The evolving world of sweetness

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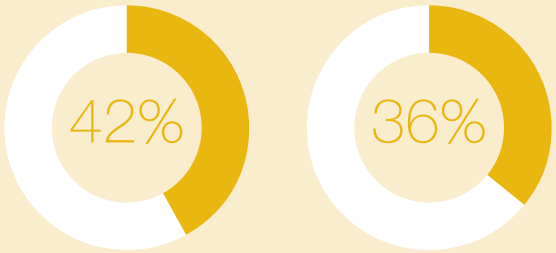
Lower-sugar and no-sugar products have become almost as ubiquitous on store shelves as products that contain sugar. It's little wonder, given the rising concern about too much sugar in our diets, bolstered by expanding science,[1] dietary recommendations, governmental sugar taxes[2] and media coverage. Now fully one out of two popular U.S. brands have a low- or no-sugar strategy.[3]

But even as consumers strive to eat products with less sugar, their attitudes about sweetness are as complex as ever, according to Julian Mellentin, author and editor of New Nutrition Business' "Ten Key Trends in Food Nutrition and Health 2021." The ongoing challenge for brands is to understand what their target customer will accept on an expanding continuum of ingredients, taste, texture and perception.

Consumers are clearly interested in products with less sugar. Data from the International Food Information Council (IFIC) 2020 Food and Health Survey notes that consumer concern about sugar intake remains relatively high, with about three in four still saying they are limiting or avoiding sugars in their diets. This is leading to a rise in products with reduced-sugar claims. According to data from Innova Market Insights, 8% of all new food and beverage products launched in 2018 featured some sort of sugar reduction claim, with "no added sugar" being the most common.

Sugar-reduction messaging among launches with sugar-related claims:



Source: Innova Market Insights. "Sugar Reduction Hits the Sweet Spot." Nov. 2019.

A number of companies are also pursuing a lower-sugar platform – noting a less-sugar percentage relative to a traditional product of fewer calories.[4] However, it should be noted that a low-sugar claim has not been defined by FDA, and its Food Labeling Guidance states that low-sugar claims cannot be used in marketing.[5]

A shifting landscape

The rise of these claims does underscore that consumer preferences are evolving… but they're often hard to interpret. For example, the Innova data found that sugar reduction is a popular option for three in five U.S. consumers, who also indicated they would prefer to cut back on sugar rather than consume artificial sweeteners.

Interestingly, in the 2020 IFIC study, although 74% said they are limiting or avoiding sugar, this is slightly down from the 80% who said this in 2019. Their most common actions to reduce sugar are to drink water instead of caloric beverages and limit or eliminate certain foods and beverages from their diets. Nearly 30% are now choosing reduced-sugar foods, and almost as many are using the Nutrition Facts Label to select products that have less total sugars.[6]

Attitudes about sugar and sweeteners are often inconsistent. Although their reasons for not using sugar are consistently tied to weight management and health, the number of consumers who think reducing sugar will help them lose or maintain their weight is down from 70% in 2019 to 60% in 2020.[7] Those who say they don't need to add sweetness to foods is also down, from 79% to 71% over the past year, according to the IFIC report.

These attitudes can be tricky to understand. "Consumers' approach to what types of sweetness they will accept — or reject — is complex and fragmented," Mellentin wrote in the "Ten Key Trends" report. In other words, for every customer who is scrutinizing health-conscious ice cream labels for anything remotely unnatural, there is another who may overlook these same ingredients, especially if the product delivers some other benefit, such as digestive support, a natural halo, exceptional taste or an added dose of protein.

The right stuff

Given all these variables, it is not surprising that product formulators are pursuing numerous concepts and ingredients or blends to formulate or reformulate their products. And it seems as though many have cracked the code using a combination of strategies such as sugar reduction, sugar substitution and moving beyond sweetness to alternative tastes.[8]

Product developers have made significant progress in reducing or replacing sugar's complex functions, although no single ingredient can exactly replicate its taste and texture profile. So, when reformulating products with reduced or no sugar, they are turning to natural ingredients and ingredient combinations to achieve these functions.

