

ExSeed

ExSeed Ltd.

Potential and Future of Sunflower Protein Isolate

Novel Optimal Technologies

October 2024

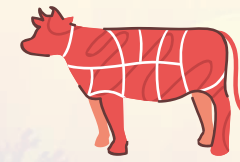
Seoul, South Korea



Alternatives to animal protein are key to climate and food security



We need widely-
**available, sustainable
and functional**
sources of
alternative protein.

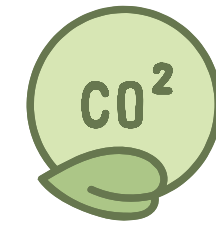


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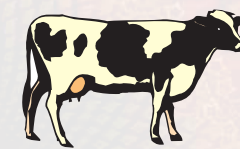
=

15%

of



emissions



2050

=

**10
billion**



Finding those sources and developing optimal technologies to extract the protein.

Source: McKinsey, 2022

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New proteins should also meet manufacturers' needs



Not every alternative protein lives up to expectations.



<i>Nutritional value</i>	<i>Lupine</i>
<i>Non-allergenic</i>	<i>Soy</i>
<i>Functional</i>	<i>Sunflower concentrate</i>
<i>Competitive price</i>	<i>Mycoprotein</i>
<i>Tech close to adoption</i>	<i>Cultivated meat</i>
<i>Good mouthfeel</i>	<i>Pea protein</i>
<i>Long-term consumption</i>	<i>Microbial concentrate</i>



There are **few** potential sourcing **candidates**

2023 Production of Protein crops, million tons

Crop	EU	USA	World
Soy	3	8	70
Pea	2	1	20
Rapeseed	20	8	33
Sunflower	10	4	55

Source: Statista



Where is the sunflower protein?

