

Tech meets taste

The future of ingredient innovation

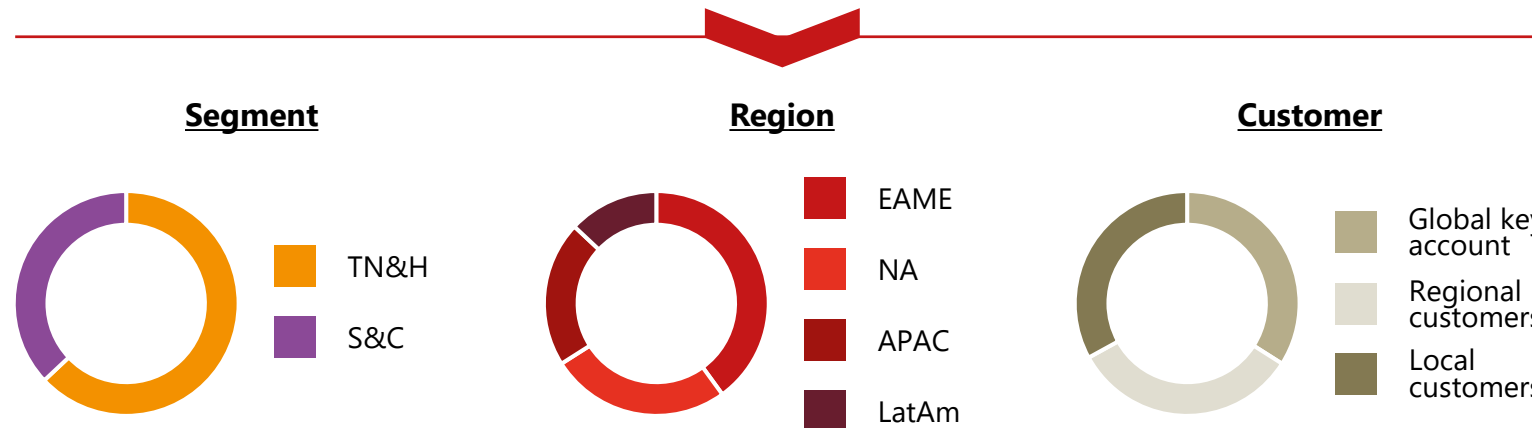
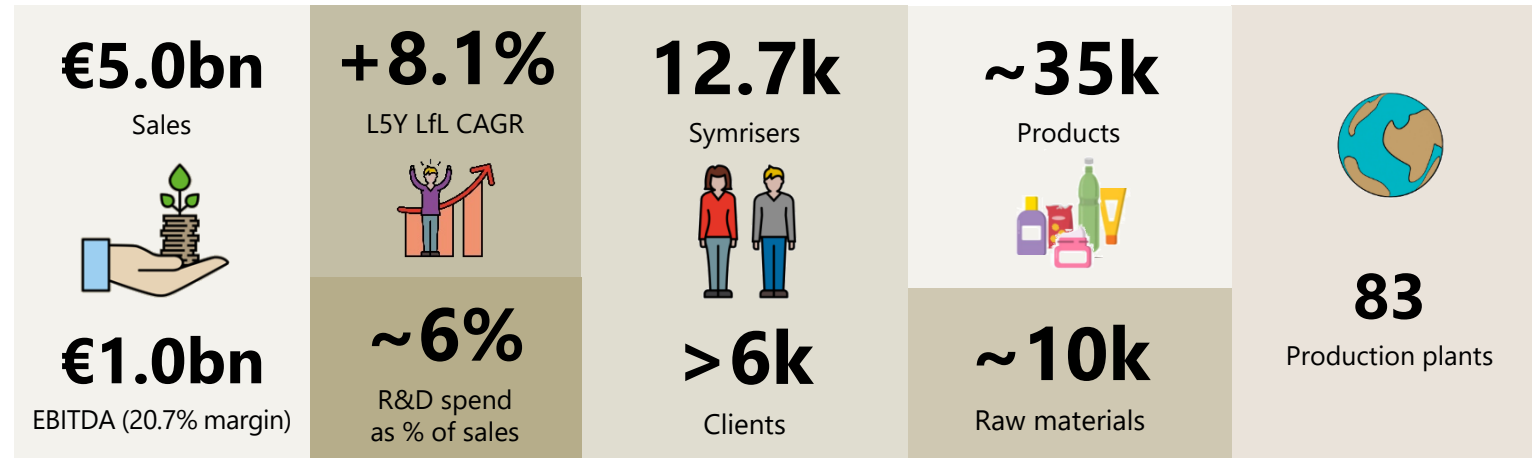
Bridge2Food, Symrise - 2025

