

# Designing plant- based drinks for the health- minded consumer, via biosolutions

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Bridge2Food Europe

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Food & Plant Global

The time for  
biosolutions  
is now

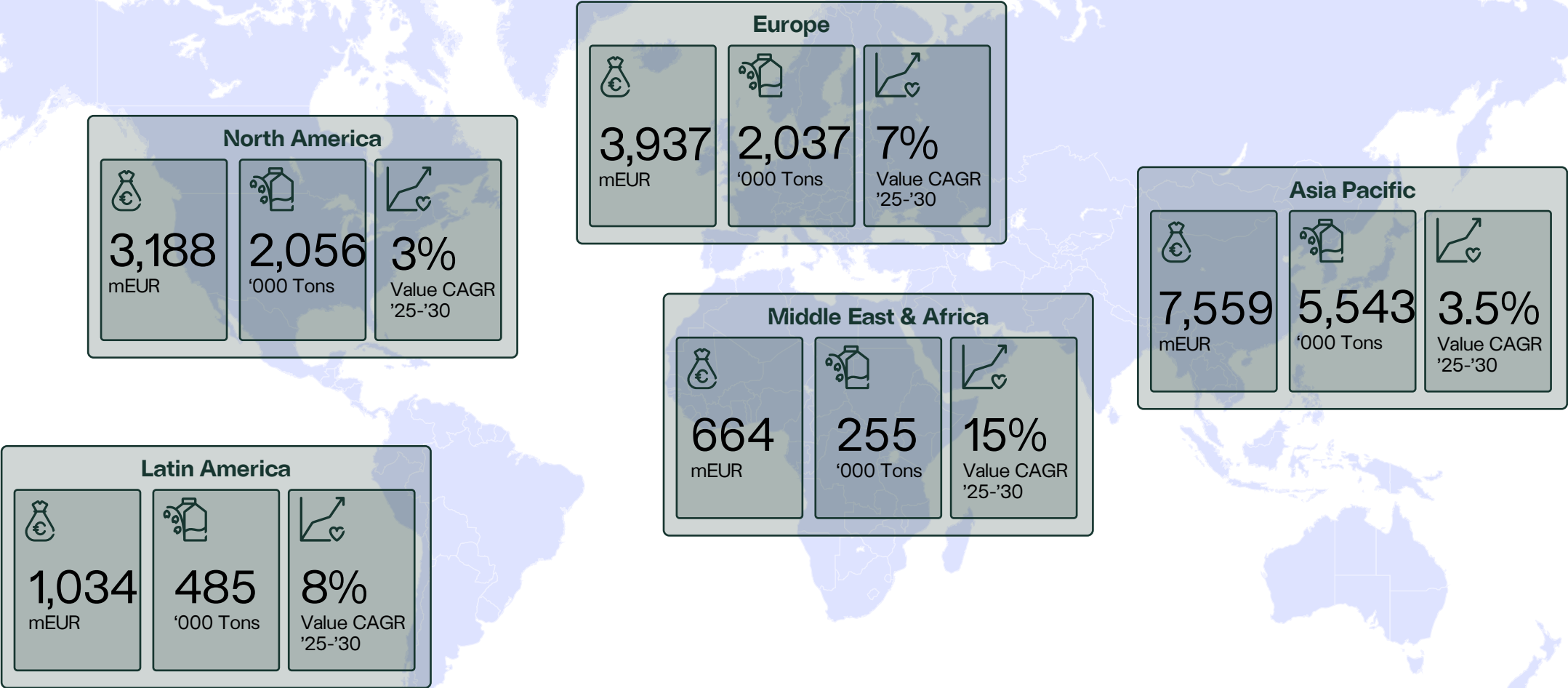
A person with long blonde hair, wearing a grey beanie and a red and black plaid shirt, is seen from behind, looking out over a calm lake. The background features rolling hills covered in dense, autumn-colored trees under a soft, hazy sky. The overall mood is serene and contemplative.

# Market

# insights

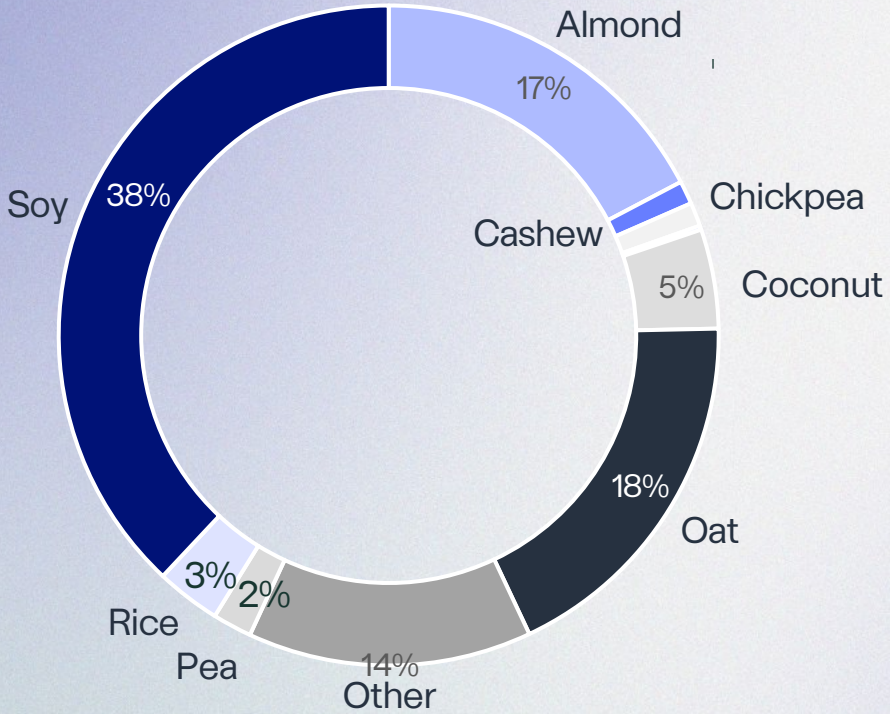
# Plant-based Drinks

Global Snapshot

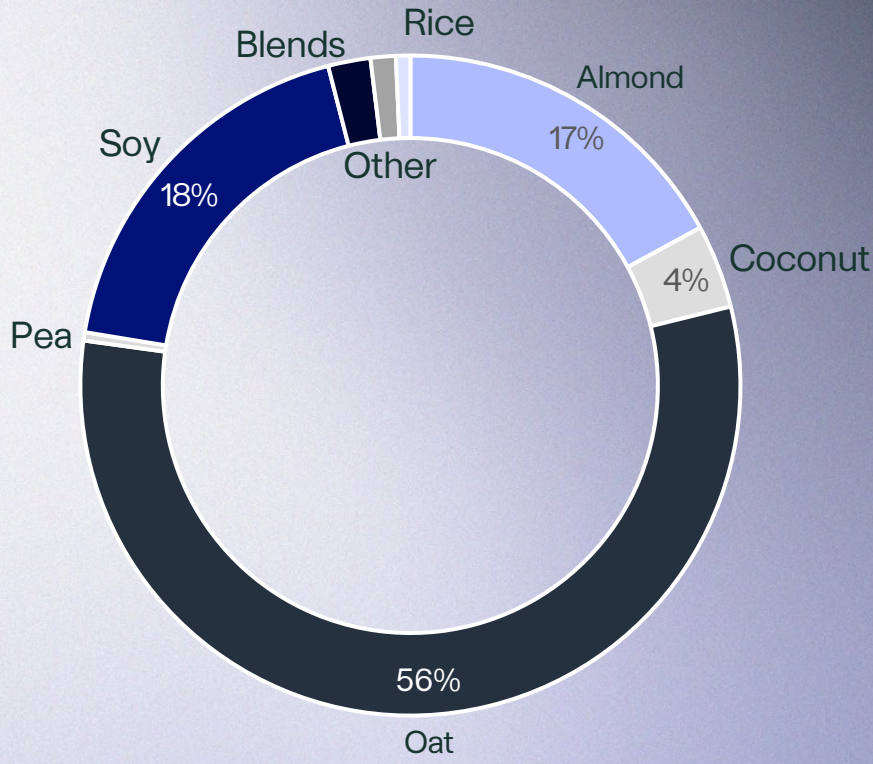


# When it comes to plant-based beverages, base preferences vary widely by region

Global plant-based drinks retail value RSP, sum of 2020-2023, by substrate



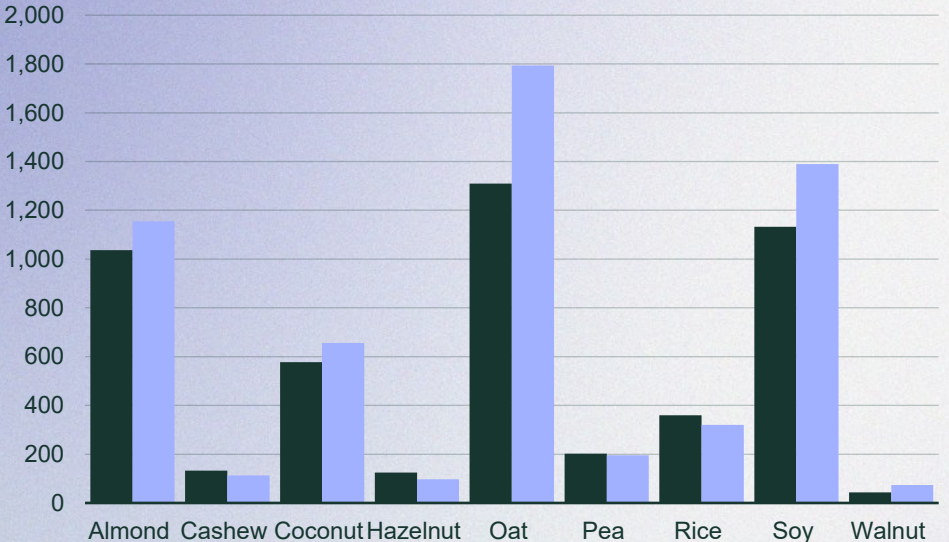
Market value, by base segment, in Great Britain



