



# Cut the Sugar, Not the Satisfaction

# Creating reduced-sugar frozen dairy treats that keep consumers coming back for more

If ice cream sales are any guide, it seems American consumers might be ready to kick the sugar habit. Reduced-sugar ice creams and frozen dairy desserts are finding their way into shoppers' grocery carts with growing frequency, sparking a category revival.

**After two decades of relatively flat sales, Nielsen reports retail ice cream sales reached**

# \$6.6 billion

**in 2016, up 3.4% from 2015, with reduced-sugar products driving the growth.<sup>1</sup>**

"Americans' growing awareness of sugar content is clearly playing out in their selection of many products, ice cream included," explains Pam Stauffer, Cargill's global marketing programs manager. "Innovative food manufacturers are capitalizing on those consumer desires by creating reduced-sugar frozen treats that still deliver a rich, decadent experience."

## Taste is Key

Consumer interest in sugar reduction is evident. More than three in four Americans now say they are trying to avoid or limit their sugar intake, according to the 2017 Food and Health Survey from the International Food Information Council Foundation (IFIC). Yet taste remains consumers' number-one priority. That same IFIC study showed that more than 84 percent of consumers consistently say product taste has the most impact on their decision to buy a food or beverage.<sup>2</sup>

"For indulgent products like ice cream, taste is the key purchase driver," Stauffer emphasizes. "Fortunately, we have the tools and technical expertise to meet consumers' expectations, with less reliance on sugar."

Zerose<sup>®</sup> erythritol is a good place to start. Erythritol delivers a sweet taste similar to sugar, but without the calories. Calorie reduction aside, the sweetener delivers additional attributes that are well-suited for indulgent products, including digestive tolerance and oral health benefits.

"In a food category where consumers have been known to overindulge, erythritol has the highest digestive tolerance, as compared to other polyol sweetener options," explains Ravi Nana, Cargill's technical service manager for polyols. "Clearly, that's an important consideration for ice cream makers."

It offers cavity protection too. The non-cariogenic sweetener has been clinically shown to offer Better Tooth Protection<sup>™</sup> than other polyols.<sup>3</sup> Still, while eliminating some sugar may be good for teeth (and waistlines), can ice cream formulators replicate sugar's other functional benefits? According to Nana, that's where erythritol really shines.



## Functional Foundations

“Take out the sugar, and you lose more than sweet taste,” he explains. “You also lose its functional properties that dictate texture, mouthfeel and consistency.”

In ice cream, sugar is what lowers the freezing point and prevents the formation of large ice crystals, creating that smooth, silky texture expected in a premium ice cream. Cargill’s Zerose® erythritol can fill that void. Because of its small molecular size (one-third that of sugar), erythritol provides a threefold freezing-point depression factor. That higher effect on freezing-point depression helps soften reduced-sugar ice creams, creating the scoopable texture consumers crave.

The next hurdle is replacing sugar’s bulk. Remove one pound of sugar, and you need to put one pound of something back into the formula. As a bulk sweetener, erythritol can also fill this role, replacing sugar at a one-to-one ratio.

Erythritol has great synergy with high-intensity sweeteners, like stevia, to achieve just the right level of sweetness. “Consumers are very accepting of stevia, and the two ingredients work well together,” Nana explains, noting that erythritol can help mask the off-flavors sometimes associated with high-intensity sweeteners.

Using combinations of erythritol and stevia, product developers can easily achieve a 25-to-30 percent reduction in sugar, while still delivering a frozen dairy dessert that consumers will rave about. Deeper reductions are possible; the key is landing on the right blend.

“It’s always surprising how slight shifts in concentrations can have a dramatic impact on sweetness perception and flavor,” Nana says.

## Partner Power

There’s an art — and a science — to achieving the right freezing-point depression and finding the optimal blend of sweeteners, but partnering with an experienced supplier can help speed development. In the case of Cargill, the company’s portfolio includes sweeteners, texturizers, cocoa and chocolate products and more — all backed by a deep understanding of how different ingredients interact with each other. It’s a combination that can save customers a lot of development work and yield consumer-pleasing results.

“We have the tools and expertise to create reduced-sugar frozen dairy treats that deliver tastes and textures that rival their full-sugar competitors,” Nana emphasizes. “That’s what today’s consumers want — the indulgence of ice cream, without the guilt.”

<sup>1</sup> “State of the Industry: Dairy.” *Food Business News*, Nov. 13, 2017. Accessed at [http://www.foodbusinessnews.net/articles/news\\_home/Business\\_News/2017/11/State\\_of\\_the\\_industry\\_Dairy.aspx?ID=%7BF5D2521F-729B-4618-9869-390A54BDD15B%7D](http://www.foodbusinessnews.net/articles/news_home/Business_News/2017/11/State_of_the_industry_Dairy.aspx?ID=%7BF5D2521F-729B-4618-9869-390A54BDD15B%7D)

<sup>2</sup> 2017 Food and Health Survey from the International Food Information Council Foundation, accessed at <http://www.foodinsight.org/2017-food-and-health-survey>

<sup>3</sup> Decock P, Mäkinen K, Honkala E, Saag M, Kennepohl E, Eapen A. “Erythritol is More Effective than Xylitol and Sorbitol in Managing Oral Health Endpoints.” *International Journal of Dentistry*, 2016.