

Sweetener briefs



By Bayn Europe, Sweden, 2017

There are 6 type of sweeteners

1. Sugars

These are carbohydrates and contain 4 calories per gram. They are found naturally in many foods including fruit, vegetables, cereals and milk. They can be harmful to teeth and tend to have a high glycemic index. They are linked to metabolic disorders in the body causing diabetes, cardiovascular problems, obesity, etc. The most common are:

[Sucrose, Glucose, Dextrose, Fructose, Lactose, Maltose, Galactose, Trehalose](#)

2. Sugar Alcohols

They contain fewer calories per gram than sugar and do not cause tooth decay. The downside of this is that they can cause cramps or bloating if taken in excess. They are harmless to teeth and tend to have a very low glycaemic index.

The most common are:

[Sorbitol, Xylitol, Mannitol, Maltitol, Erythritol, Isomalt, Lactitol, Glycerol](#)

3. Natural Caloric Sweeteners

These are the oldest known sweeteners and include honey and maple syrup. They contain sugar but also other nutritive qualities. They tend to have a somewhat lower glycaemic index than sugar, but still need to be taken in moderation as they can be detrimental to health in large quantities. They can also be harmful to teeth. They include:

[Honey, Maple Syrup, Coconut Palm Sugar, Sorghum Syrup.](#)

4. Natural Zero Calorie Sweeteners

These are not carbohydrates and contain little or no calories. They have zero glycaemic index and are harmless to teeth. Like artificial sweeteners they can have an aftertaste. They include:

[Luo Han Guo \(monk fruit\), Stevia, Thaumatin, Pentadin, Monellin, Brazzein.](#)



5. Modified Sugars

These are typically sugars produced by converting starch using enzymes. They tend to have a high glycaemic index and can be harmful to teeth. A few are:

[High Fructose Corn Syrup \(HFCS\), Refiners Syrup/Golden Syrup, Caramel, Invert Sugar.](#)

6. Artificial Sweeteners

They have zero glycaemic index and are harmless to teeth.

The most common are:

[Aspartame, Sucralose, Saccharin, Neotame, Acesulfame K, Cyclamate.](#)

Sweetener price benchmarking

The data below shows the relative sweetener prices compared to sugar. Note that these are based on commodity prices, the prices manufacturers of processed foods and beverages are required to pay. Much of the data is based on year of 2013, however it gives an indication of sweetener comparisons.

Sweetener	Price relative to Sugar
Neotame	0.01
Saccharin	0.02
Acesulfame K	0.04
Cyclamate	0.06
Aspartame	0.08
Sucralose	0.15
Glycyrrhizin	0.25
Stevia	0.36
Luo Han Guo	0.72
Sucrose	1.0

The graph shows the intense sweetener bulk price compared to ordinary sugar (beet or cane). These are prices on the world market. The artificial sweeteners are very cheap. In many cases they are 4% or less the cost of sugar and in some cases down to almost 1%. Obviously this represents a huge saving to the food manufacturers, particularly the producers of diet soda drinks. It is interesting to note that the savings do not appear to be passed on to the consumer, diet drinks are usually the same price as the 'full fat' sugar varieties!!

All low or zero calorie sweeteners have their limitations, in one the negative effects on health, in others it is taste, the synthetic nature or limited functionality, the search for better alternative continues.

Sweetener	Price relative to Sugar
HFCS 42	0.46
HFCS 55	0.69
Maltitol	0.72
Xylitol	0.82
Sucrose	1.0
Sorbitol	1.08
Maltose Syrup	1.43
Mannitol	3.38
Honey	3.84
Erythritol	6.65
Isomalt	7.89

When compared with an equivalent measure with sugar (beet or cane as benchmarked as 1), these sweeteners are much more expensive than the intense or artificial ones.

On the sustainability issue. Sugar cane is also produced to provide ethanol. This puts upward pressure on sugar prices, and also pressure on land available for food production. If sugar can be replaced as a sweetener by cheaper, or more efficient sources, this could have positive ecological implications - all other things being equal!

