



BAKERY REBOOT:

Plant-based ingredients take
baked goods to new levels

Bakery products have traditionally been a last bastion of indulgence – worth the calories and extra workout time for every sweet, flaky bite. But times are changing, as consumers discover that even baked goods can experience a healthy reset without compromising taste or texture.

The category owes this turnaround in part to the incorporation of new plant-based ingredients that are taking baked products – including breads, cookies, muffins and waffles – to new heights.

From pea-flour tortilla chips to kale and broccoli-based pizza crust, consumers are accepting a variety of new plant-based ingredients in baked foods, even their sweet baked treats. This is partly due to an increased desire to make their diets more healthful, but these plant-based ingredients now also boast more functionality and versatility than ever.

Consumer attitudes have propelled plant-based products into the limelight, with a focus on plant-based eating now a solid global trend. And the future looks very promising. According to data from Global Market Insights, the plant-based ingredient market reached \$8 trillion in 2018, with an expected 7.4% CAGR predicted from 2019 through 2025.¹

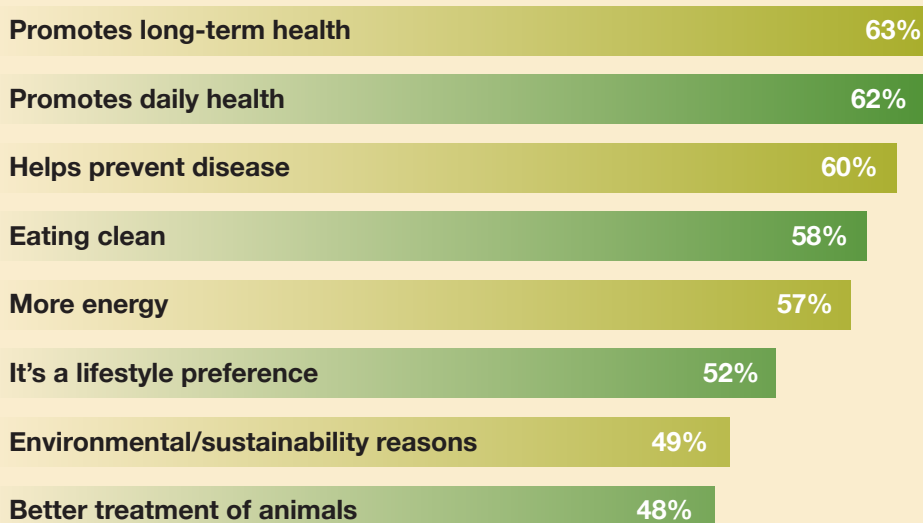
The market development is somewhat ahead of the curve in the U.S., where plant-based foods and beverages reached \$5 billion in 2019 with 11.4% growth.² This doesn't even include the emerging market for new plant-based baked products, addressing diet trends like high protein, gluten free, Paleo and Keto.

Still, understanding these consumers is complex, with a variety of attitudes prompting their shift toward the broad platform of plant-based eating. It is clearly a global movement, with about one in four consumers around the world noting that this eating style has become more important in their diets over the last year.³ But it's not just about reducing meat and traditional dairy consumption; it's also about the desirability of plants and vegetables in food.

Overwhelmingly, plant-based eating is tied to health, but as the trend gains momentum, it is also connected to additional ideas around natural, sustainable, and "clean" eating.

Driving forces behind plant-based eating

(extremely/very important)



Source: HealthFocus International.
2019 HealthFocus Global Report,
"Navigating the World of Plant."

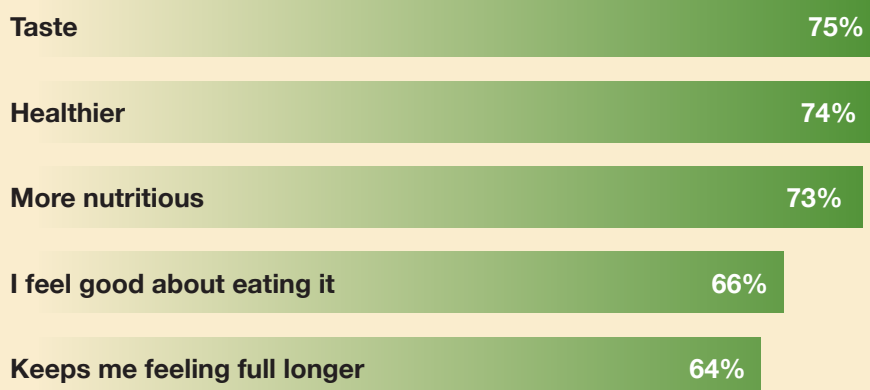
The picture is similar among U.S. consumers who now say they consider plant-based ingredients among the most sought after and healthiest, behind only fiber and whole grains, according to data from the International Food Information Council's 2020 Food and Health Survey. In fact, more than four in 10 Americans now say they would assume a product described as plant-based would be healthier than one that is not.⁴

To understand how these ideas are impacting the baked goods category, Cargill conducted proprietary research on consumer attitudes and usage of plant proteins. The findings showed that plants, especially plant-based proteins, are a strong selling point in bakery items.

At the same time, the study found that more than half of these consumers say they commonly look for bakery items that are free from ingredients that feature chemicals, processed or unfamiliar ingredients.

How appealing are these potential characteristics of a bakery item with plant protein?