Rene Fonteijn



Symrise today

Our success story in a nutshell



2024 figures

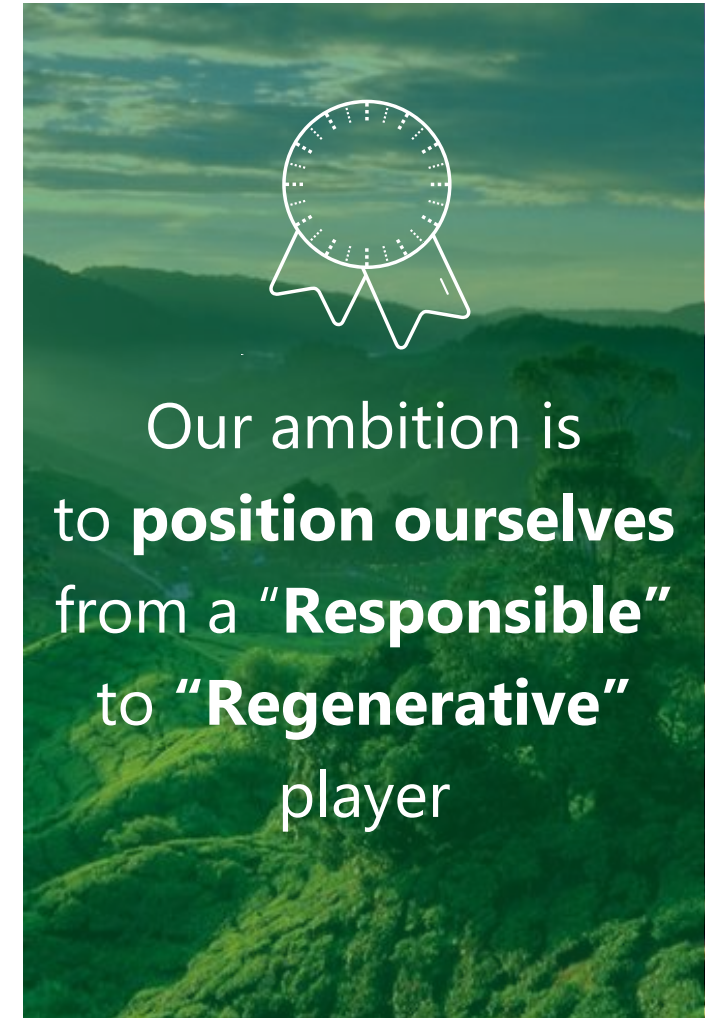
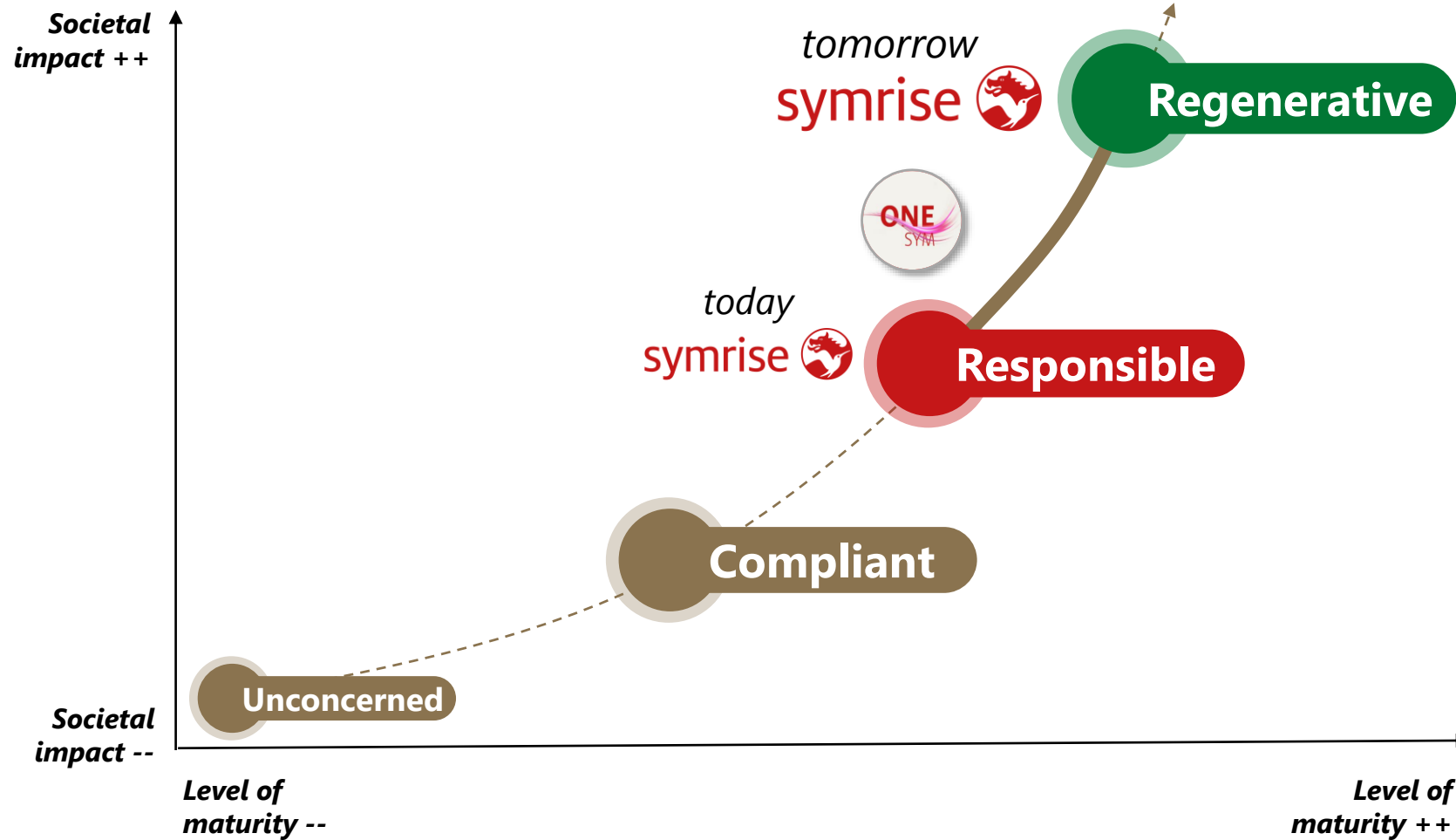