Sunflower protein isolate - **Plant-based champion**

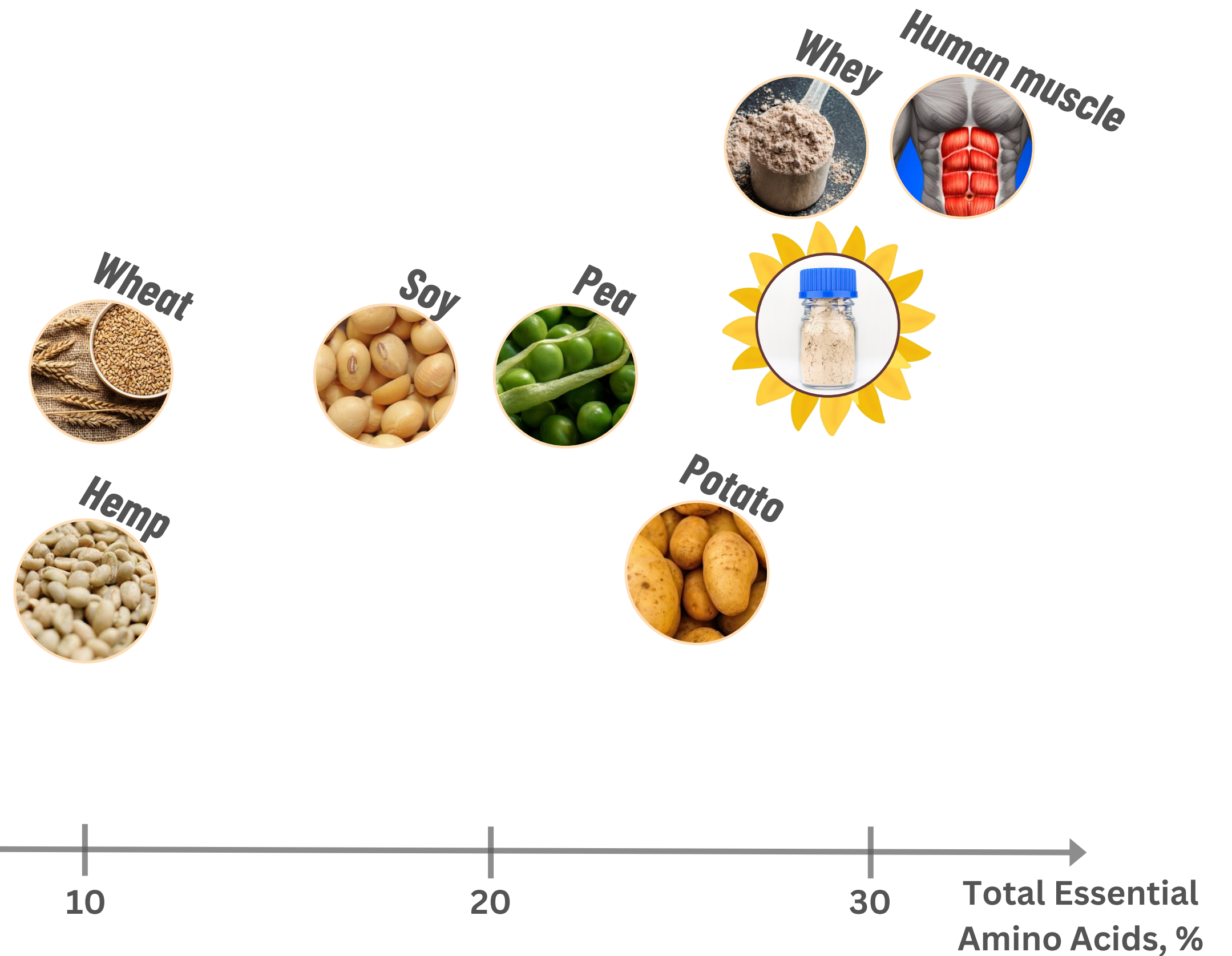


Sunflower protein has an EAA profile **similar to human muscle**.

NOT ONLY THAT, BUT

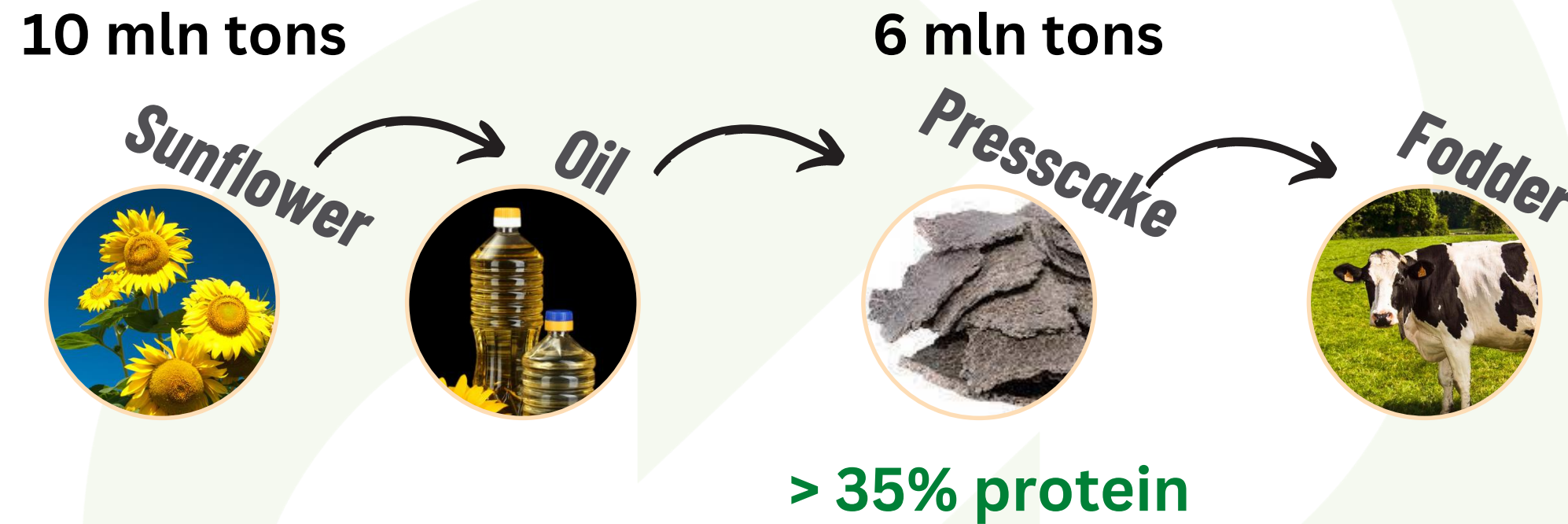
- *is non-allergenic*
- *is functional*
- *has readily available input*