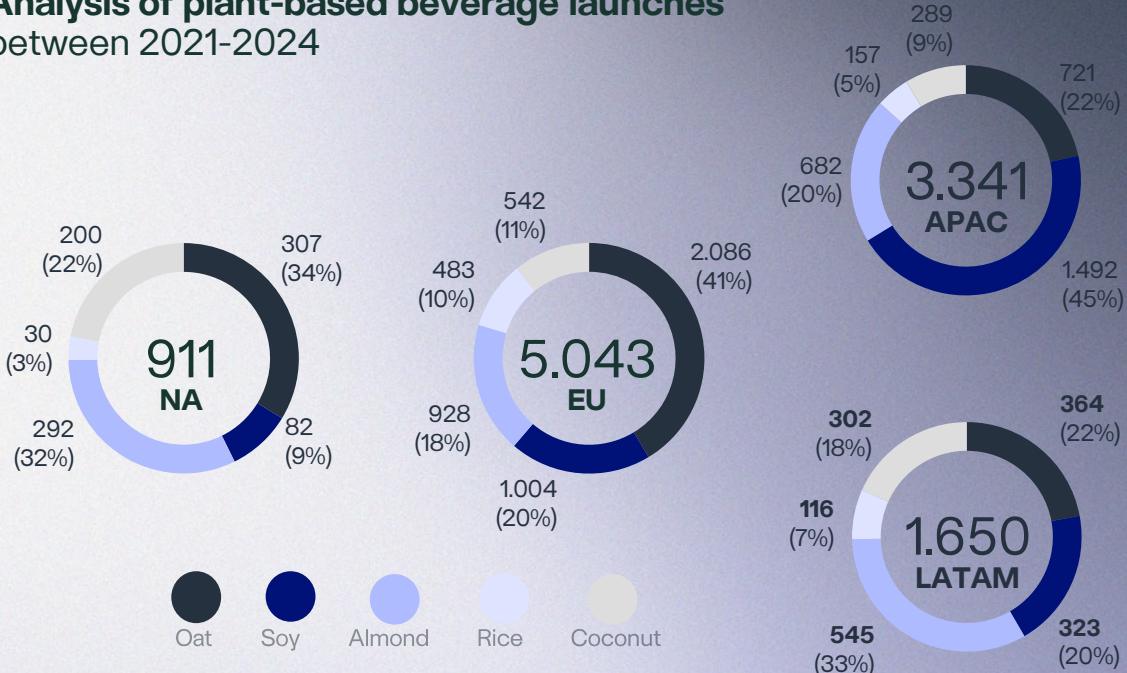
Sources: Euromonitor, Mintel, Nielsen IQ, NVS analysis

# New product launches within recent years reflect these differences

**Analysis of plant-based beverage launches between 2021-2024**



**Analysis of plant-based beverage launches between 2021-2024**



US and Europe are heavy in oat drink launches whereas Asia is primarily seeing NPLs with soy drinks



# Mega

# Trends

# Overarching mega trends that are shaping the F&B industry



**43%**

of consumers globally made changes to what they eat to improve their health



**41%**

Of consumers say that high protein makes a snack indulgent



**42%**

of consumers consider "high food costs" as a stress factor when making decisions about food and beverage



**2 in 5**

Consumers globally say sustainability is important when buying food and drinks

Source: Innova Market Insights, 2025



**GLP-1**

**Healthy Aging**

**Shorter Ingredient Lists**

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# GLP-1

# 9%

Of Danish consumers report using GLP-1 drugs. In Sweden, 7.5% take them, while its 2% in EU & UK overall

Source: GLP-1 and the Nordic way: How weight-loss medicine fits into structured lifestyles 29 december 2025; YouGov

Taste and texture are still king

Reduced Appetite

Higher nutrition per serving

Lower tolerance for empty calories

Protein, fiber and functional benefits matter more

Optimized consumption

Products must *earn* their place in fewer eating occasions

## What are GLP-1 consumers looking for?

According to a US GLP-1 study, the following food innovations GLP-1 users would like to see are:

# 28%

High-protein, low-calorie desserts

# 28%

Low-sugar, high protein baked goods

# 24%

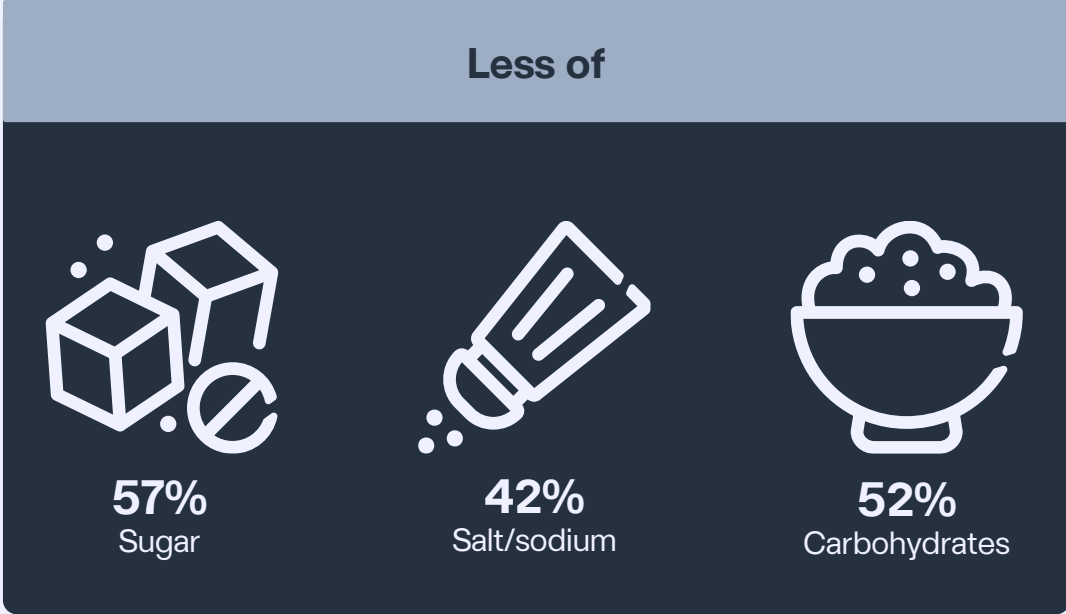
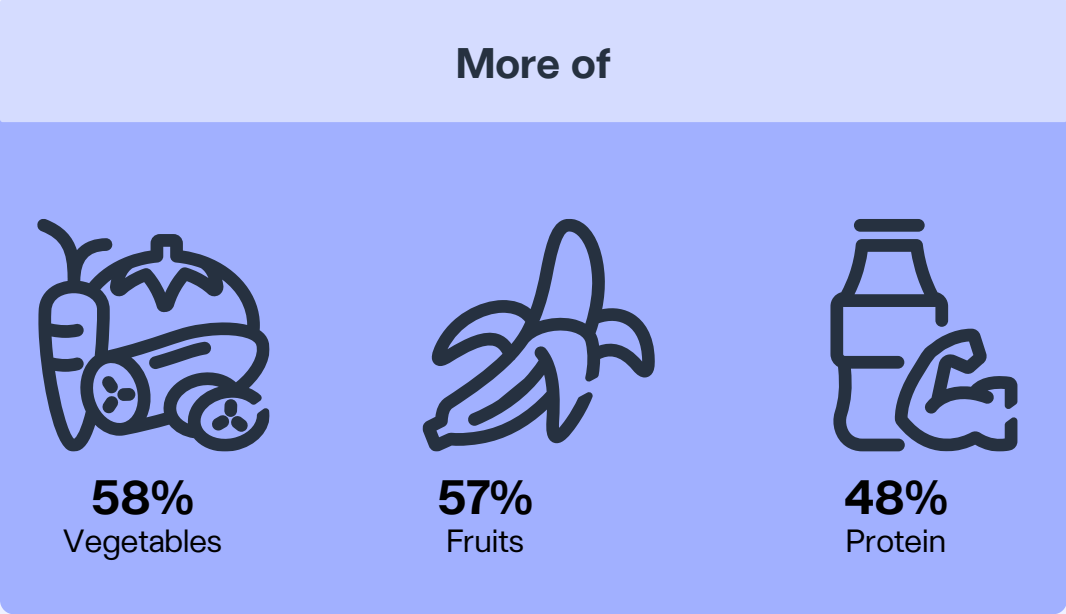
Hydration beverages with added electrolytes and collagen

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Source: Kantar, US GLP-1 study, 2026

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# Healthier eating habits are shifting towards more protein and less sugar and salt, particularly for GLP-1 users



... for final food and beverage producers, this presents a new opportunity to reformulate and innovate

GLP-1 Weight-Loss Drug Users  
(% of Respondents)

Source: Circana, GLP-1 Food Industry Impact, 2025

# Healthy Aging

# 73%

Of global consumers consider healthy aging “extremely” or “very” important.

Source: Innova Market Insights, Innova Health & Nutrition Survey 2025

Taste and texture are still king

Personalized nutrition	Consuming food and beverage with specific benefits or functions
Prioritizing long-term wellness	Increased demand for nutrient-dense foods
Simplified eating	Shift towards shorter labels and less processed foods

## What steps are consumers taking to age healthfully?

# 34%

Of Gen Z consumers improve sleep patterns

# 28%

Of Millennials eat a nutritionally rich diet

# 45%

Of Boomers eat a balanced diet

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Source: Innova Market Insights, Innova Health & Nutrition Survey 2025

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# Shorter Labels

# 4/10

European consumers are trying to avoid or minimize ultra-processed foods

Source: Novonesis, US & EU (DE, UK, FR) Health Study, 2024

Taste and texture are still king

Desire for transparency	Preference for recognizable, minimal ingredients
Prioritizing long-term wellness	Shift toward products that “feel” safer and closer to whole foods
Growing distrust of UPF	Demand for simpler, more natural formulations

## Labels matter for today’s consumers

### 66%

Of Millennial consumers are confident in identifying quality products based on labelling

### 50%

Of Gen Z consumers often or always actively seek information on food quality or safety before purchase

### 31%

Of consumers are influenced by nutritional labelling when it comes to purchasing food.

