



COST-EFFECTIVE FORMULATION:

Making sugar reduction and label-friendly ingredients work

Consumers are now paying more attention to the ingredients and nutritional content in the products they purchase and becoming more mindful about what they put in their bodies, according to recent data from Nielsen’s Transparency Report.

In addition to looking for products that are healthier and contain ingredients that are natural as opposed to artificial, many shoppers now also want to know “why” and “how” their products are made, and they are looking deeper into the nutrition deck for information about ingredients that they find acceptable or unacceptable.¹ This is prompting an interest in manufacturers’ supply chains that is reaching unprecedented levels.²

For product formulators, this now means that finding health-promoting ingredients that are label-friendly, have a sustainable supply chain, and are versatile and cost-effective in formulation is more important than ever. According to the 2018 Food and Health Survey from the International Food Information Council Foundation (IFIC), these concepts are growing in their influence on consumers, even when products’ nutritional facts are identical. For example, consumers are influenced by the absence of GMOs, a shorter ingredient list, sustainable products, freshness and a sweeter taste.³

These factors have become especially critical in products that contain sugar. Nearly half of consumers now say they are eliminating products like soft drinks and candy to cut back on sugar, and one in three are cutting out baked goods.⁴

Understanding sweetness

As a result, products containing label-friendly sweeteners and sugar-reducing ingredients are emerging as suppliers offer increasingly versatile and functional sweetening solutions.

Stevia leaf extract, for example, can be found in the formulations of a growing number of product categories. Reb A stevia sweeteners saw expanding popularity in beverage applications back in 2012; however, formulators struggled to reach sugar-reduction targets with the desired taste and sweetness levels at higher usage rates.

Consumers are paying attention to ingredients



6 in 10 consumers say sustainability is important in the food they purchase (a 50% increase over 2017)



Consumers prefer no artificial ingredients and are willing to pay for it: 7 in 10 consumers are willing to give up a familiar favorite product for one that does not contain artificial ingredients.

Source: 2018 Food and Health Survey, IFIC

This prompted more recent advances in the category to not only pinpoint sweetness levels, but also to ensure a reliable, sustainable supply chain and target cost efficiencies.

One of the category leaders in this space is Cargill, and they have spent over 150,000 hours studying the sweet components of the stevia leaf, called steviol glycosides, to understand how to deliver taste and sweetness with zero calories.

Insights from this work prompted Cargill scientists to develop proprietary ViaTech™ stevia sweeteners and a taste-prediction model that can efficiently predict the combination of steviol glycosides to achieve optimal taste and sweetness. They can now determine the best combination of steviol glycosides to maintain high-performance sweet taste, reduce off-notes and deliver a commercially viable cost-in-use model. One way these sweeteners do this is by reducing the need for expensive masking agents and modifiers. This portfolio has expanded the capabilities of stevia sweeteners, allowing formulators to achieve significant sugar and calorie reductions (by more than 50 percent) even in challenging carbonated soft-drink applications.

Additional discoveries led to the next generation of stevia-based sweeteners from the sweetest components of the stevia leaf, the steviol glycosides Reb M and Reb D.

However, because the components are only present in less than one percent of the stevia leaf, it would require significant land use and waste to be environmentally or commercially viable. Cargill scientists realized that producing Reb M and Reb D using the century-old technique of fermentation could produce a sweetener that would deliver these components using less land and emitting less CO₂ than by growing stevia plants.⁵

The resulting ingredient, EverSweet™ sweetener, is made when baker's yeast and simple sugars are transformed through fermentation into Reb M and Reb D, the same steviol glycosides that are found in the stevia plant.

Another label-friendly option for sugar reduction is chicory root fiber, a naturally sourced fructan that is a versatile solution, providing both efficient product development options and benefits to human health. This multi-functional ingredient is label-friendly and can add additional benefits such as modifying texture, lowering calorie count, increasing fiber content, supporting calcium absorption and bone health, and supporting gut health. Chicory root fiber, for example, can be used as a pure bulking agent, displacing added sugar from a product formulation – and can replace sugar on a one-to-one basis.

Chicory root fibers are generally recognized as safe and do not contain GMOs. Oliggo-Fiber® chicory root fiber is grown primarily in the Netherlands, Belgium and northern France. It is treated carefully from harvest through production manufacturing to preserve the fiber content. A key supplier is Cosucra Groupe in Warcoing, Belgium. The company uses processing techniques that don't include solvents or high heat that could damage the naturally occurring fiber molecules. Cosucra's R&D department is devoted to improving these crops using traditional agricultural practices that protect the crops' ongoing success and the livelihood of its growers.

In addition to its label-friendly credentials, chicory root fibers contain inulin-type fructans, which have been well-studied for their physiological benefits. In fact, the U.S. Food and Drug Administration recently added inulin as an accepted dietary fiber in the U.S., recognizing its role in improving calcium absorption and bone health.⁶



Choosing a supplier

The more a supplier knows about its ingredient supply chain and its ingredients' capabilities, the better partner it will be in formulating innovative and cost-effective products that are both lower in sugar and more label-friendly. The following is a list of some questions to ask of potential suppliers regarding versatility and cost-efficiency of label-friendly ingredients:

- What sugar reduction options do you have that meet label-friendly requirements?
- Do you have a reliable, consistent and sustainable supply of this ingredient?
- How much sugar and calorie reduction can I achieve for my product formulation with this ingredient?
- If I substitute this product for sugar, what other ingredients might I also have to use?
- What is a sensible cost-in-use model for this product?

Ultimately, in this competitive and changing world, formulators should look for a supplier that can demonstrate predictability, consistency and quality at every step of its supply chain.

References

- ¹ "It's Clear Transparency is Winning in the U.S. Retail Market." Nielsen Transparency Report 2017. <http://www.nielsen.com/us/en/insights/reports/2017/transparency-is-winning-the-us-retail-market.html>
- ² "Driving Long Term Trust and Loyalty through Transparency." The 2016 Label Insight Transparency ROI Study. <https://www.labelinsight.com/transparency-roi-study>
- ³ 2018 Food and Health Survey. International Food Information Council Foundation <https://www.foodinsight.org/2018-food-and-health-survey>
- ⁴ 2018 Food and Health Survey. International Food Information Council Foundation. <https://www.foodinsight.org/pages/download-2018-food-and-health-survey>
- ⁵ Design for the Environment Life Cycle Assessments. U.S. Environmental Protection Agency. <https://www.epa.gov/saferchoice/design-environment-life-cycle-assessments>
- ⁶ "The Declaration of Certain Isolated or Synthetic Non-Digestible Carbohydrates as Dietary Fiber on Nutrition and Supplements Facts Labels: Guidance for Industry." U.S. Food and Drug Administration. June 2018. <https://www.fda.gov/downloads/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/UCM610144.pdf>

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

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.