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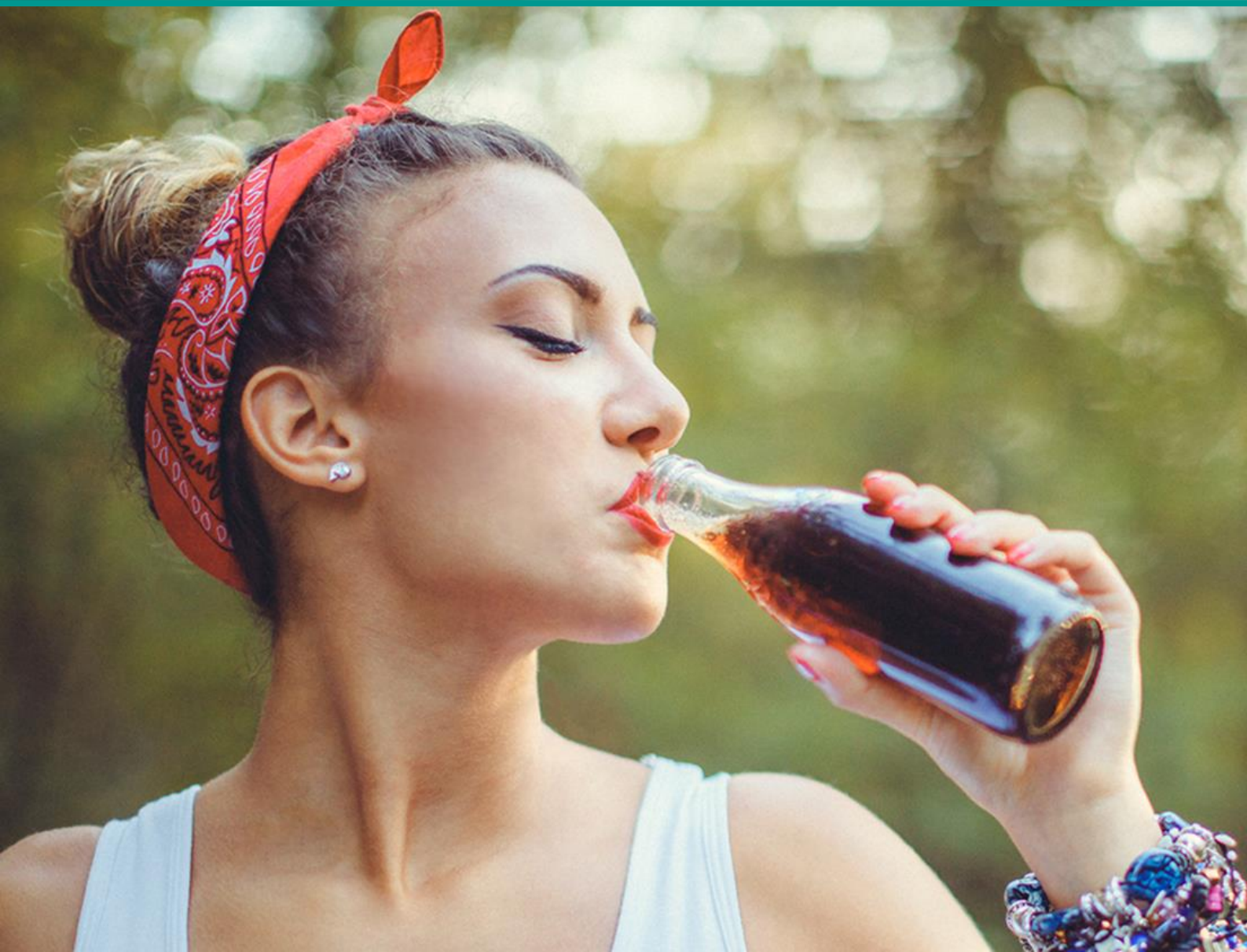
symrise 