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Source: Innova Market Insights, Innova Health & Nutrition Survey 2025

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# We commissioned a survey by Norstat to gain deeper insights into consumer attitudes toward health and the role of a healthy diet



<sup>1</sup>For China we focused only on Tier 1, 2, 3 cities

## The quantitative online study in US, France, Germany and UK

### Target Group

Nationally representative sample of each country population 18-75 yrs., based on gender, age and region<sup>1</sup>.

### Length of questionnaire

Approx. 15 minutes.

### Sample size

US: 1,002  
France: 1,000  
Germany: 1,011  
UK: 1,019

### Field period

November-December 2023

### Age Groups

Gen Z	18-24
Millennials	25-39
Gen X	40-56
Boomers	57-75

# Reported areas of importance as part of a healthy diet

## Top focus areas for a healthy diet

All natural / no artificial ingredients

High in fiber

Sugar content / no or low added sugar

Protein level/high in protein (US)

Low in salt (UK)

## Rated importance of probiotics in a healthy diet

63% in US

43 % in France

29% in Germany

41 % in UK

## Consumers' focus in the next 12 months

Sugar content / no or low added sugar

High in fiber

All natural / no artificial ingredient

Protein level/high in protein (US)

Low fat (UK)



Q3: In more detail, how important do you consider each of the areas below to be as part of a healthy diet? Q4: Looking ahead, are there any of these areas that you believe you will focus more or less on in your diet in the next 12 months? Base: US 1,002, France 1,000, Germany 1,011, UK 1,019 - All

# Products containing live cultures are important to health-minded consumers, with gut and immune health as the main drivers

# 59%

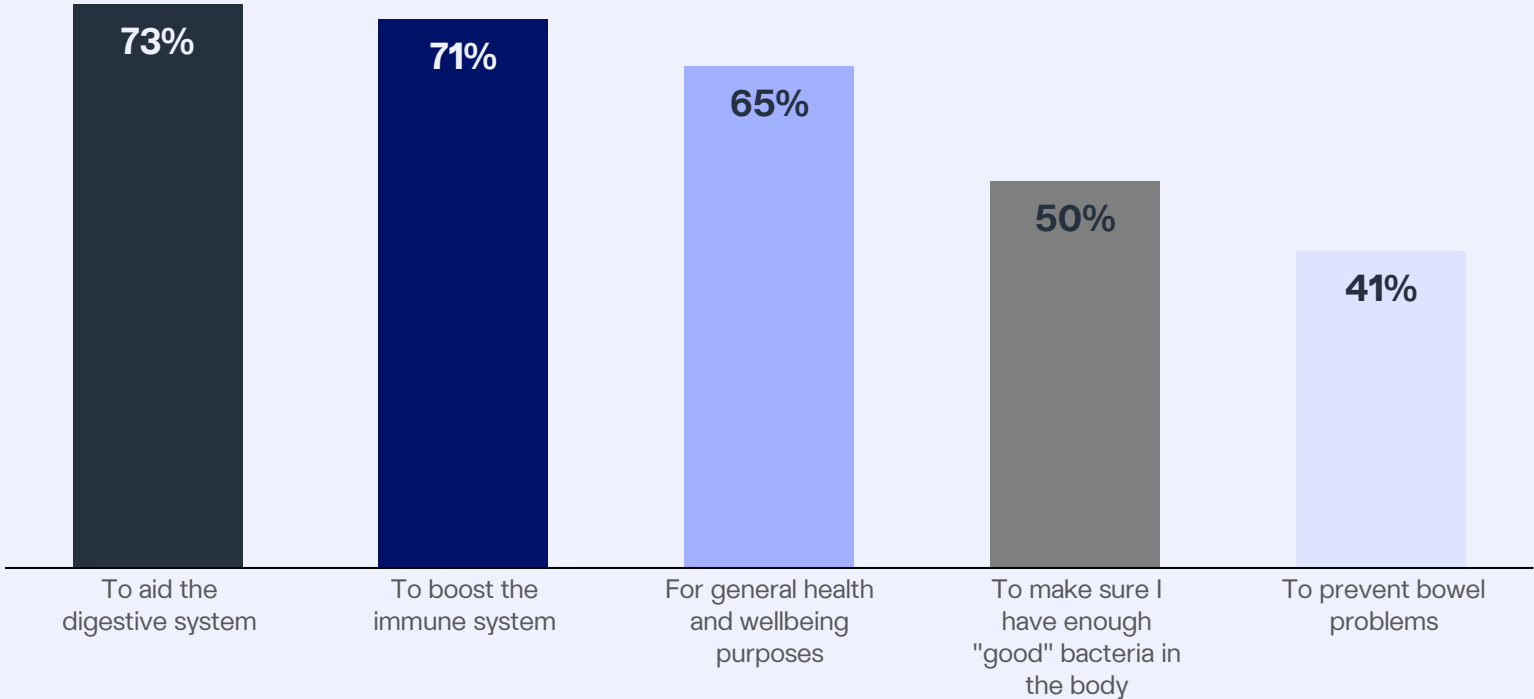
of consumers globally have purchased a probiotic product in the last twelve months<sup>1</sup>

including:

- 60% in Asia-Pacific
- 57% in Europe
- 63% in North America
- 55% in South America

## Why Do You Purchase/Use Probiotic Products?

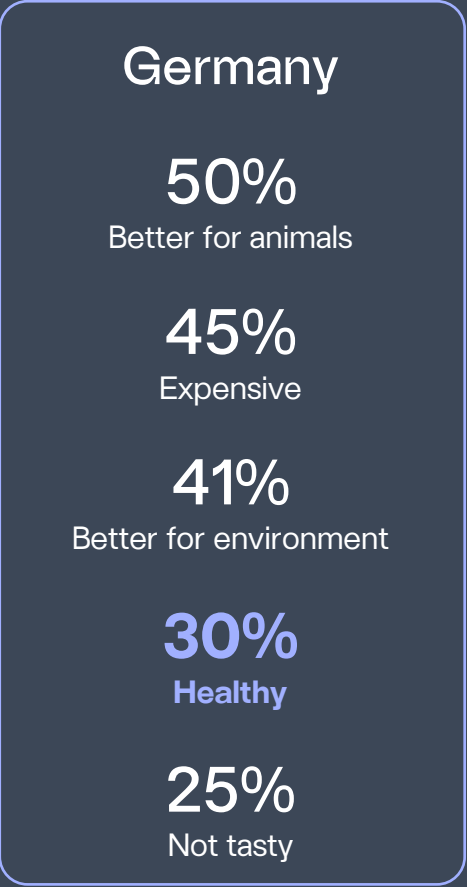
Global consumers who have purchased a probiotic product in the past 12 months before the study was fielded in May, 2022<sup>2</sup>



1. FMCG Gurus Probiotics survey series 2022, base – 30,000  
2. FMCG Gurus Probiotics survey series 2022, base – 17,700

# When zooming in on plant-based, there are expectations that the plant-based category helps to make the diet healthier

Top-5 associations to plant-based food include both positives and negatives



Q10. What are your associations to plant-based food like e.g., yogurt alternatives and meat alternatives? All that have heard of plant-based food or are familiar with it. All except those who have not heard of the category: US 928, France 859, Germany 949, UK 991.

# Nutrition

Is driving more consumer decisions when considering plant-based drinks

60%

of of respondents report that **better nutrition** would make them switch from cow's milk to plant-based milk<sup>1</sup>

49%

Of respondents try new plant-based products because they are **seeking the most nutritional choice**<sup>3</sup>

+90%

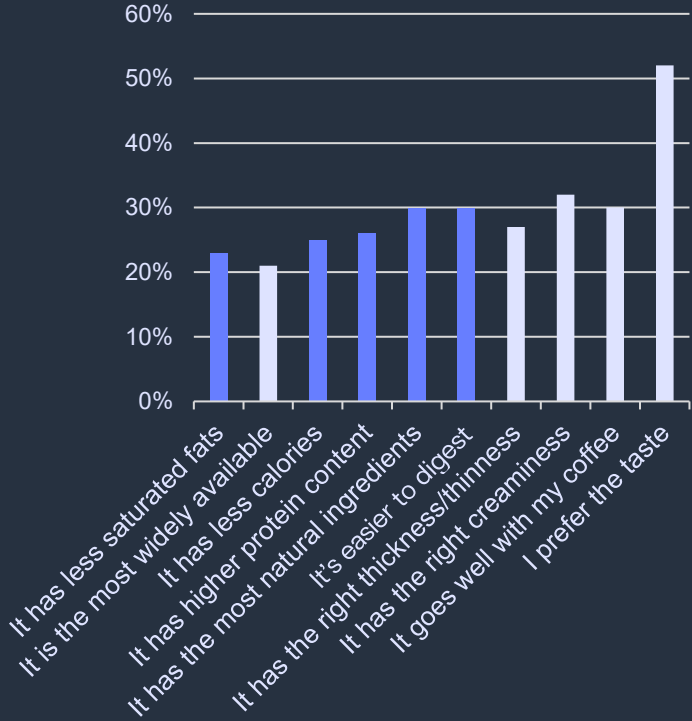
Of consumers **read nutritional labels**<sup>1</sup>

66%

of EMEA consumers Report that a **“High in protein”** claim is important<sup>2</sup>

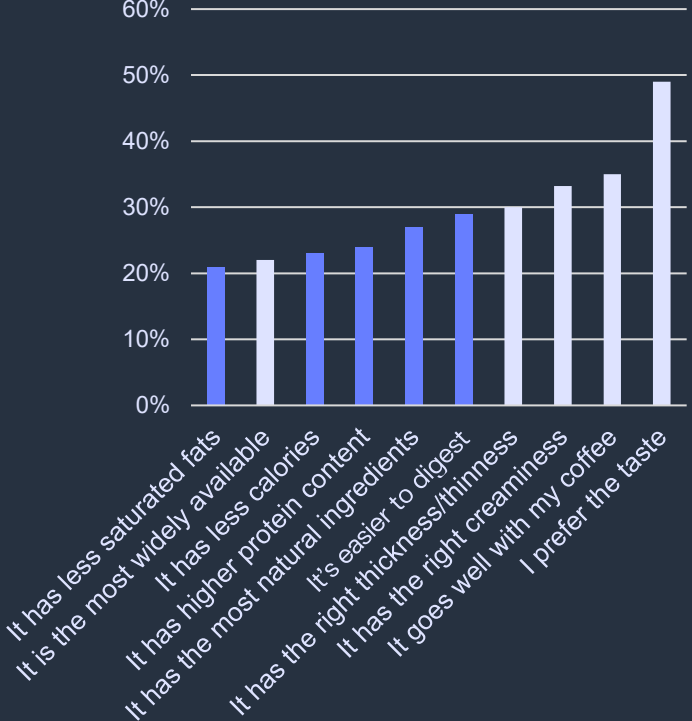
# Plant-based drinks overall are seen with a consumer health halo with some differences by type in perceptions of protein, digestibility, naturality, calories, & saturated fat