Essential Amino Profile



Only need to look at the by-product of sunflower oil production

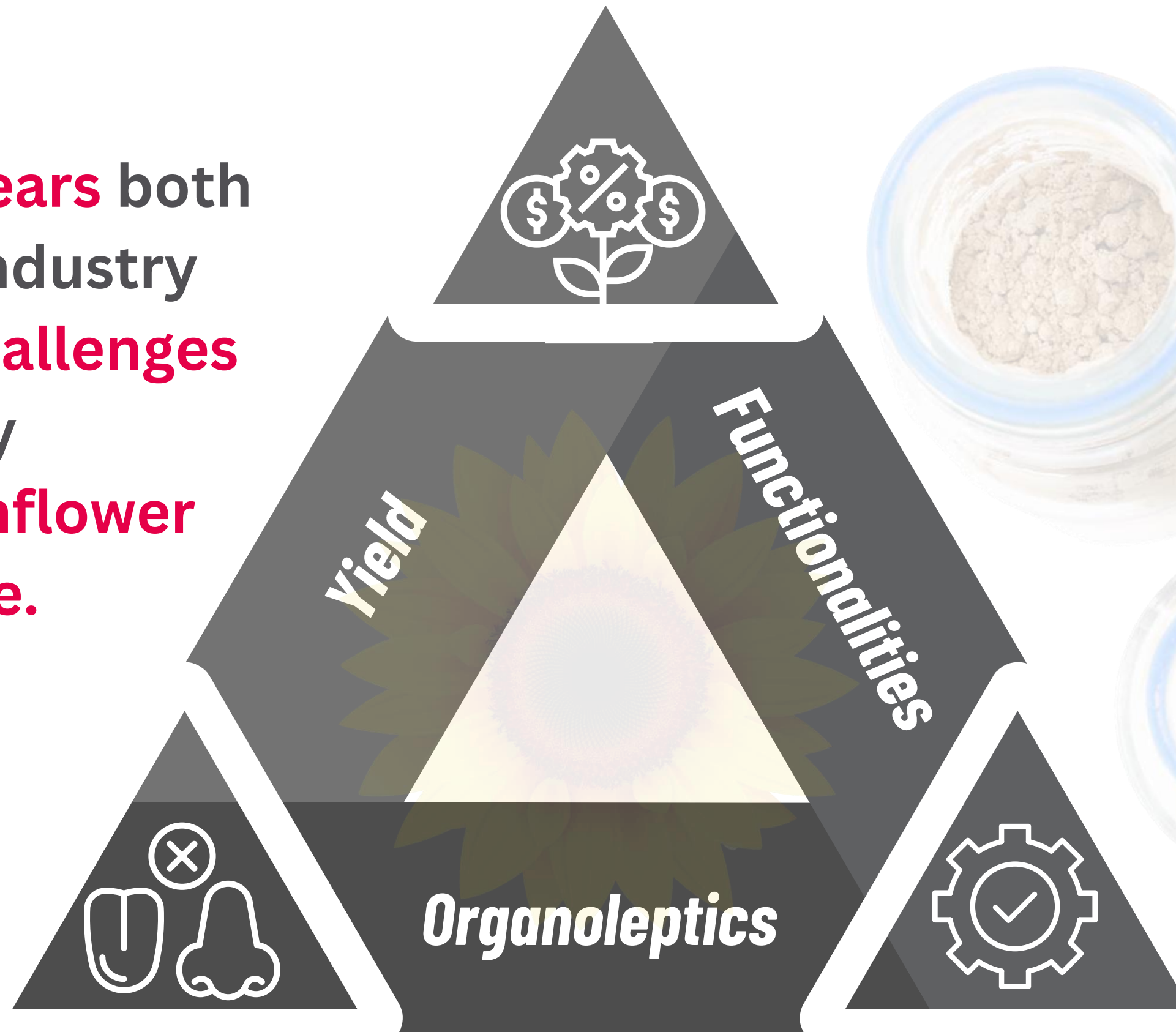
Sunflower **presscake** is the by-product of oil production. Containing all of the protein, it is **sold as fodder**. This makes it **underutilized**.



GETTING SUNFLOWER ISOLATE FROM PRESSCAKE IS VERY VERY HARD

Sunflower Isolate **Trilemma**

For over 30 years both science and industry have faced **challenges** with optimally **extracting sunflower protein isolate**.