(Top two boxes: extremely/very appealing)



As you are shopping for bakery items, to what extent do you avoid each of the following?

(Top two boxes: likely to avoid)



Source: Cargill Proprietary Insights. "Consumer Attitudes and Usage of Plant Protein," February 2019.

Rising to the task

This leaves bakery product formulators with several challenges: they must create products that are perceived as natural and label-friendly while also using ingredients that are both familiar and functional. It's a tall order, but a new crop of plant-based ingredients checks off many of these boxes.

Plant-based proteins, for example, are finding their way into a variety of baked goods. Consumers are not only interested in getting more protein in their diets – with nearly half seeing it as “very important” – they are also increasingly open to products containing plant-based proteins from sources like corn, peas, chickpeas, quinoa and soy.⁵

That said, adding plant proteins can create challenges in bakery products, with about one quarter of shoppers saying they don't like the taste of these proteins, and 20% noting they dislike the texture. It is true that some plant proteins can create textural issues or add off-flavors. But ingredient suppliers have gained formulation expertise to address some of the problems. For example, proteins may hydrate and compete for water in a bakery formulation, creating undesirable density. So it is important to allow

proteins time to hydrate and/or add moisture-creating ingredients to prevent dryness. Adding enzymes can also help improve product texture.

Ingredient suppliers are also creating new and better plant-protein ingredients. For example, traditional pea protein ingredients can add a bitter, grassy or beany flavor to products, but Cargill has partnered with PURIS™ pea protein to offer yellow pea seed varieties that minimize off-notes and offer high-protein content, a clean taste profile with minimal aftertaste, as well as high solubility, good dispersibility and mouthfeel. Soy protein is another solution, offering both lower cost and functionality, as a complete protein that provides both emulsification and solubility in baked goods.

Both pea and soy protein are now being used to improve the nutritional profile of various bakery products, adding a good protein claim while maintaining a friendly label. Some of these ingredients also adhere to requirements of trendy high-protein diets like Paleo, Keto and gluten-free eating, although meeting some of these standards would also require new plant-based oils and flours from foods like almonds and coconut.



Bakery's sweet spot

New plant-based ingredients are also replacing or reducing sugar in bakery items. Consumers do still like their sweet indulgent bakery treats (having a dessert following a meal is still a top snacking occasion for more than 70% of U.S. consumers), but they are also increasingly looking for treats that are healthier, made with ingredients they perceive as natural and sweeteners that contain less sugar and fewer artificial ingredients.⁶ In a sense, this gives consumers permission to indulge in that occasional treat.

But the taste and mouthfeel do have to be right, and mimicking both taste and texture of sugar without it is no easy task. Again, suppliers have pushed the envelope to learn how plant-based sweeteners fulfill these requirements. It is unlikely that a single alternative ingredient can take the place of sugar, but there are a growing number of ingredient combinations that can replace sugar's varied functions. Replicating sweetness is actually one of the easier objectives. For example, next-generation stevia sweeteners can now provide as much as 50% sugar reduction, as well as both improved sweet taste and flavor in bakery applications, as compared to earlier extracts made from the stevia compound Reb A.

Replacing the bulk and function of sugar, however, is a bit tougher. Good options include the sweetener erythritol, a naturally occurring compound in foods like berries that is commercially produced via fermentation, and chicory root fiber, both of which can help deliver the mouthfeel and tenderness that consumers expect in their favorite bakery treats. What's more, chicory root fiber contains inulin, a prebiotic fiber that has been well studied for its digestive health benefits.⁷ Digestive support is in itself an increasingly important food and beverage trend,⁸ and can add to the health halo of bakery products.

Ultimately, it comes down to both advance planning and good formulation strategies to give bakery foods a healthy reboot. Once a brand determines its priorities for the product, it is important to allow adequate time for trial and error and product testing to ensure the product maintains the appropriate attributes. Given that it may take a custom blend of ingredients to achieve the desired goals with new plant-based options, it is critical to work with a supplier that offers a wide sweetening and texturizing portfolio, as well as deep ingredient and formulation expertise.

The end result is new bakery foods that offer a better nutritional profile and a great taste that meets consumer expectations for mouthfeel and texture. And that's a win for the bakery category on all fronts.



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

¹ Global Market Insights. "Plant Based Ingredients Market Size by Product." February 2018. <https://www.gminsights.com/industry-analysis/plant-based-ingredients-market>

² Plant Based Foods Association. Plant Based Retail Sales Data Commissioned by SPINS. 52 weeks ending December, 2019.

³ HealthFocus International (HFI). "2019 HealthFocus Global Report—Navigating the World of Plant."

⁴ International Food Information Council (IFIC). "Food and Health Survey 2020." <https://foodinsight.org/2020-food-and-health-survey/>

⁵ Cargill proprietary research. Consumer Attitudes and Usage of Plant Protein. February, 2019.

⁶ Cargill proprietary research. Snack Foods Opportunity Research. 2019.

⁷ Wilson, B; Whelan, K "Prebiotic Inulin-type Fructans and Galacto-oligosaccharides: Definition, Specificity, Function and Application in Gastrointestinal Disorders." *Journal of Gastroenterology & Hepatology*. 2017 Mar;32 Suppl 1:64-68. Doi:10.1111/jgh.13700.

⁸ Mellentin, J. "Ten Key Trends in Food, Nutrition and Health 2020." New Nutrition Business. <https://www.new-nutrition.com/>