## Almond



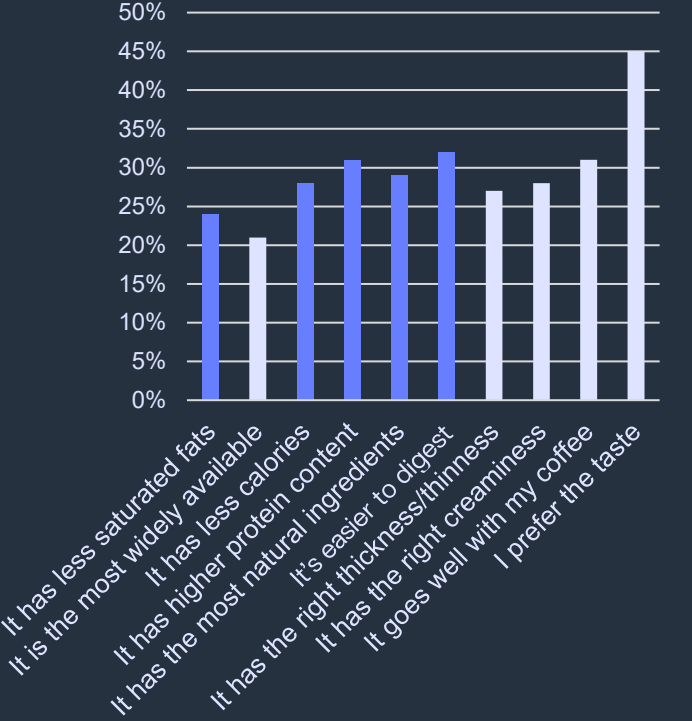
Reasons Users prefer Almond drinks

## Oat



Reasons Users prefer Oat drinks

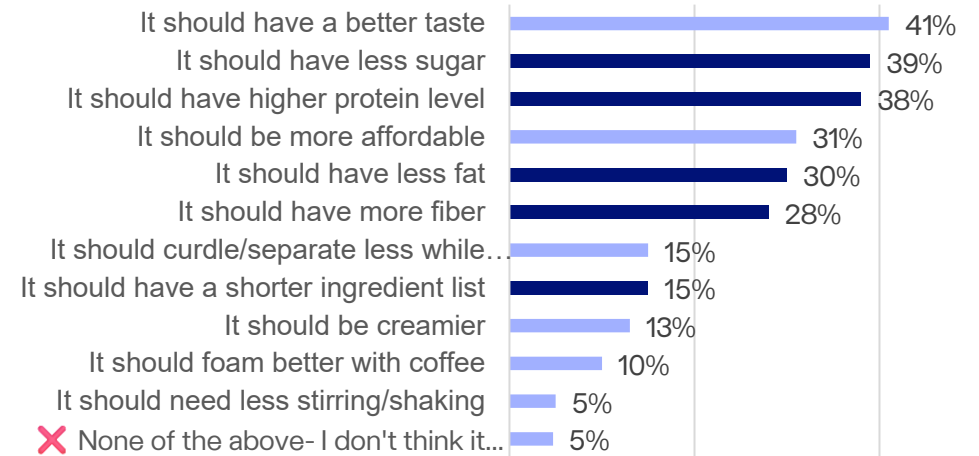
## Soy



Reasons Users Prefer Soy drinks

Health is a main driver for consumers of plant-based drinks, but this healthy perception does not always reflect reality

What should be improved about plant-based drinks?



Higher protein, lower sugar and fat, and more fiber are all requested health improvements when it comes to plant-based drinks

# Biosolutions can help create plant-based drinks that support consumers' health goals

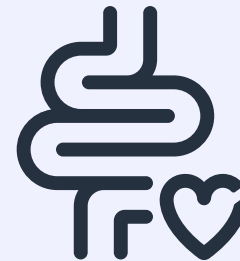
**Unlock beta glucans or support added fiber**



**Unlock high protein claims**



**Create gut-friendly products**

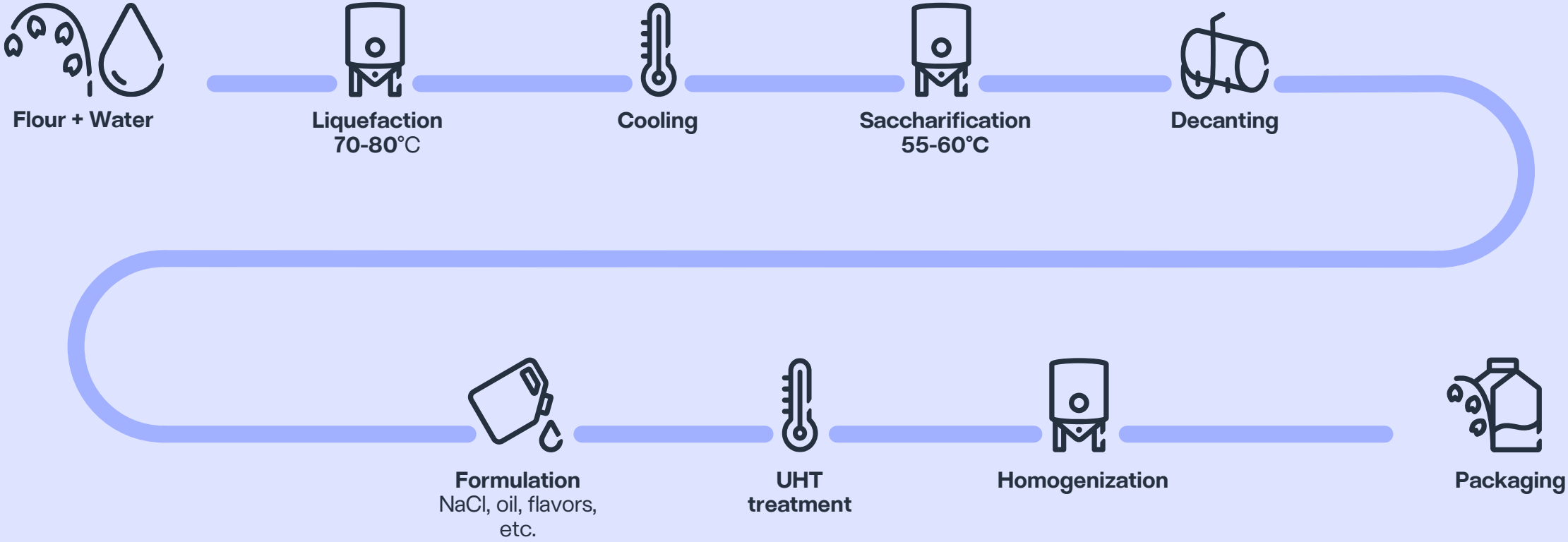



**Achieve simpler, more natural labels**



# Oat processing

# Typical process 2 step flow for production of oat beverages



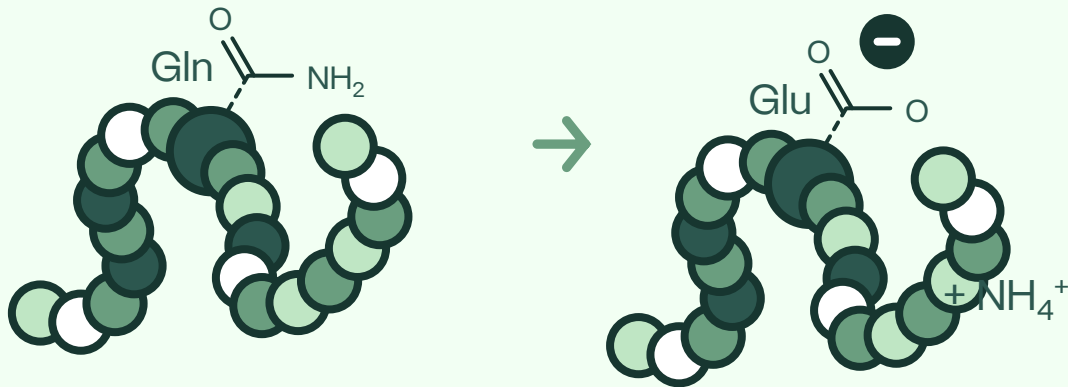


Increasing  
protein  
content

# Vertera<sup>®</sup> Velvet

a protein deamidase also called Protein Glutaminase is a unique new tool to modify proteins without compromising the taste

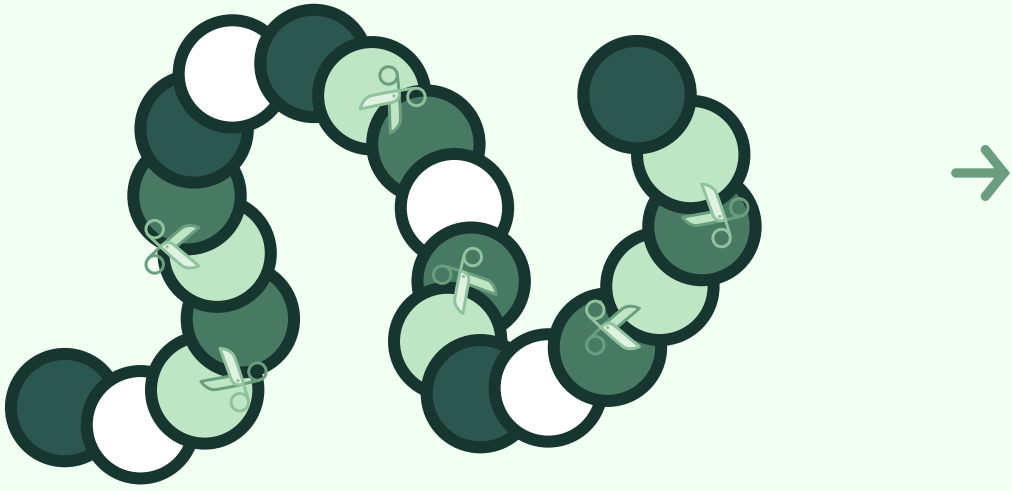
## Mode of action



- Higher negative charge > Higher solubility and functionality
- Protein chain stays intact > No off-notes