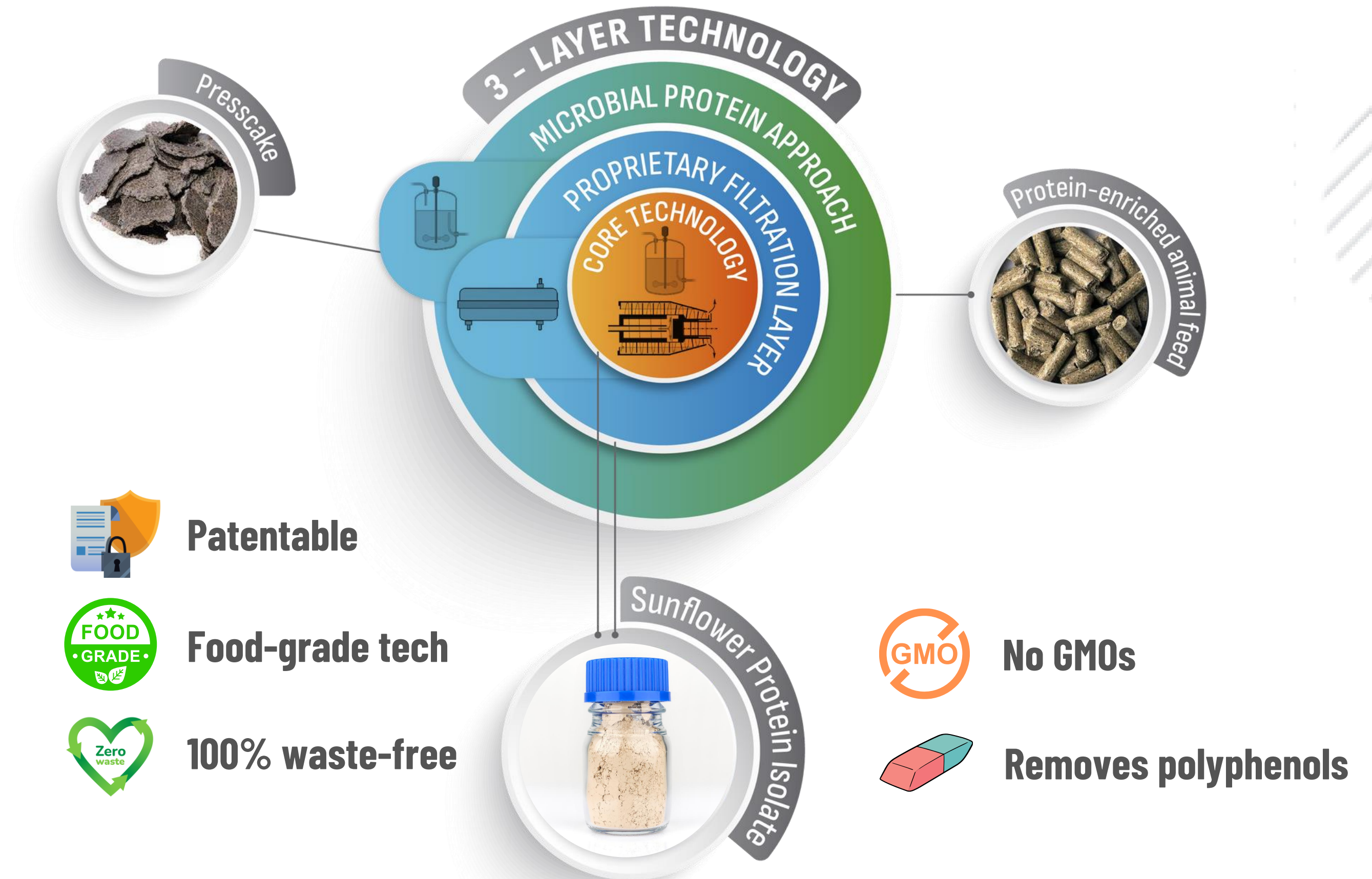


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ExSeed solves the sunflower Trilemma



Our **proprietary 3-layer technology** delivers excellent product with good properties. Thus we **enable commercialisation** of the product.



Patentable



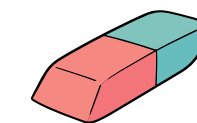
Food-grade tech



100% waste-free



No GMOs



Removes polyphenols

The result of our technology is **amazing** **plant-based protein**



APPLICATIONS IN PLANT-BASED

- meat
- seafood
- dairy
- snacks
- healthy foods
- supplements



PROPERTIES

- 90% + protein content
- complete amino acid profile
- non-allergenic
- neutral taste, smell, colour
- organic option
- competitive price



Due to its **wholesome profile** and **excellent features**,
our sunflower isolate has wide-ranging uses in the
food industry.