# symlife<sup>®</sup>

## White Paper

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*Taste balancing solutions tailored to create  
better-for-you products preferred by consumers*



# symlife®

*the evolution  
of great taste*

*Better-for-you products can suffer from less desirable taste, based on their formulation with vitamins, minerals or whole grain for example, which can contain inherent off-notes. Also the reduction of sugar, fat and sodium can lead to a taste gap. At the same time taste is a key driver for consumer preference and hence product purchase. **symlife**® therefore developed taste balancing solutions specifically tailored to food and beverage manufacturers' specific needs and formulas, enabling them to deliver great tasting products that consumers love.*

## Health – a top priority today

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Over the past decades, consumers, retailers and regulators have grown increasingly aware of the **detrimental health effects associated with high sugar, sodium, and fat** intake. With government bodies and health institutions advocating a reduction of these, there has been a strong global push for food and beverage manufacturers to reformulate their products.

With the overall shift towards better health, there is also a trend towards fortification and enrichment to **achieve better-for-you products**, which are often deemed more attractive by consumers.



## However, taste remains a key challenge

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While better-for-you products are much desired, **taste still drives consumer preference**. However, taste perception is a **complex** process involving many multisensory interactions. Any change in the food or beverage matrix influences these interactions, resulting in a **taste gap** which ultimately **affects consumer preference**.

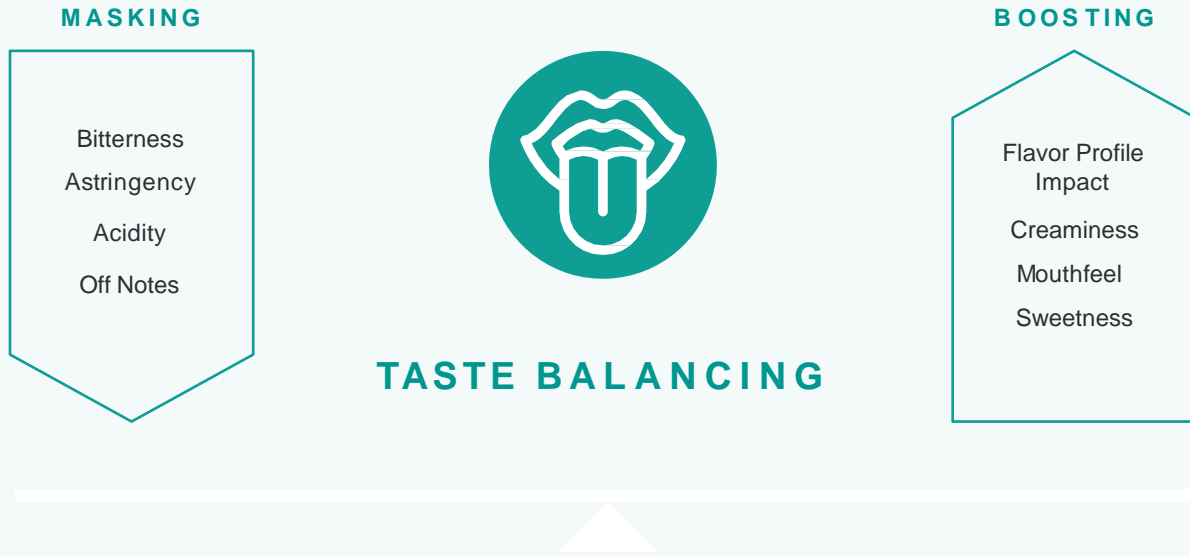
For instance:

- Sugar, salt, and fat reduction may lead to loss of sweet or salty perception, mouthfeel and body, a decrease in overall taste intensity, as well as revealing bitterness, or astringency
- Use of ingredient replacers, e.g. sweeteners, results in different taste dynamics during the time of consumption, and the addition of off-notes (e.g. later onset, or lingering tastes)
- Fortification with nutrients, and the addition of proteins, including plant based proteins, may lead to off-notes such as bitterness and astringency