# Enzymatic mode of action

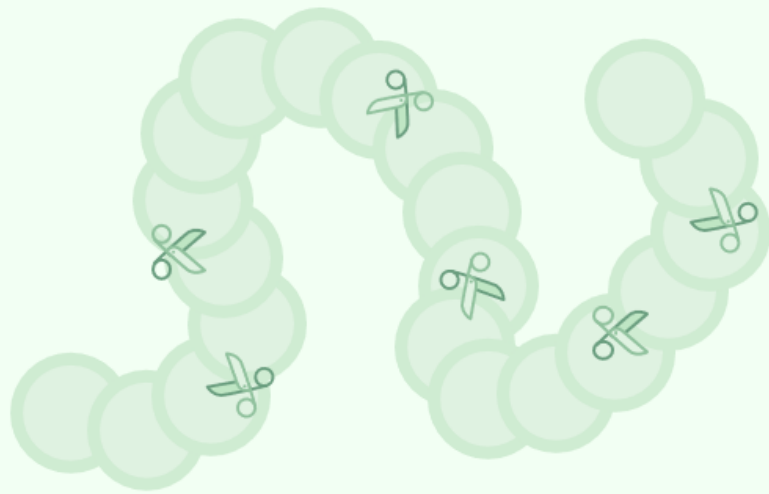
Increasing protein content with Vertera<sup>®</sup> Rise



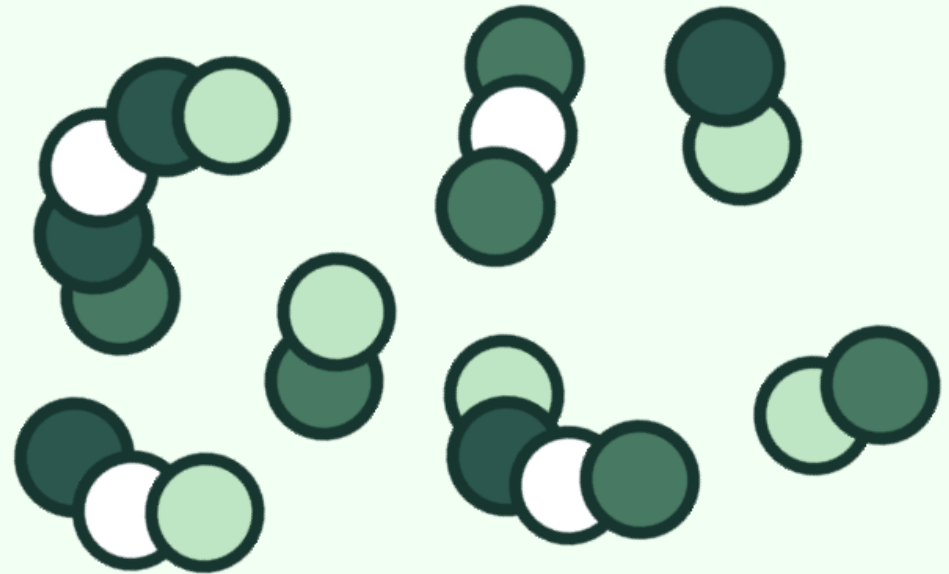
Protein

# Enzymatic mode of action

## Increasing protein content with Vertera<sup>®</sup> Rise



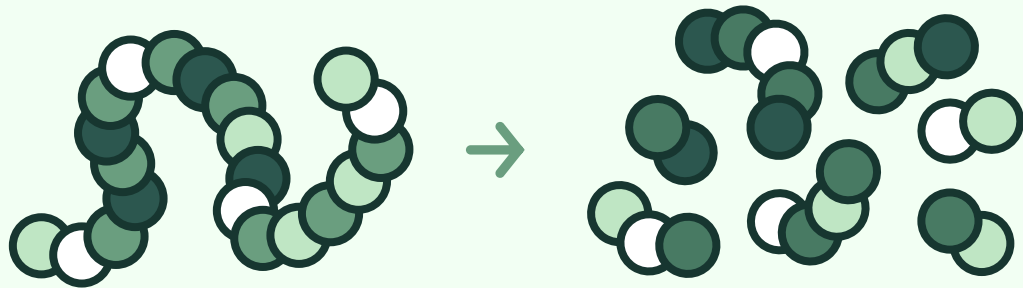
Protein



# Vertera<sup>®</sup> Rise

## How does it work?

Controlled hydrolysis by proteases can improve both solubility and surface properties



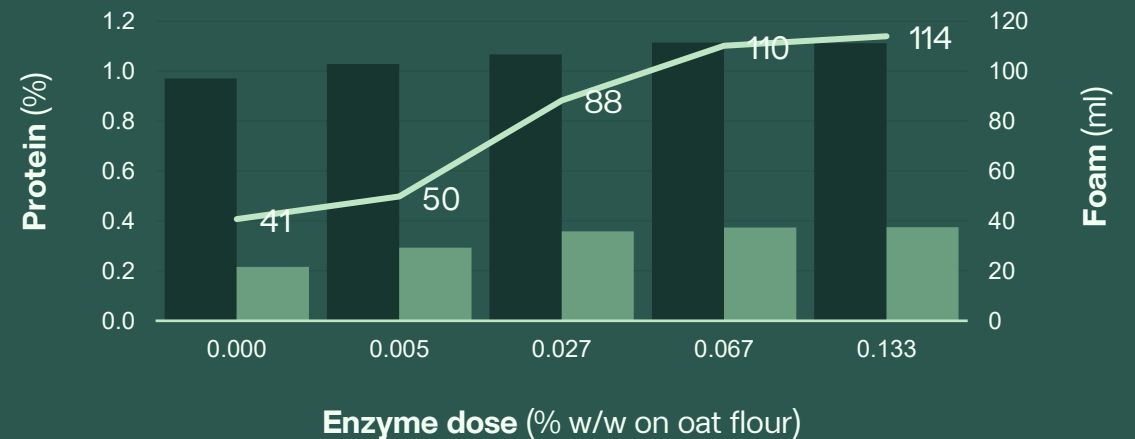
1. In the Vertera<sup>®</sup> Rise samples, the total protein is increasing (~15%), meaning more protein is extracted from the oat flour
2. The soluble protein is also increasing (~65%) - reflecting better solubility of the protein
3. This higher total protein content in the oat beverage, combined with the higher solubility of the protein, leads to improved foaming capacity



**Total protein**  
Protein in whole sample

Centrifuge oat drink

**Soluble protein**  
Protein in supernatant



# Vertera® Velvet & Vertera® protease solutions in the Oat Toolbox

**Vertera® Velvet** is recommended for the highest increase of protein content in beverages that do not require an organic certification.

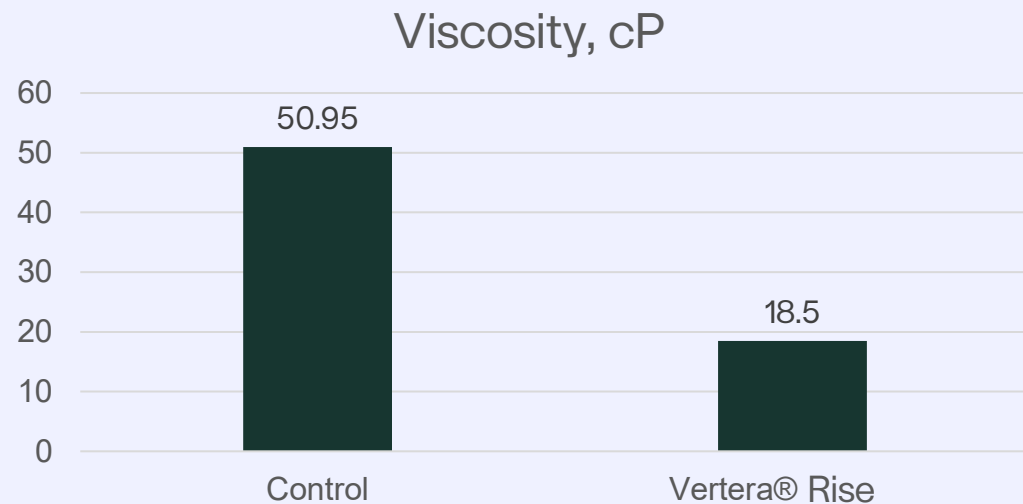
Function	Enzymes	Type	Mechanism of action	Dosage (% oat basis)	Total protein (g/100mL)	Organic Compliance
NA	No added	NA	NA	NA	~ 0.7-0.8	NA
Increase/improve foam and protein content/ functionality	Vertera® Velvet	Protein deamidase	Convert protein bound glutamine into glutamic acid	0.048-0.144	~ 1.2-1.4	No
Increasing foam and protein content	Vertera® Rise	Highly specific trypsin-like endo-protease	Break down proteins in peptides	0.06-0.12 alone 0.007 in combination with Velvet	~ 1-1.1	No

# Vertera® Rise in Soy Drinks

Protein fortification in soy drinks that are creamier than ever

Viscosity Reduction & Texture Improvement in Protein-Fortified Drinks

Controlled hydrolysis by Vertera® Rise reduces the viscosity of protein-fortified soy drinks by approximately two thirds, resulting a smoother product with a lower viscosity and pleasing texture



Create even higher protein soy drinks with fortification, without sacrificing texture or mouthfeel

