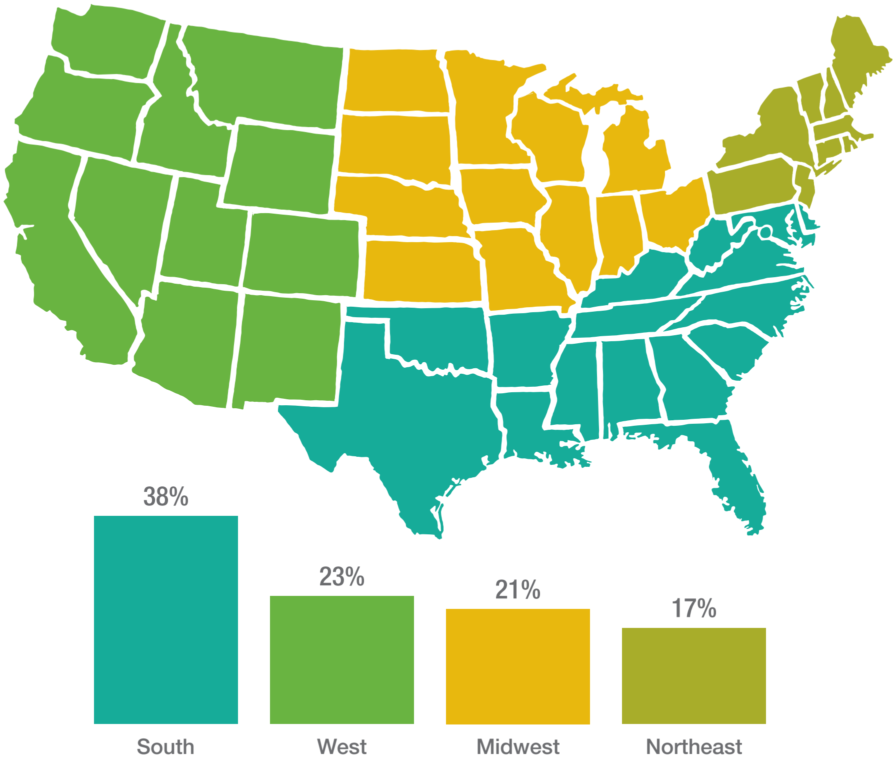
Get the full picture: This paper highlights just a few findings from our proprietary consumer research. The labeling, substantiation and decision making of all claims for your products is your responsibility. We recommend you consult regulatory and legal advisors familiar with all applicable laws, rules and regulations prior to making labeling and claims decisions.



To learn more about Cargill's growing portfolio of plant-based solutions, including PURIS™ pea protein, visit **www.cargill.com/plantproteins.**

Methodology

The online survey was conducted with 1,923 U.S. grocery shoppers, ages 18–78 in October, 2018. Respondents perform at least half of their household's grocery shopping and have purchased at least one of the target categories within the past three months.



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10 Ibid. Nielsen retail sales data, 2018

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There is no single definition of "non-GMO" in the USA. Contact Cargill for source and processing information.

PURIS™ Pea Protein is a trademark of PURIS Foods, a Cargill strategic partner.