## Holistic approach to bridge the taste gap

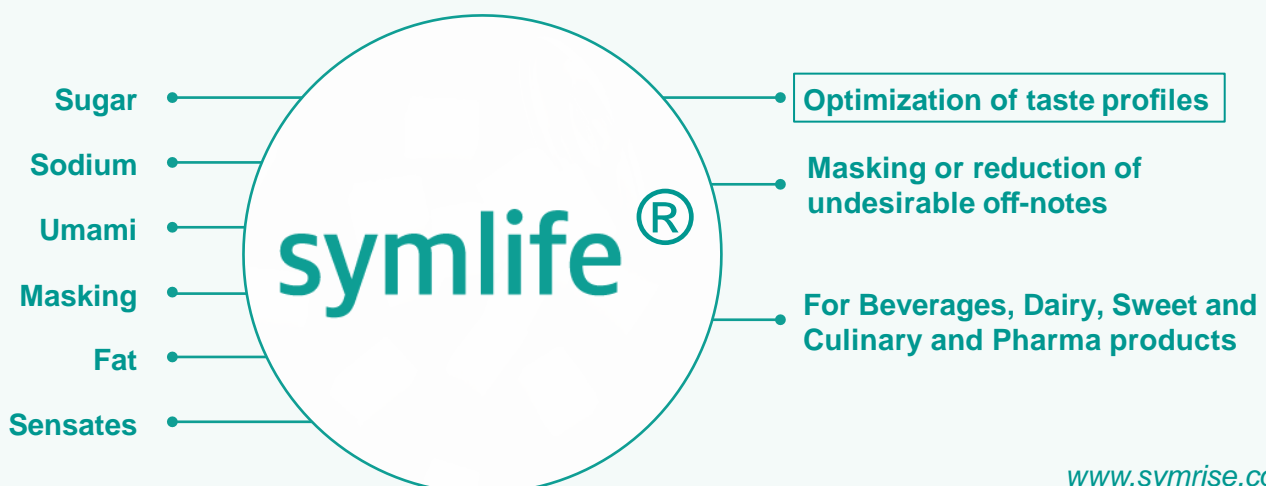
Due to these complexities, manufacturers need a holistic approach to **restore the overall taste profile of better-for-you products to a great tasting profile**. This can be done through **taste balancing** -- by masking undesirable notes and **rebalancing the overall profile** of the product.



## Achieve great taste in better-for-you products

**symlife®** is Symrise's range of **taste balancing solutions** that **rebalances overall taste perception** incl. sweet, mouthfeel, salt and umami sensations. **All symlife® solutions are classified under the flavor regulation and hence can be labelled as natural flavor or flavor.**

Uniquely tailored to customers' specific needs, **symlife® taste balancing solutions** help manufacturers achieve **great tasting, healthier products which consumers love.**



# Rebalancing overall taste for sugar reduced products with symlife®

To tackle sugar reduction, food and beverage manufacturers commonly employ the following approaches:

- Scenario 1: Partial reduction of 2.5-3 °Bx
- Scenario 2: Partial reduction of more than 3 °Bx sugar, with addition of sweeteners
- Scenario 3: Total reduction by entirely taking out sugar from the formulation, and replacing it with sweeteners

However, to date, nothing can truly replace sugar – any modification on sweetening systems impacts the product's overall taste experience:

- Basic taste (bitterness, sourness)
- Flavor profile (e.g. the intensity or fruitiness of strawberry taste)
- Mouthfeel (body)
- Sweet taste dynamics (see Fig. 1)