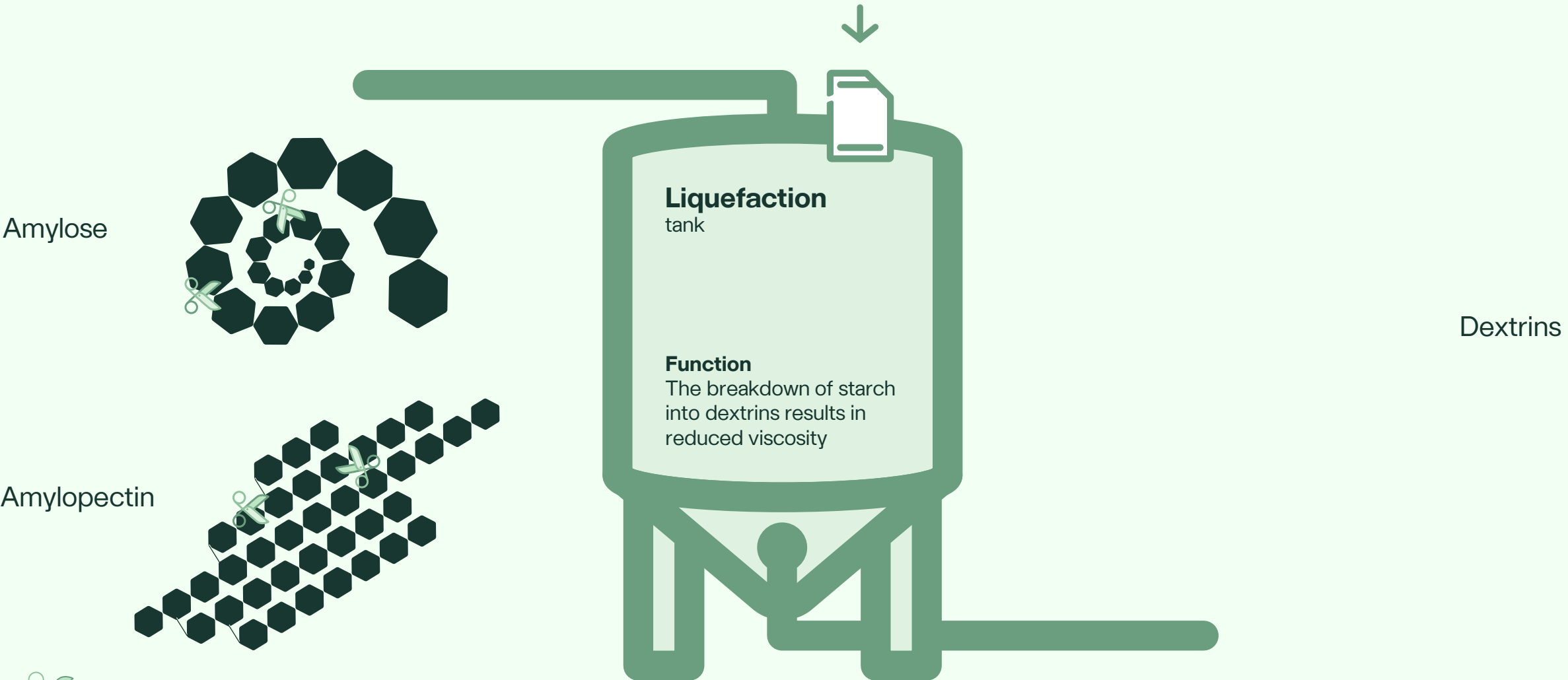


# Beta Glucans in Oat Drinks



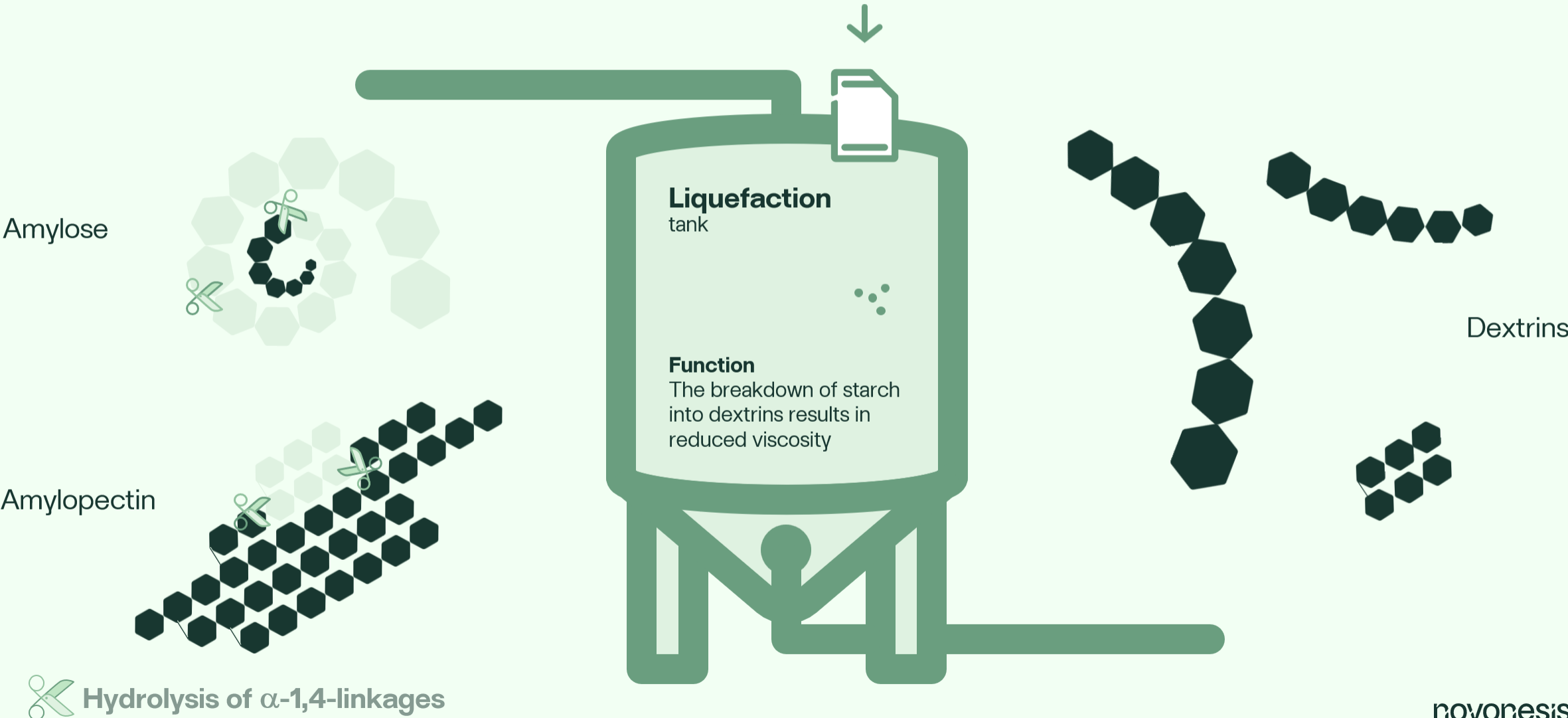
Enzymatic mode of action of **Vertera**<sup>®</sup> Advantage  
and **Vertera**<sup>®</sup> Release

# Enzymatic mode of action liquefaction with **Vertera<sup>®</sup>** Advantage



 Hydrolysis of  $\alpha$ -1,4-linkages

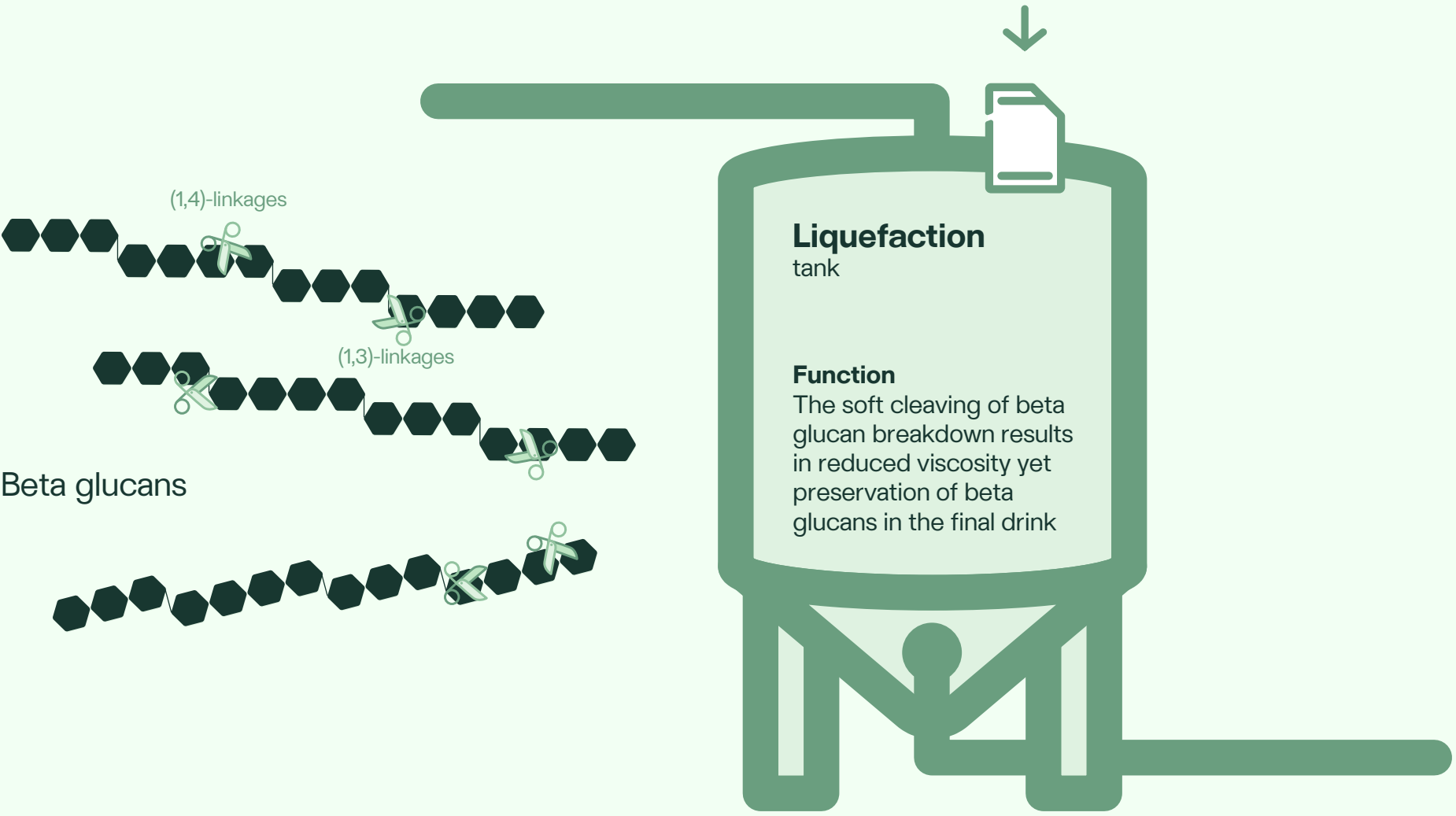
# Enzymatic mode of action liquefaction with **Vertera<sup>®</sup>** Advantage