Sweetener trends

CONSUMERS WANT SWEETNESS WITHOUT ALL THE CALORIES

Today's health- and nutrition-conscious consumers are searching for the sweetness experiences they love in products that contain less sugar and fewer calories.



of Americans are concerned about how **sugar impacts their overall health**¹



are looking to reduce sugar, substituting lower-calorie alternatives for **full-calorie products**²

Beverage



NEARLY 8 OUT OF 10 AMERICAN CONSUMERS (79%) ARE CUTTING CALORIES BY DRINKING WATER OR LOW- TO NO-CALORIE BEVERAGES²



31% OF CONSUMERS SAY REDUCED-SUGAR OPTIONS WOULD INFLUENCE THEM TO PURCHASE MORE FRUIT JUICE, WHILE MORE THAN 25% ALREADY BUY REDUCED-SUGAR JUICE³

A look at sugar-related government regulations:



In 2013, New York City enacted a soda ban that **prohibits the sale of many sweetened drinks** in servings greater than 16 ounces



In 2014, Mexico's Congress passed a 10% sales tax on **sugar-sweetened beverages**



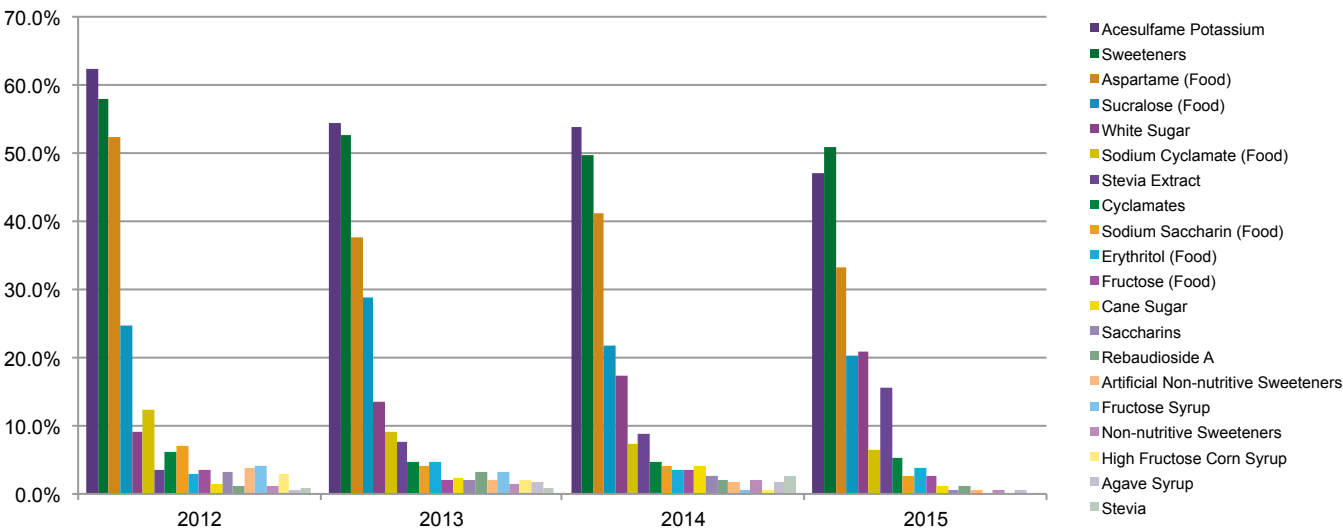
In 2016, the U.K. imposed a tax on certain **sugar-sweetened drinks that contain more than 5g of sugar per 100ml**

The sugar content of foods and beverages is under intense scrutiny by health organizations, government bodies and a growing number of consumers. Read the latest consumer and industry insights into the sugar-reduction trend, and consider how to deliver the sweetness your consumers expect with the low or no sugar they increasingly demand.

Sweetener status and change in CSD

Among global mid-calorie CSD products, acesulfame-potassium is the most commonly used sweetener. However, its use has been declining in the past few years, -13.51% in 2014 when compared to 2012.

Top 20 sweeteners used in global mid-calorie CSD launches, Jan. 2012 – Mar. 2015



Natural CSDs are another opportunity that currently have a rather small audience but the potential to grow

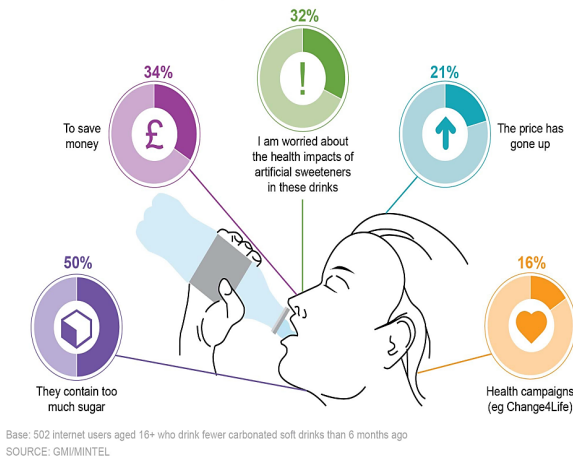
- In the US, natural CSDs see their strongest audience among those aged 25 to 34.
- In the UK, a quarter of users would pay more for a CSD made using only natural ingredients. That 25% of consumers would be willing to pay more for a product made using only natural ingredients bodes well for brands with a natural positioning.