Our purpose

*Innovate
in health, well-being
& beauty
for the entire family's
every-day life*

Sustainability is an opportunity

We aim to make it a key competitive edge





Symrise's integrated approach

We integrate sustainability along the whole value chain



Raw materials

- Conservation of biodiversity
- Climate protection
- Human rights



Product development

- Efficient use of natural raw materials
- Biodegradability
- Focus on plant-based proteins, e.g., as meat substitutes



Production

- Use of green chemistry
- Reduction of waste
- Reuse of raw materials



Customers

- Creating transparency
- Environmentally friendly product solutions



Consumers

- Increasing awareness of nutrition and personal care





Our 360° Approach

Master every detail to deliver taste, nutrition & health

Decode

market · consumer · brand

Identify insights and needs that will grow our customer business

Design

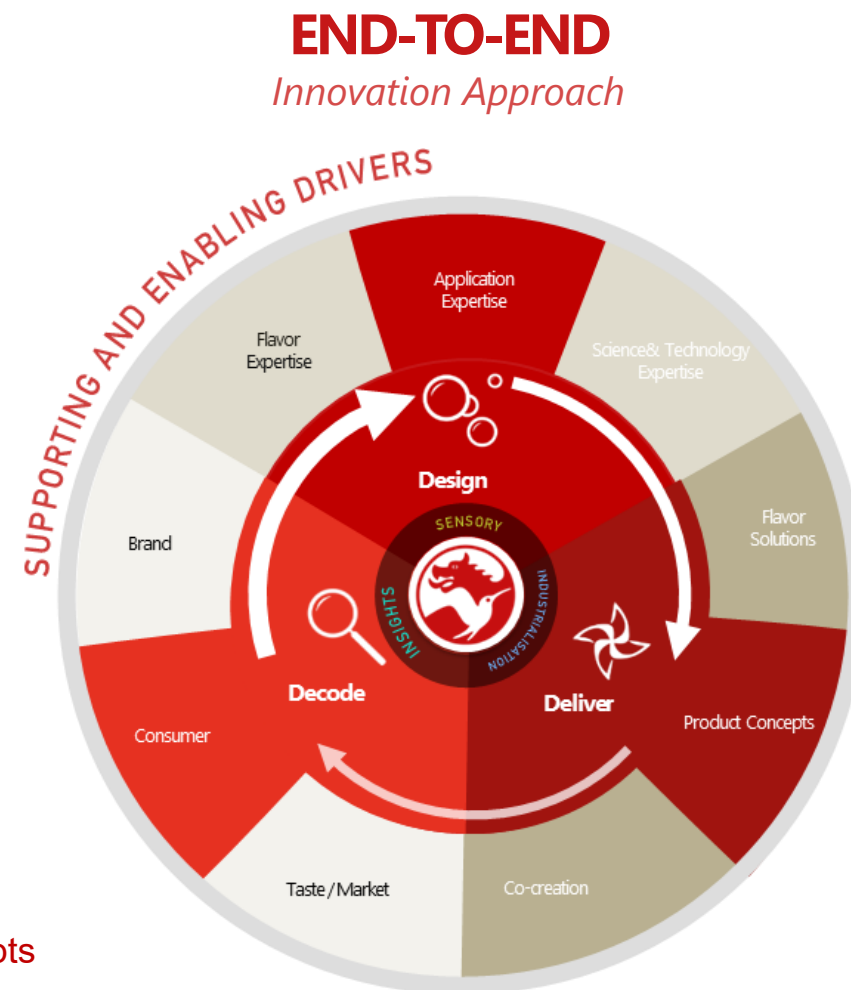
creation · application · technology · sensory · regulatory

Leverage Symrise technical, sensoric and legal competence & expertise

Deliver

inspiring flavor collections · innovative taste solutions · product concepts

Deliver innovative taste solutions & products concepts meeting consumers needs and tastes



Consumer-Led Innovation

Tools throughout the process.



DECODE

Explorative consumer understanding
Concept & Product opportunities
Flavor ideation

Symvision AI™



In-Depth Trend Research



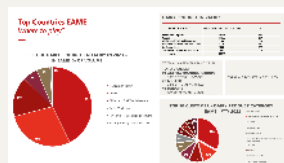
Flavors for Feelings™



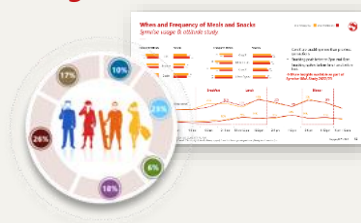
Trendscope™ 2024+



Category & Market Understanding



Consumer Studies; segmentation & U&A



DESIGN

Co-creation
Concept validation
Consumer preferred taste profiles
Market benchmarks

Symrise Solutions for Taste, Nutrition & Health

conceptscan



Decode Product Design: Drivers of Liking



DELIVER

Product sensory performance
Consumer acceptance

Sensory descriptive analysis

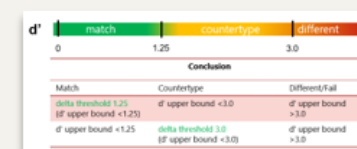


Market-Suitable Concept Development

Consumer preference



Sensory difference test & portfolio harmonization





Dairy Alternatives consumption attitudes.

What are consumers looking for?

Do you consume plant-based dairy?