 **Hydrolysis of  $\alpha$ -1,4-linkages**

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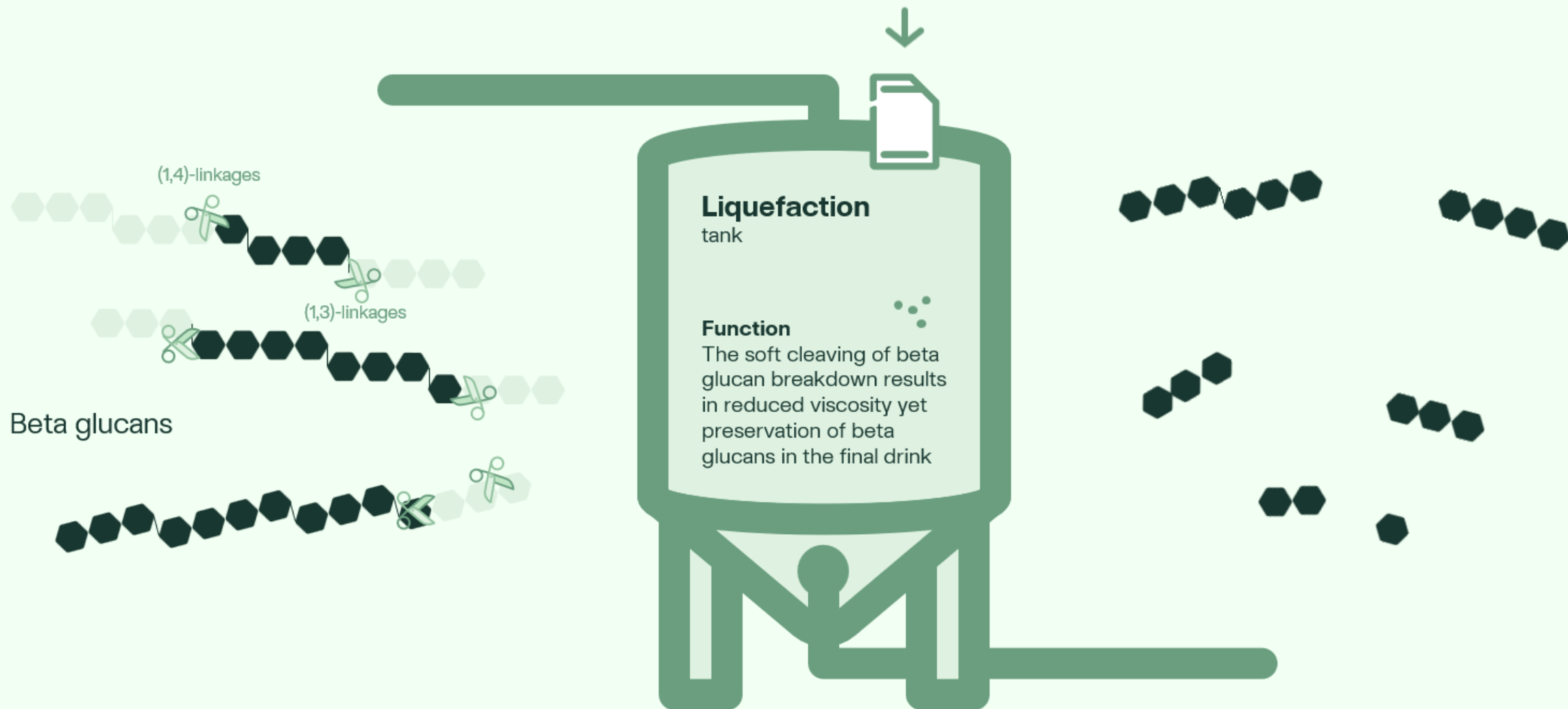
# Enzymatic mode of action liquefaction with **Vertera<sup>®</sup>** Release



 **Endo-beta-glucanase that hydrolyzes (1,3)- or (1,4)-linkages in beta-D-glucans**

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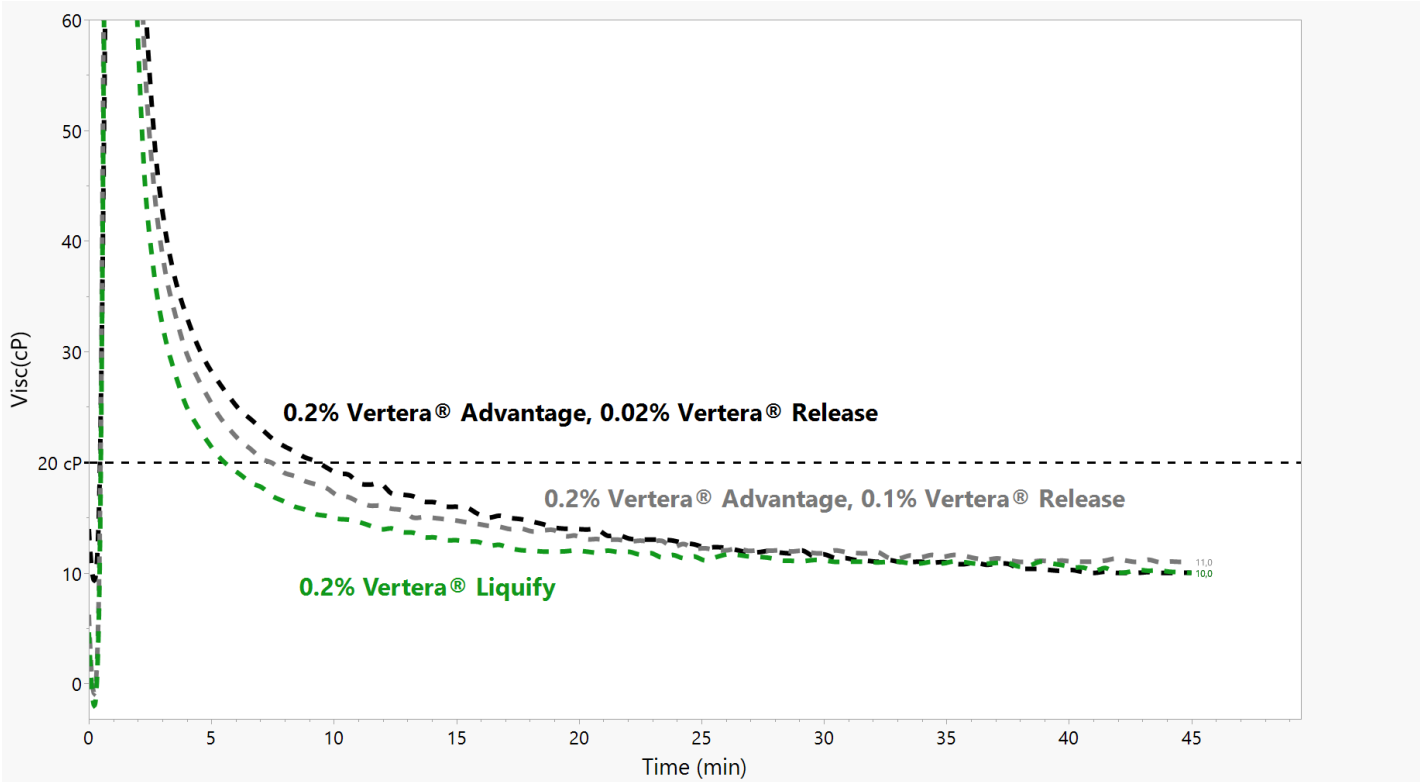
# Enzymatic mode of action liquefaction with **Vertera<sup>®</sup>** Release



Endo-beta-glucanase that hydrolyzes (1,3)- or (1,4)-linkages in beta-D-glucans

# Example, Viscosity & b-glucan impact, 70C

RVA



15% oat flour loading  
45min run time

	End viscosity cP	Beta glucan content, g/L
<b>0.2% Vertera<sup>®</sup> Advantage, 0.02% Vertera<sup>®</sup> Release</b>	10	5.1
<b>0.2% Vertera<sup>®</sup> Advantage, 0.1% Vertera<sup>®</sup> Release</b>	11	4.1
<b>0.2% Vertera<sup>®</sup> Liquify</b>	10	0.4

# Beta glucans & labeling in the EU

Its possible to discuss beta glucans and their beneficial properties, provided such statements are documented and referenced

Depending on the amount of beta glucans, there can be two options



## Option 1: EU Authorized Health Claim

- “Maintain normal blood cholesterol levels and contribute to the reduction of blood glucose rise after a meal”

## Option 2: Highlighting the content claim

- “Contains beta glucans”

# Vertera® Fermented Oat Drinks

The answers to refreshing, fermented plant-based drinks with live bacteria are inside.

## Oat drinks with live bacteria that satisfy consumer demands

By fermenting plant bases such as oats with the Vertera® Culture Kit and Vertera® L. CASEI 431® probiotic strain, producers can create delicious and nutritious plant-based drinks with live bacteria, ensuring a minimum of one billion cells per serving at the end of shelf life.

These fermented plant-based drinks can be easily flavored or otherwise modified to suit consumer taste, texture, and nutritional preferences; no-or low-added sugar, fiber functionality, and a short and recognizable ingredient list.

Producers can additionally highlight the benefits of multi-strain formulations and clearly communicate genus and species names, as well as approved trademarks and logos, while creating products with live and active cultures.