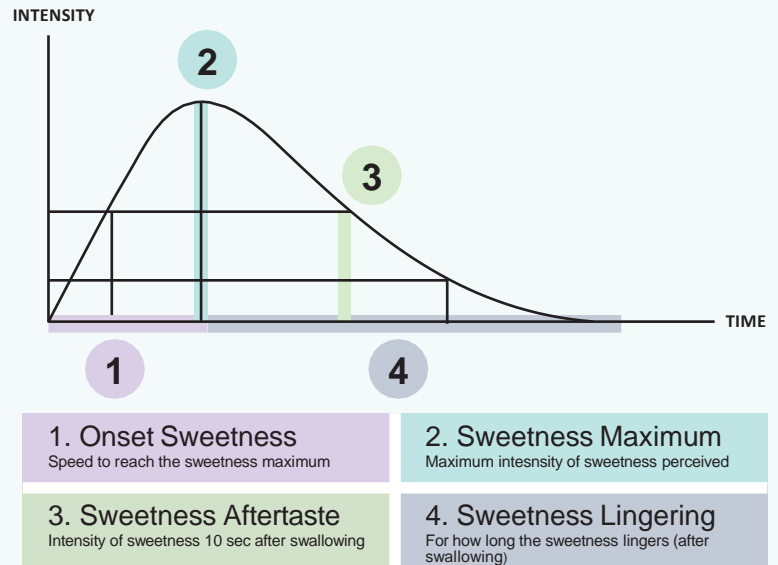


Fig 1. Sweet taste dynamics

## Create better-for-you products with balanced taste incl. closer to sugar sweetness dynamics that consumers love



While sweeteners in general can close the sweetness intensity gap in sugar reduction, **rebalancing the sweetness profile and overall sweetness dynamics cannot be achieved by single molecules or a combination of sweeteners alone.** The entire taste dynamics have to be considered, like onset, mouthfeel and masking of lingering aftertaste.

Here, Symrise's **tailored symlife® flavor solutions** help to **rebalance the overall product profile** according to each manufacturer's unique needs.

<p>scenario</p> <h1>1</h1>	<p>scenario</p> <h1>2</h1>	<p>scenario</p> <h1>3</h1>
<ul style="list-style-type: none"> <li>• Sugar reduction, from 2.5-3°Bx in ready-to-drink beverages meeting all sweetness dynamics of sugar</li> <li>• Optimization by taste balancing flavor</li> <li>• May require some adjustment in food matrix</li> </ul>	<ul style="list-style-type: none"> <li>• Sugar reduction above 3°Bx in ready-to-drink beverages</li> <li>• Optimization by a combination of taste balancing flavor, masking flavor, sweetener and other complementary ingredients</li> <li>• May require adjustment of food matrix</li> </ul>	<ul style="list-style-type: none"> <li>• Sweetening system 100% based on sweeteners (artificial/natural)</li> <li>• Optimization by taste balancing flavor, masking flavor, etc</li> </ul>

## Symrise's key differentiators



### In-depth Market and Consumer Understanding

To help manufacturers deliver satisfying product experiences and enable agile reaction to evolving trends

- Long-standing experience of working with manufacturers across the globe on successful reformulations that meet consumer demands for better health
- Supported by a variety of tools, such as **symscript®** (our in-house sensory language to systematically describe sensory gaps and the ideal taste profile of food and beverage products), **social media listening**, and extensive **proprietary consumer studies**



### Broadest Range of Natural Solutions

High flexibility to develop best-in-class, tailored taste solutions

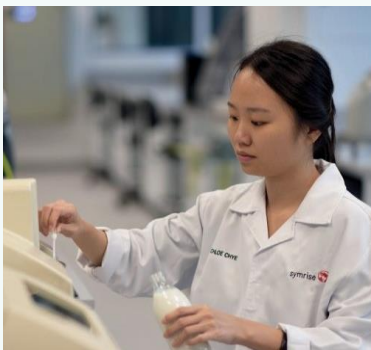
- **No. 1 in terms of patent strength in the industry**, with 34% patent assets globally and >20 unique materials for taste balancing (and counting); **most are IP protected and can be labeled as 'natural flavor'**
- Supporting a **circular economy** by developing natural taste balancing materials **from side streams**
- **In-house selection, breeding and cultivation** program to continuously research and identify natural taste balancing raw materials
- Using **AI methods in decoding ancient Chinese recipes** to identify potential materials