	Global	Africa	Asia Pacific	Europe	Middle East
Yes	52.5%	58.8%	64.9%	40.9%	63.9%
No	47.5%	41.2%	35.1%	59.1%	36.1%

Why do you not consume plant-based dairy? Please select all that apply

	Global	Africa	Asia Pacific	Europe	Middle East
Alternative dairy products are not healthy	12.9%	8.0%	13.1%	12.6%	17.2%
Alternative dairy product have too many unfamiliar/artificial ingredients on the label / seem very processed	16.6%	13.8%	13.7%	18.7%	16.6%
#1 Alternative dairy products lack taste	54.3%	58.3%	53.2%	57.5%	41.6%
#3 Alternative dairy products lack when it comes to variety of flavors	29.7%	32.3%	29.6%	28.2%	30.7%
I do not know any alternative dairy brands or where to buy these products	17.3%	23.3%	18.9%	15.7%	16.6%
#2 I do not like the texture of alternative dairy products	34.5%	33.5%	30.7%	34.9%	45.4%
I have never considered purchasing such products	24.6%	24.3%	25.9%	24.1%	33.2%
<i>I prefer real dairy</i>	67.3%	71.1%	67.3%	65.9%	70.6%
Alternative dairy products lack of nutriment (vit, minerals)	18.7%	18.7%	20.5%	14.5%	12.7%
Alternative dairy products lack dairy-like color	10.2%	11.7%	11.2%	9.1%	15.2%
Alternative dairy protein products lack protein	17.4%	14.3%	17.3%	17.2%	23.3%

50%

Gen Zs are
ashamed to order
dairy related
products in public.

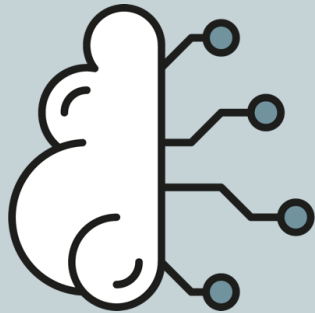
[Strategic Market
Research]

Symrise's Answer...

How does it work?



—
**We combine external
and internal data**



—
**We use AI – Machine &
Deep Learning to predict
flavor trends**



—
**Insights are enriched by
further studies
conducted by Symrise**

Symvision AI™ *Dashboard*



-
- Prediction of flavor trends
 - Prediction of customer requests
 - Emotional profile & benefit delivery
 - Indications for future portfolio needs and concept creation

Flavor Trends – Regional Patterns for Non-Alc. Beverages

How Citrus flavor trends move around the globe - Yuzu

Citrus Flavors analysed

Bergamot, Calamansi, Citron,
Key Lime, Lemon, **Lime**,
Orange, Pomelo, **Yuzu***

*Focus flavors in bold

1. The Asian flavor trend **Yuzu** started its journey in **Korea and Japan** and spread then to the **neighboring countries**;
2. From **Asia** the flavor trends moved over to the **trendsetting markets**,
3. followed by the **early adopters**.

Flavor Trends – Regional Patterns
How the Citrus Trend “Yuzu” moves around the globe



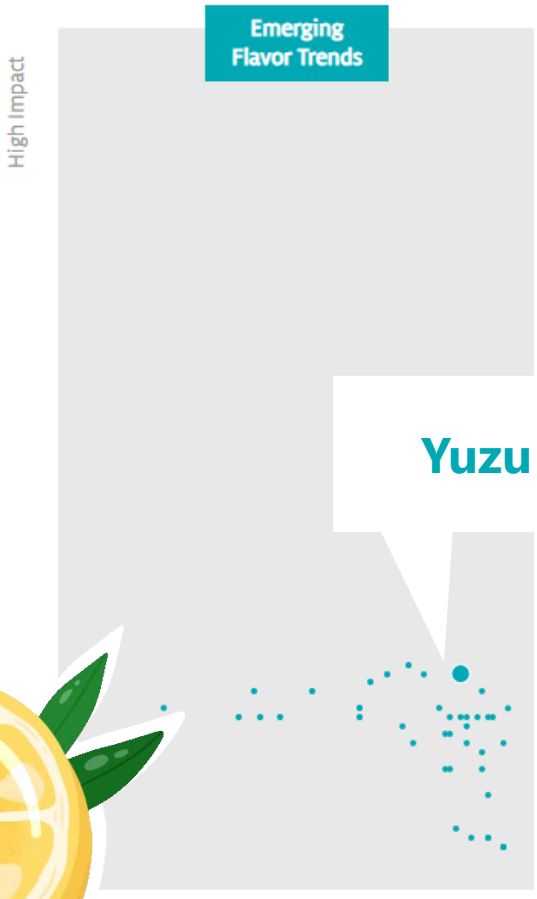
Beverages influence Ice Cream flavors

Yuzu is already showing up in the USA



- To have fun
- To stimulate senses
- Feel brave
- **Feel energized**

Flavor Trend Curve



Yuzu Coconut Non-Dairy Frozen Dessert

USA

Feb 2023



Sweet Yuzu & Peach Superfruits Smoothie

USA, CAN

2024



Ayuko Yuzu Ice Cream

NLD

2025



Dairy-alternatives Technical Capabilities

Our comprehensive expertise for designing winning solutions.



Research & Technology

Masterminds behind our unique solutions.

- **IDENTIFICATION OF TASTE ACTIVES:**
Sweet perception, masking
- **TECHNOLOGIES:**
Encapsulation, extraction, concentration
- **PREDICTION OF FLAVOR PERFORMANCE:**
Shelf Life, Flavor Release



Taste Solutions Creation

Architects of taste.