Health-related benefits (e.g., digestive support or gut microbiota balance) can be communicated when supported by the right cell count levels and scientific documentation, in line with local regulatory requirements.

## Vertera® L. CASEI 431®

The probiotic strain *Lactobacillus paracasei* subsp. *casei*, L. CASEI 431® shows significant benefits within immune health<sup>1</sup>

L. CASEI 431® helps regulate the immune response and may beneficially impact the immune function via inflammatory response modulation and immune cell activation.

<sup>1</sup> Jespersen et al.;  
Am J Clin Nutr. 2015



# More Nutritious Oat Drinks

Appeal to health-minded consumers with a higher protein, beta-glucan-containing oat drinks. Deliver on the ingredients consumers are looking for with higher protein

## Unlock **beta-glucans**

Unlock beta-glucan benefits Vertera® Advantage



Enable **higher protein** levels  
Protein is a key area health-focused consumers look for in their food and beverages. Enable higher protein levels with Vertera® Rise & Vertera® Velvet



# Vertera® Mello

The answers to even better soy solutions are inside

## Sweeter soy drinks without the bloat

Create sweetness with in-situ  
sugar generation &  
Enable low FODMAP claims for  
gut sensitive consumers



Vertera® Mello

# Soybeans, legumes & RFOs

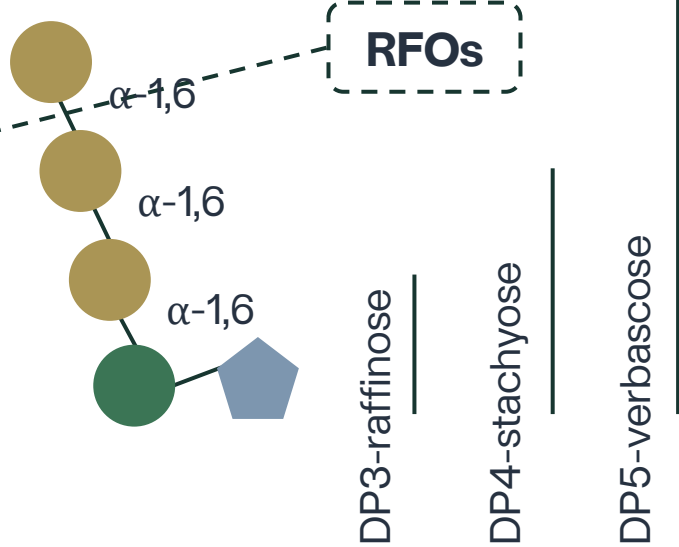
Legumes contain raffinose family oligosaccharides (RFOs) such as **raffinose, stachyose and verbascose**.



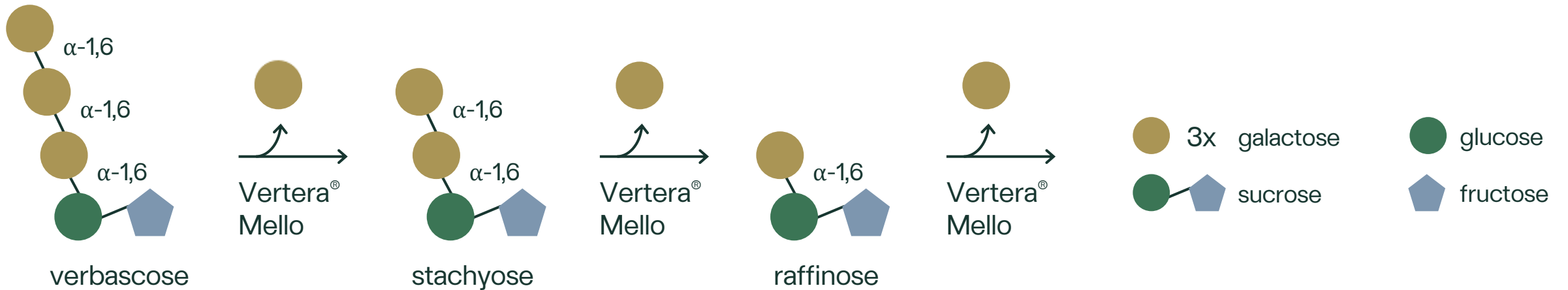
RFOs are part of the FODMAP group

Humans cannot digest RFOs and thereby consumption causes flatulence and bowel discomfort

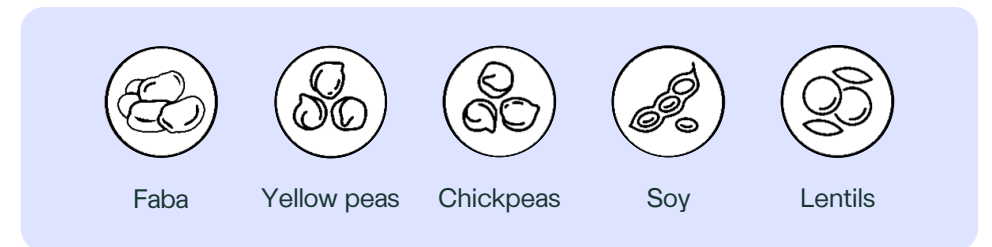
Fermentable  
Oligosaccharides  
Disaccharides  
Monosaccharides  
And  
Polyols



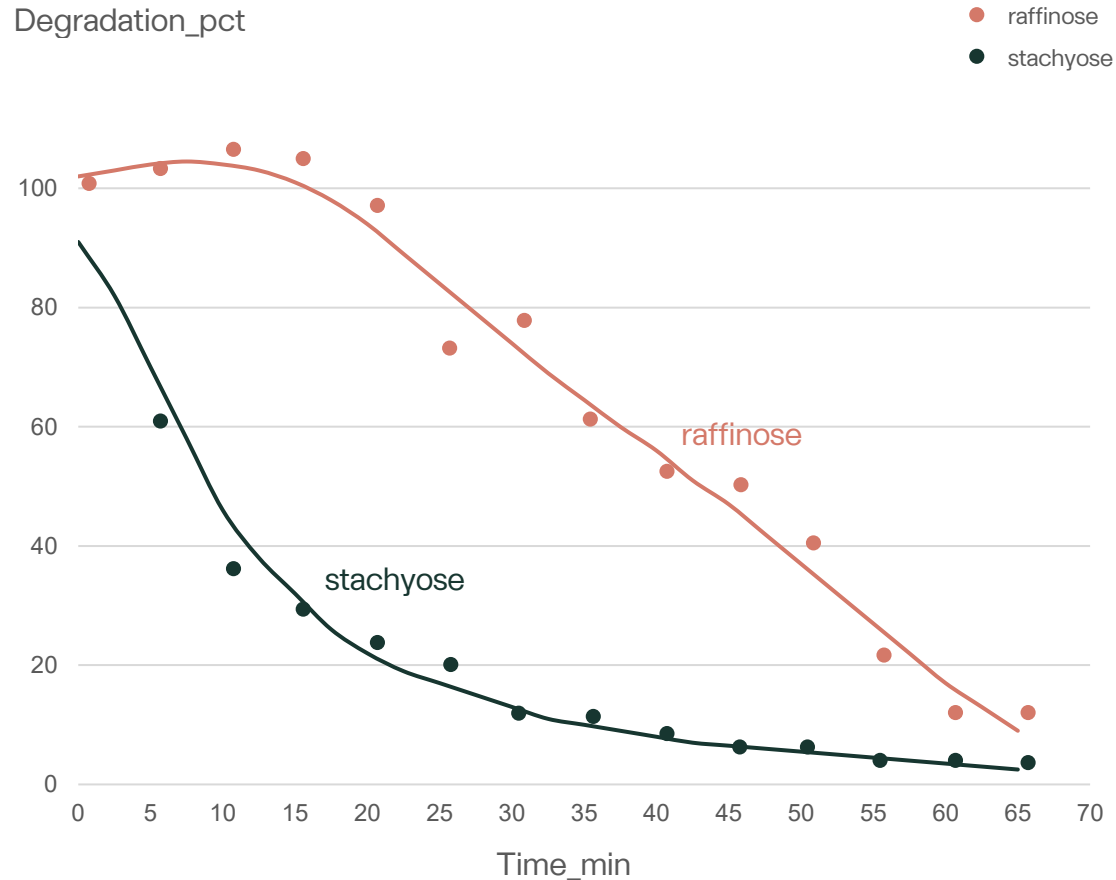
# Vertera<sup>®</sup> Mello cleaves these oligosaccharides into digestible components



- Raffinose and stachyose are dominant in soy
- Verbascose and stachyose are dominant in the non-soy legumes
- Galactose is about 65% as sweet as sucrose



# Degradation of stachyose & raffinose in soy drinks via Vertera<sup>®</sup> Mello



## Testing Summary & Conclusions

- Substrate: commercial soy drink
- Dosage: 8.82 GALU/100g soydrink
- Temperature: 50C
- Inactivation 90C @ 10min
- HPLC analyzed

## Findings

- Very fast hydrolysis of stachyose, while raffinose degradation is slower
- Legumes such as faba bean or chickpea also contain verbascose; hydrolysis speed might be impacted

# Sugar Generation & RFO Degradation in Soy Drinks

Vertera<sup>®</sup> Mello converts all RFO's into sucrose and galactose at the addition points, and works independently of the extraction temperature applied. In the example below, a small loss of sucrose was seen during the indirect UHT treatment

	<b>Protein, pct</b>	<b>Sucrose, g/L</b>	<b>Galactose, g/L</b>	<b>Raffinose, g/L</b>	<b>Stachyose, g/L</b>
Soy drink produced with Vertera <sup>®</sup> Mello	3.4	9.9	3.1	0	0
Soy drink control	3.4	7.5	0	0.7	5.9
<b>Generated sugars</b>		<b>2.4</b>	<b>3.1</b>		

# Biosolutions can help create plant-based drinks that support consumers' health goals

**Unlock beta glucans or support added fiber**



**Unlock high protein claims**



**Create gut-friendly products**



**Achieve simpler, more natural labels**



# Come see us!

Be sure to visit us at  
booth D8 to try some  
delicious plant-based  
prototypes



Thank  
you

novonesis