When it comes to eliminating or reducing sugar content, stevia-based ingredients are among the top solutions. These ingredients have evolved into versatile, plant-based and naturally sourced options for a variety of applications. But learning about the sweet components of stevia has been a long process. Stevia-based extracts contain sweet molecules called steviol glycosides, and there are many of them — more than 40, in fact. The first generation of stevia extracts used the steviol glycoside called rebaudioside (Reb) A, which has been effective at replacing sweetness, but when used at high levels, the extract can leave a licorice-like aftertaste in products.

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Cargill, a pioneer in the stevia space, has spent more than 300,000 hours studying stevia's sweet components. Their scientists developed a next-generation stevia extract made with the plant's sweetest components, the steviol glycosides Reb M and Reb D, which tend to have less bitterness and lingering aftertaste, as well as a taste that is closer to sugar. The problem was that these components are among the rarest in the plant, so producing them through traditional agriculture was unrealistic. In response, Cargill devised a way to produce a product containing Reb M and Reb D using the process of fermentation, which is both cost-effective and sustainable. Recently, Cargill formed a partnership with DSM to take EverSweet® stevia sweetener to the next level.

Reb M and Reb D-containing products like EverSweet sweetener have emerged as a popular choice for sugar reduction in applications ranging from soft drinks to confections, bars, cereals and dairy products. EverSweet provides great taste while achieving 100% sugar reduction. According to proprietary U.S. consumer data from Cargill, stevia-based ingredients overall have a healthful and positive label perception.

Because alternative sweeteners often have a different taste, texture and mouthfeel, it is also becoming common to combine ingredients to achieve desired attributes. Erythritol, a sugar alcohol common in berries and certain vegetables and also produced commercially via fermentation, is another consumer-friendly option often combined with stevia. It is a zero-calorie sweetener that can help add body to a beverage, while also improving on stevia's sweetness profile. According to data from Mintel, erythritol is also seeing growth, with the number of new products launched containing the ingredient increasing 100% between 2017 to 2019.[9]

Another solution for sugar reduction is chicory root fiber. This multi-purpose ingredient can replicate sugar's mouthfeel, texture and flavor, as well as serve as a fat mimetic, or a masking or bulking agent. Chicory root fiber is also a well-studied prebiotic fiber that can add a digestive wellness attribute to a product.[10,11]

Although companies continue to innovate in sugar reduction and low-calorie products, there are still problems to be solved. As consumers' appetite for sugar and their palate for sweetness changes, product suppliers and developers will continue to try alternative options to reach new targets in sugar reduction and replacement. Upcycled coffee cherries are being used as stealthy sugar reducers in chocolate products, and botanicals are now providing alternative flavors, such as bitter, spicy or sour, to take the place of sugar in some products.[12]

Looking ahead, it is anyone's guess as to what new variations will be next to rise in the quest to reduce our consumption of high-sugar foods.

Learn more about Cargill sugar-reduction solutions at **cargill.com/sugarreduction**. Or contact us: **1-800-932-0544**; **customerservice@cargill.com**.

Avansya is a joint venture of DSM and Cargill.

1 Rippe, J.M.; Angelopoulos, T.J. "Relationship between Added Sugars, Consumption and Chronic Disease Risk Factors: Current Understanding." *Nutrients* 2016;8(11): 697. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5133084/

2 World Health Organization. "Taxes on Sugary Drink. Why Do it?" https://apps.who.int/iris/bitstream/handle/10665/260253/WHO-NMH-PND-16.5Rev.1-eng.pdf;jsessionid=D4AC456401C7C73E4853882C8E47822A?sequence=1

3 Mellentin, J. "Ten Key Trends in Food, Nutrition and Health 2021." https://www.new-nutrition.com/

4 Innova Market Insights. "Sugar Reduction Hits the Sweet Spot." November 2019.

5 U.S. Food and Drug Administration. Food Lableing Guide. (fda.gov)

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

7 Ibid.

8 Ibid. Innova Market Insights.

9 Mintel GNPD data in *New Nutrition Business*' "Ten Key Trends in Food, Nutrition and Health 2021."

10 Ahmed, W; Rahsid, S. "Functional and Therapeutic Potential of Inulin: A Comprehensive Review." *Critical Reviews in Food Science and Nutrition*. Oct. 2019. Doi: 10.1080/10408398.2017.1355775.

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

12 Ibid. Innova Market Insights.

Claims: *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.*

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