- **UNIQUE RAW MATERIALS PALETTE:**
R&T, sourcing
- **FORMULATION EXPERTISE:**
Experienced & dedicated team, local profiles targeted to matrix specificities
- **Flavor CREATION LAB:**
Agility & flexibility for sampling



Application Know-How

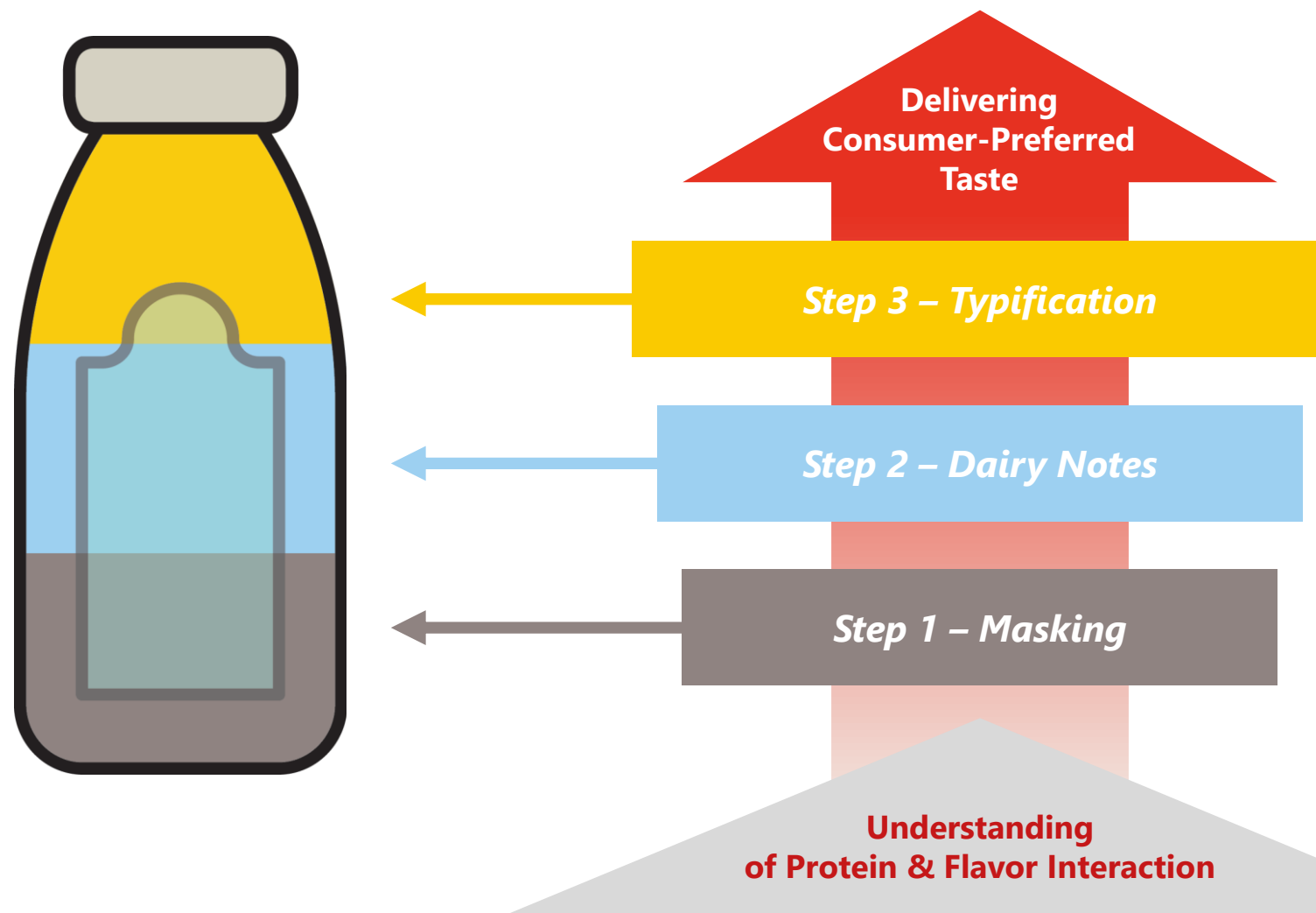
Creators of winning products.

- **FINAL PRODUCT KNOW HOW:**
Formulation expertise with dairy and plant ingredients
- **PROCESS EXPERTISE:**
From laboratory to pilot plant
- **MATRIX DESIGNER:**
Concept creation thanks to our ecosystem



Our 3-Layer Creation Approach

Designing dairy alternative products.



What solutions work best with your base?

Flavor release and interaction can vary dependent on your base recipe.