### Application Expertise

To enable full taste enjoyment in reformulated products

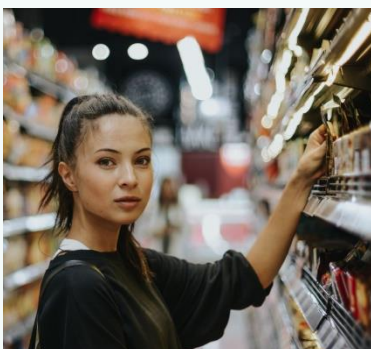
- Understanding of interaction & synergistic effects of taste balancing tools and food matrices (e.g. sugar reduction in yogurt vs. ready-to-drink tea)
- **Deep application know-how and analytical capabilities** to help tailor taste solutions according to specific end use and formula needs



### Close Collaboration Approach

To ensure speed and agility in delivering tailored taste solutions

- **By engaging manufacturers at an early stage** to understand their specific needs and requirements
- Applying our **holistic cross-functional capabilities** to deliver unique taste solutions which **meet food and beverage manufacturers' requirements reg. cost-in-use, labeling, and taste performance**



### Regulatory Expertise

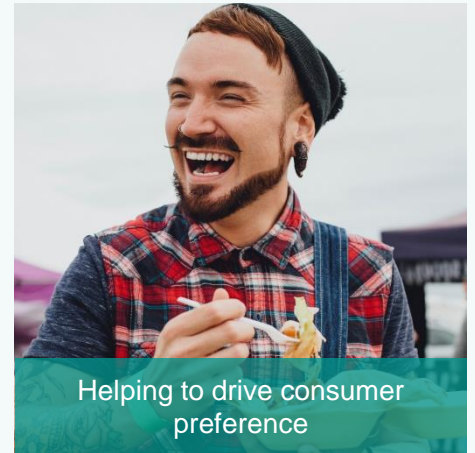
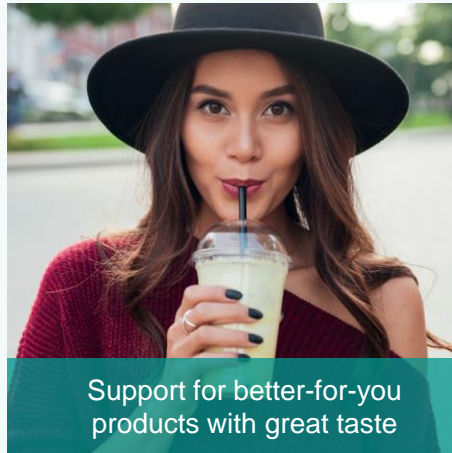
To help manufacturers navigate the complex regulatory landscape and achieve market relevant labeling and on-pack claims

- **Keeping track of the ever-changing regulations in all regions**, advising on legal and scientific requirements
- Ensuring **compliance with local flavor regulations** by providing guidance on dosages for taste balancing solutions



## symlife® taste balancing: What you can expect from us

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**Excited to discover how Symrise can help you deliver great taste in better-for-you products consumers love?**

Email us at [Taste.Balancing@symrise.com](mailto:Taste.Balancing@symrise.com)



## About Symrise

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Symrise is a leading global supplier of taste and nutrition solutions, fragrances and cosmetic ingredients. Its clients include food and beverage manufacturers, producers of nutritional supplements, pet food, pharmaceuticals, perfumes and cosmetics.

Sales amounted to € 3.4 billion in the 2019 fiscal year. Headquartered in Holzminden, Germany, Symrise serves its customers with more than 100 sites throughout Europe, Africa, the Middle East, Asia, the United States and Latin America. We work with you to develop new ideas and market-ready product concepts that form an indispensable part of everyday life. Economic success and corporate responsibility are inextricably linked for us in this.

**Symrise – always inspiring more...**