Source: Health and Wellness – How Sweet It Is...
Source: Mintel GNPD

Ingredient	% change: 2012 - 2015
Acesulfame Potassium	-13.50%
Aspartame (Food)	-21.60%
Sucralose (Food)	-11.50%
Sodium Cyclamate (Food)	-39.60%
Stevia Extract	144.40%
Cyclamates	-22.70%
Sodium Saccharin (Food)	-42.00%
Fructose (Food)	7.00%
Saccharins	-17.90%
Rebaudioside A	50.80%
Fructose Syrup	-85.50%
High Fructose Corn Syrup	-84.20%
Stevia	228.60%
Fructose Glucose Syrup	276.90%
Glucose Fructose Syrup	276.90%
Resistant Maltodextrin	35.30%
Maltodextrin (Food)	n/a
Saccharin (Food)	-80.70%
Aspartame-acesulfame Salt	n/a
Xylitol (Food)	0.00%
Cyclamate	0.00%
Crystalline Fructose	n/a
Stevioside (Food)	n/a

Half of those drinking fewer CSDs are put off by sugar

REASONS FOR DRINKING FEWER CSDs, MARCH 2014



- In the UK, a quarter of consumers are drinking fewer CSDs than six months ago and the perception that CSDs contain **too much sugar** is the most common reason for cutting back, noted by half of those who have. In part, this is likely to reflect the recent negative media focus on foods that are high in sugar as contributing to obesity.
- Whilst the industry has been proactive in tackling concerns around the high sugar content of some of the drinks by introducing lower-sugar/lower-calorie variants, **more work is needed**.

66%

of Brazil's CSD drinkers would rather **drink less of regular CSDs** than switch to light/diet versions

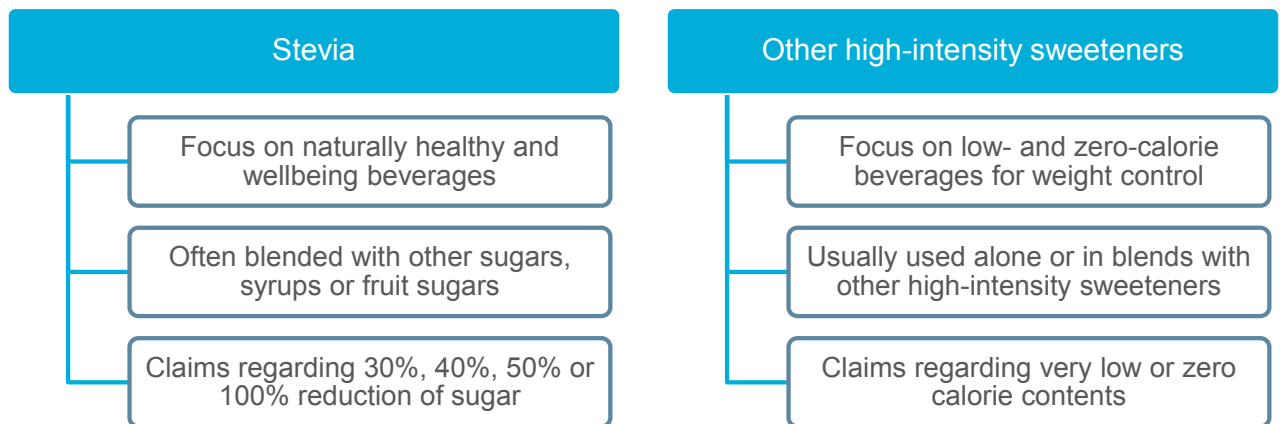
46%

of US CSD drinkers agree regular soft drinks in smaller pack sizes can **help control calorie intake**

Almost half

of women in France and a third in Germany say a standard size can is **too much to drink at one time**

Stevia and other HI sweeteners



Use of stevia differs from other high-intensity sweeteners

- One notable aspect of the stevia revolution is the difference between its use and the use of other high-intensity sweeteners. Over the years, the use of sweeteners has been primarily for the purpose of reducing calories, and the emphasis has been on carbonated soft drinks, such as cola, and the development of low- and zero-calorie products for consumers with weight concerns.
- Stevia is, however, targeting a much broader range of applications, and its focus is generally on naturalness and general wellbeing rather than specifically on weight control. As a result, it is still widely used in combination with natural sugars as a tool for reducing rather than removing sugars and calories.
- In light of these differences, stevia is not expected to take significant volumes from other high-intensity sweeteners in their core categories (such as carbonates). Instead, activity to date suggests that it is actually targeting entirely new markets and applications, effectively creating a totally new market for sweeteners.