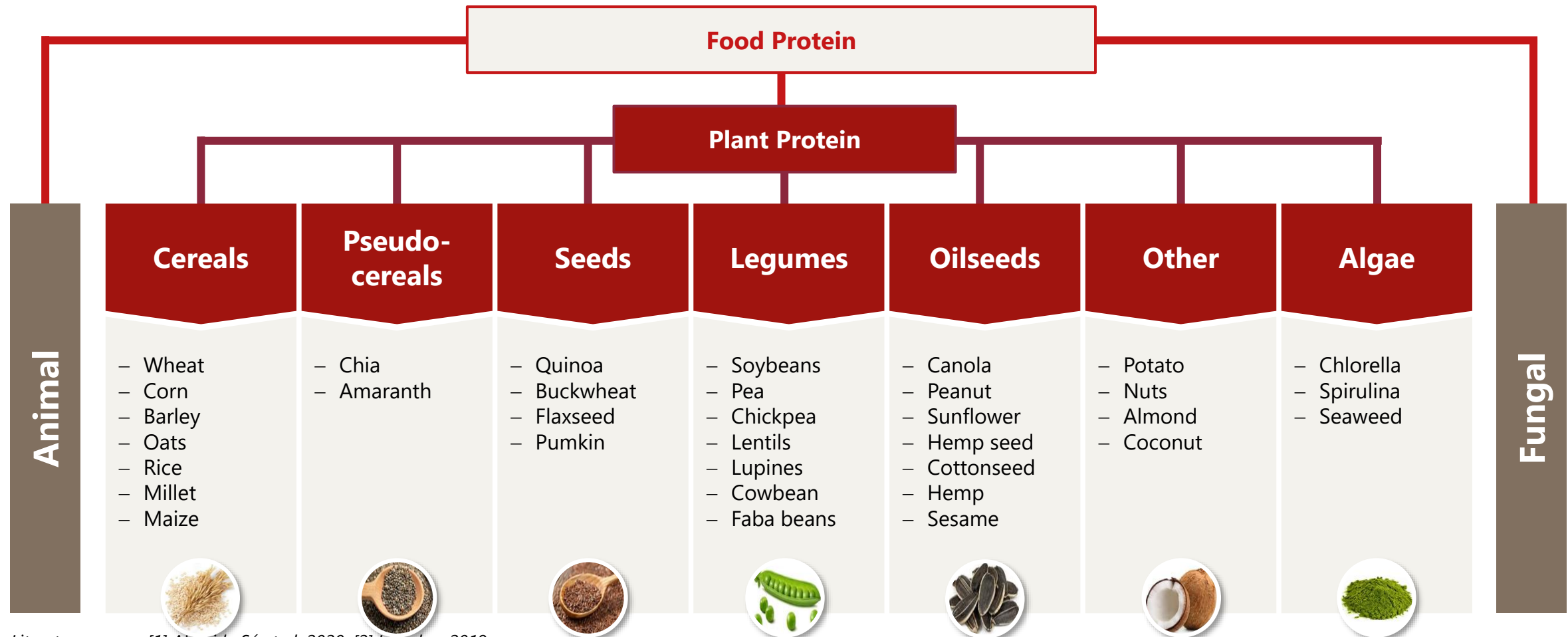
It's best to have a finalized base recipe before building your taste profile.



Focus on plant-proteins, starting at the source

Flavor, texture and nutrition

Increasing plant protein improves nutrition and texture, though negatively influence flavor.
Often a blend is chosen to balance taste and performance



Literature source: [1] Almeida Sá et al. 2020; [2] Loveday, 2019



The challenges in plant-based products

Determining factors for taste

Intrinsic Plant-(Off)-Notes

- Volatiles with undesired sensory attributes: cereal, cardboard, beany.
- Non-Volatiles with undesired sensory attributes: Astringent, bitter, mouth drying.



Top-Note Flavor Performance

- Analytical investigation
- Closing the gap to the desired target
- Tailor-made flavor solution
- Addition of desired flavor molecules
- Reduce/Optimize undesired notes



Flavor Matrix Interaction

- Process
- Flavor binding to macro nutrients.
- Polarity, volatility.





Symrise ProtiScan™

Approach & Key Features

Alternative Proteins

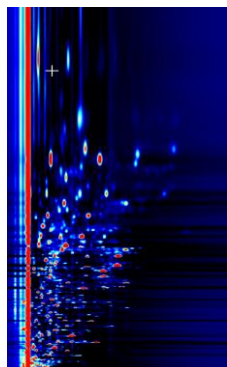
Analytical investigation

GC-IMS/MS (Ion Mobility Spectrometry)

The Ion Mobility Spectrometry (IMS) technology delivers the key for the assessment of alternative proteins.

The selectivity and sensitivity allows a unique characterization via fingerprint analysis with a high correlation to sensory.

An additional monitoring of key off-note molecules like aldehydes, 2-ketones, furans and many more allows a very specific modulation of masking technologies.



Utilization

Comprehensive reference database with more than 350 protein raw materials.

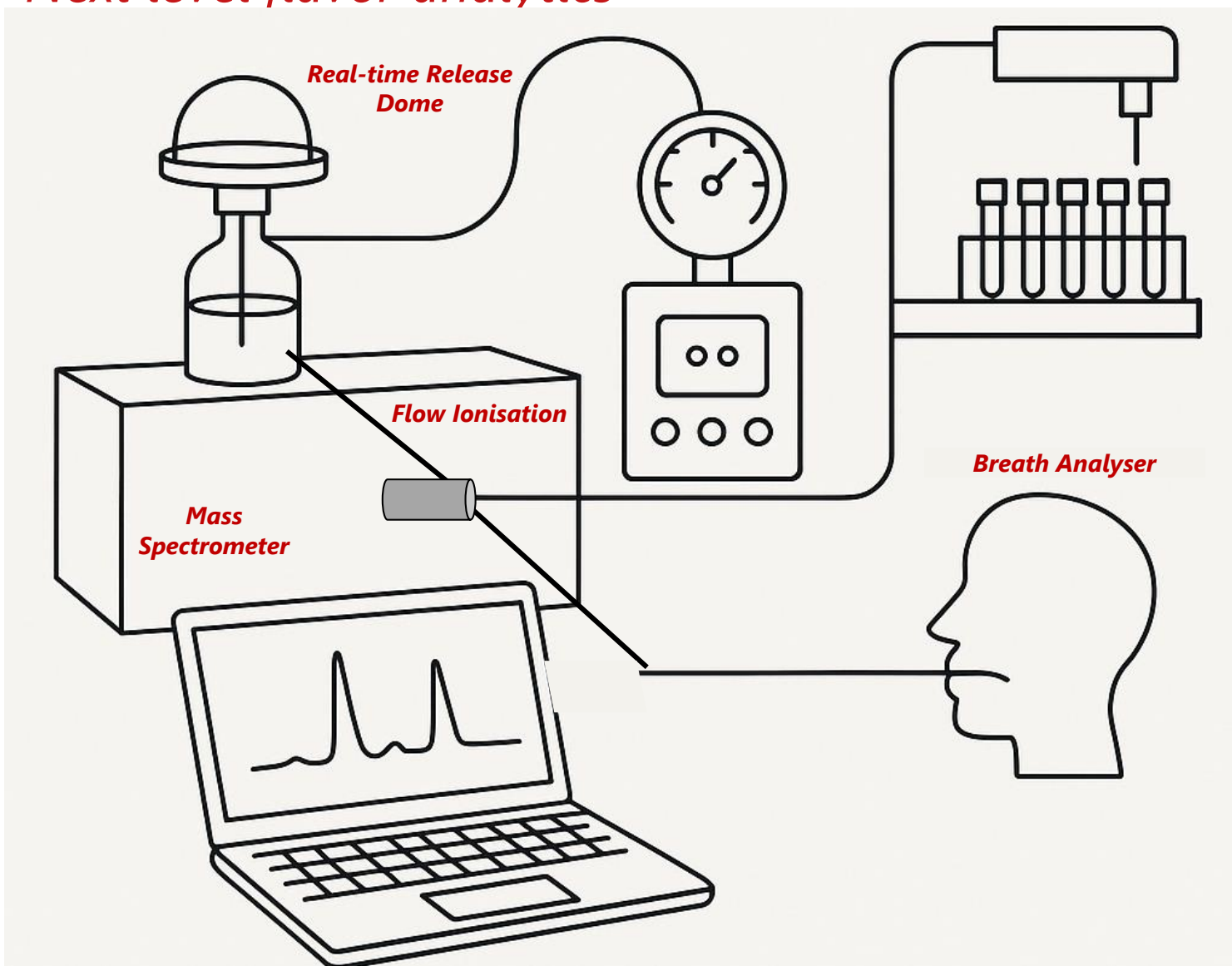
Guiding the development with detailed analytical information for efficient product development.

Comprehensive masking toolbox for best performance



Symrise FLAVRScan™

Next level flavor analytics



Benefits:

- Speed
- No sample pretreatment
- Breath detector
- Sensitivity
- Authentic release directly linked to sensory perception
- Artificial nose/mouth
- Maillard reaction process controlling (real time release during roasting, cooking, etc.)
- Ultra fast data generation
- Automated data evaluation