- Headlines Driving Consumer Concern
- Avoidance of Artificial Sugars Growing
- Consumers Subjectivity With Sugar Varies

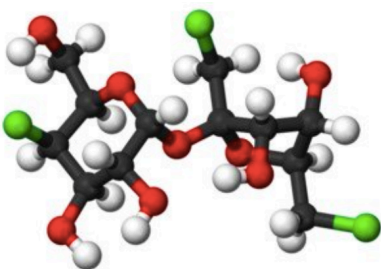
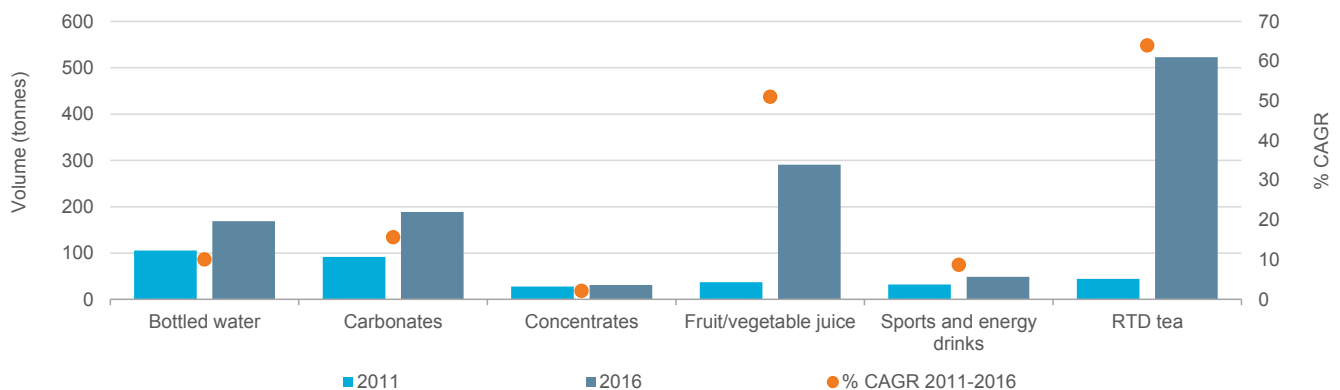


Stevia wellness and environment

Natural and wellness beverages drive stevia demand

- Soft drinks categories with strong natural credentials have been most receptive of stevia sweeteners. For example, in 2011, bottled water was the single most important application, with stevia finding favour in enhanced waters, including flavoured and fortified products.
- The advent of stevia has also allowed manufacturers to develop more “natural” carbonated drinks, and this category is forecast stronger growth than bottled water over 2011-2016.
- The fastest growth is, however, forecast in the RTD tea market (forecast CAGR of 64% from 2011-2016), with more consumers turning to tea drinks for the antioxidant health benefits but still eager for natural sugar reduction at the same time. Similarly, the fruit/vegetable juice category is forecast very strong growth (CAGR of 51%) as stevia can help fruit drinks maintain their natural and healthy image while cutting sugar.

Stevia: Volume Used in Specific Soft Drinks Categories 2011-2016



Sucralose, the artificial sweetener in Splenda, is one tough molecule.

The chemical passes right through the body, then through sewage treatment systems and out into surface and ground waters looking the same as it did when it was stirred into a cup of coffee.

No one knows how the ever-greater amounts of sucralose release into the environment affect the ecosystem. But research published in Environmental Engineering Science shows that the artificial sweetener is indeed making it through traditional water filtering systems.

Sweeteners in the water supply? Stevia gains funding on environmental grounds

By Annie-Rose Harrison-Dunn , 04-Feb-2014
Last updated on 04-Feb-2014 at 13:16 GMT

 1 comment



Two companies receive funding for their environmentally driven stevia project

Related tags: [Baltic region](#), [Stevia](#), [Sweeteners](#), [Safety](#), [Water](#), [Pollution](#), [Sweden](#), [Funding](#)

The Swedish government has supported a stevia project led by Bayn Europe and Barentz based on concerns that non-biodegradable sweeteners may have adverse effects on water supplies.