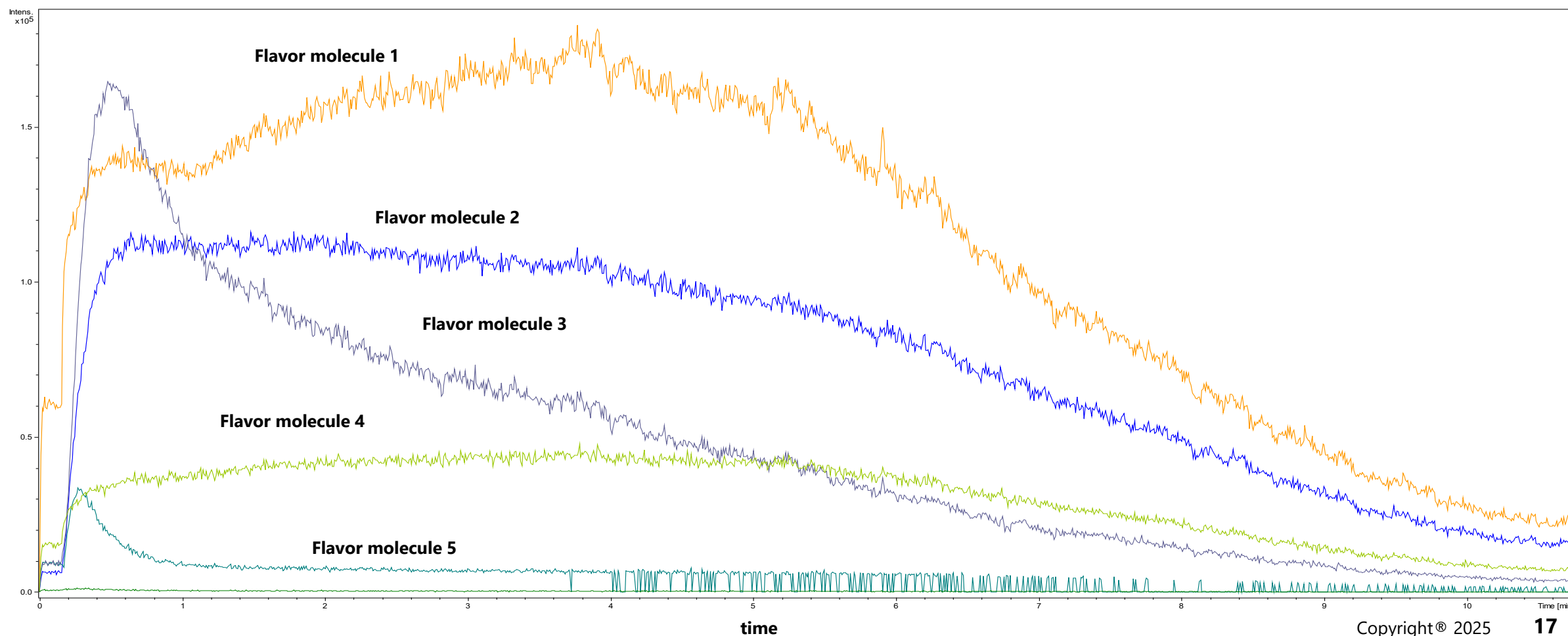
Symrise FLA^{VR}Scan™

Capabilities – Analyzing flavor release in real time



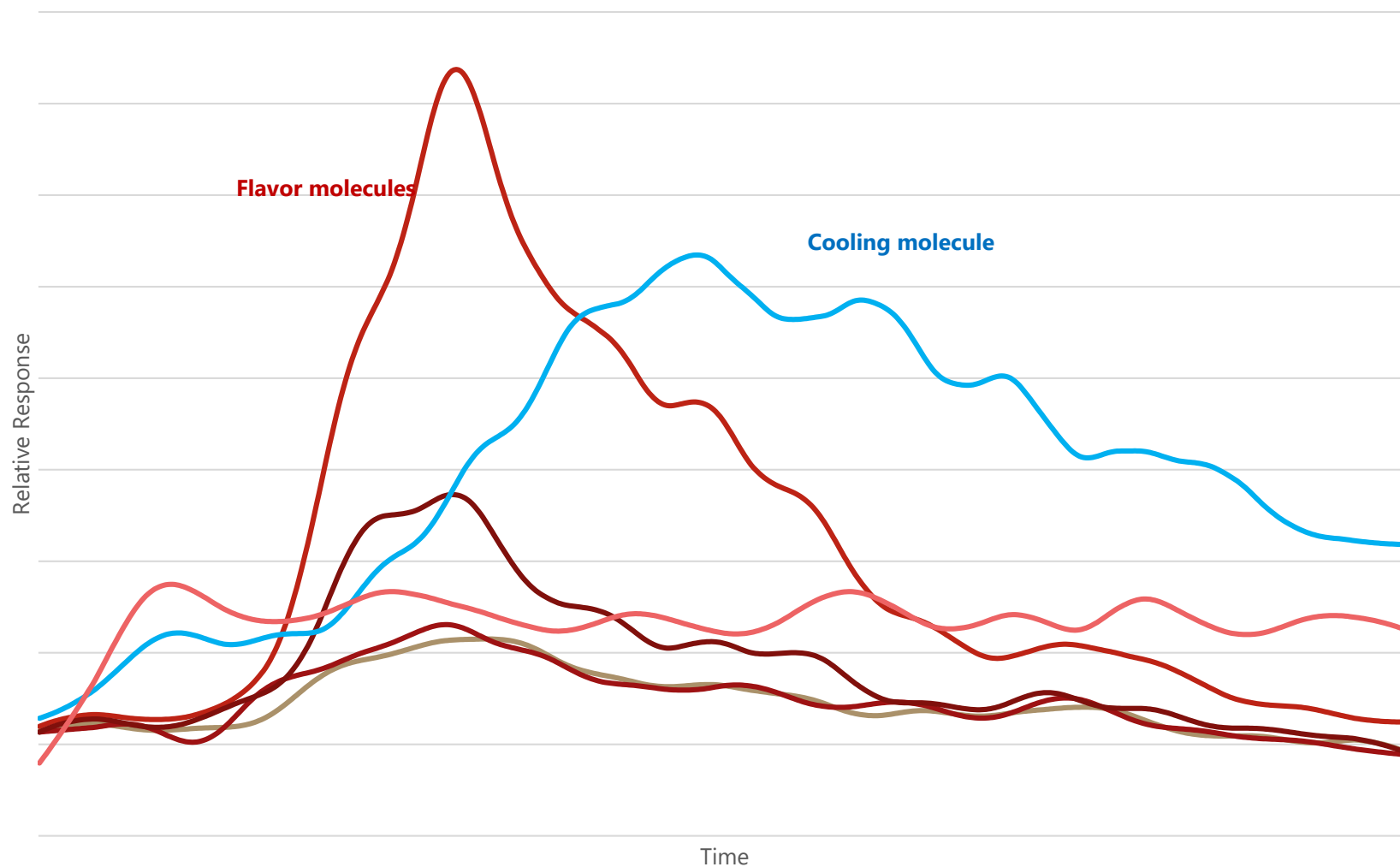
***In situ* flavor analysis:**

Real time flavor release in original matrix in line – Melting process



Symrise FLAVRScan™

Flavor Release in Real-Time Breath Analysator – Chewing gum



m/z 151 (#1) m/z 137 (#1) m/z 153 (#1) m/z 155 (#1) m/z 172 (#1) m/z 159 (#1)

Man machine coupling with flavorists:

- Sensory description of build-up & lingering effects
- Direct linkage to analytical data
- Masking of PB-Off-notes
- Aftertaste



Conclusion & Summary

Our Key Take outs.

Our Tools:

ProtiScan™

Off-note masking



FlavorScan™

Flavor-release



The Opportunities:

Optimizing taste with precision – by selecting the right **masking solution** and matrix-matched ingredients from our broad portfolio.

The Goal:

Fast-tracking taste innovation through expert flavorists and application specialists – turning **ideas into winning concepts**, faster.

Our Results:





symrise

*always
inspiring more
...*