ExSeed



Perfecting our solution has yielded **better and better product**



Jul / 23

Dec / 23

TRL 6+

Feb / 23

Sep / 23

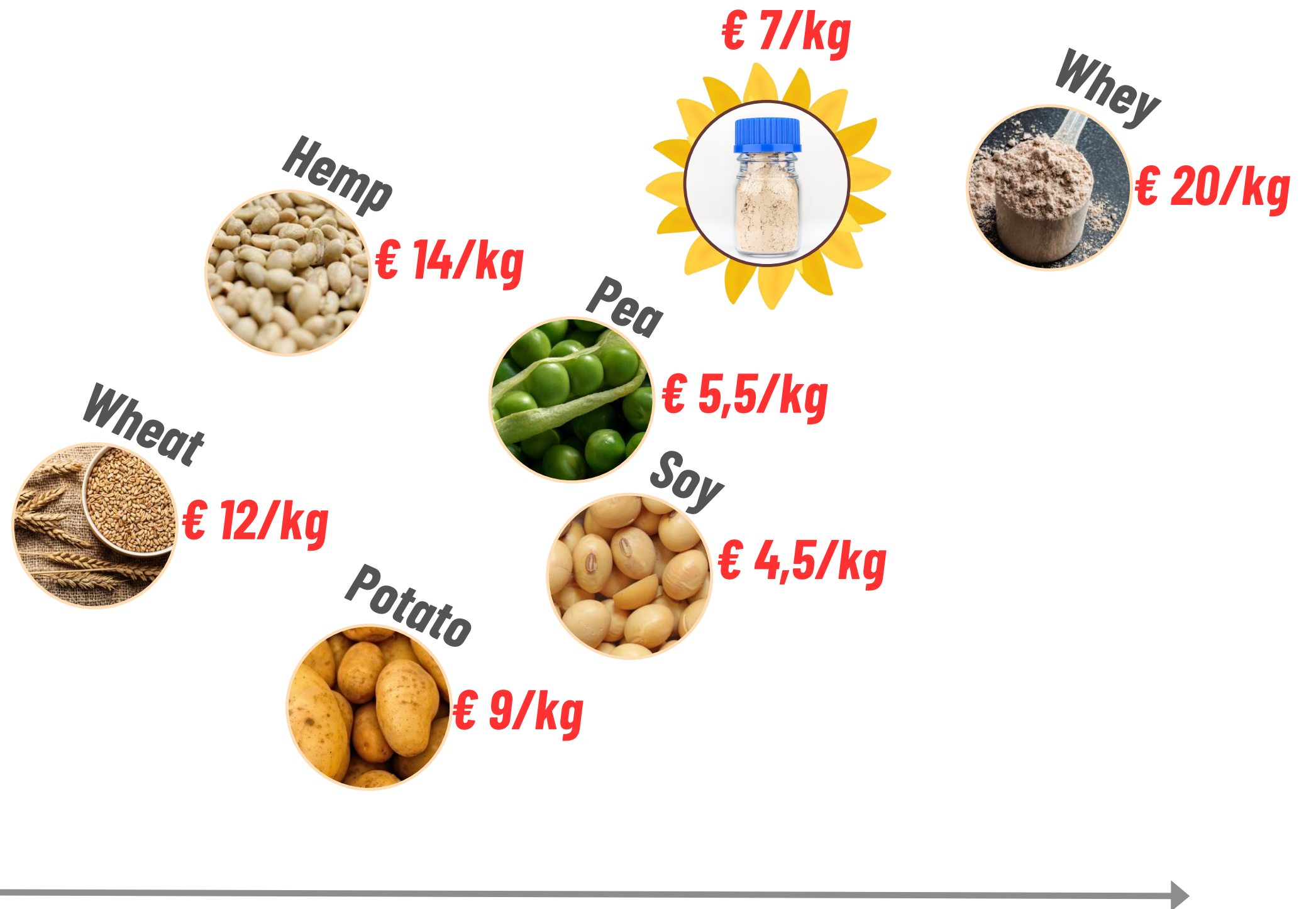
Mar / 24



ExSeed's sunflower isolate targets a competitive pricing model

With an **optimal value-for-money offering**, sunflower isolate can be **champion** in the plant-based world.

EAA content, %



Functionality



In order to **best capture a market** growing rapidly and in need of our product

TAM \$ 430 bln.



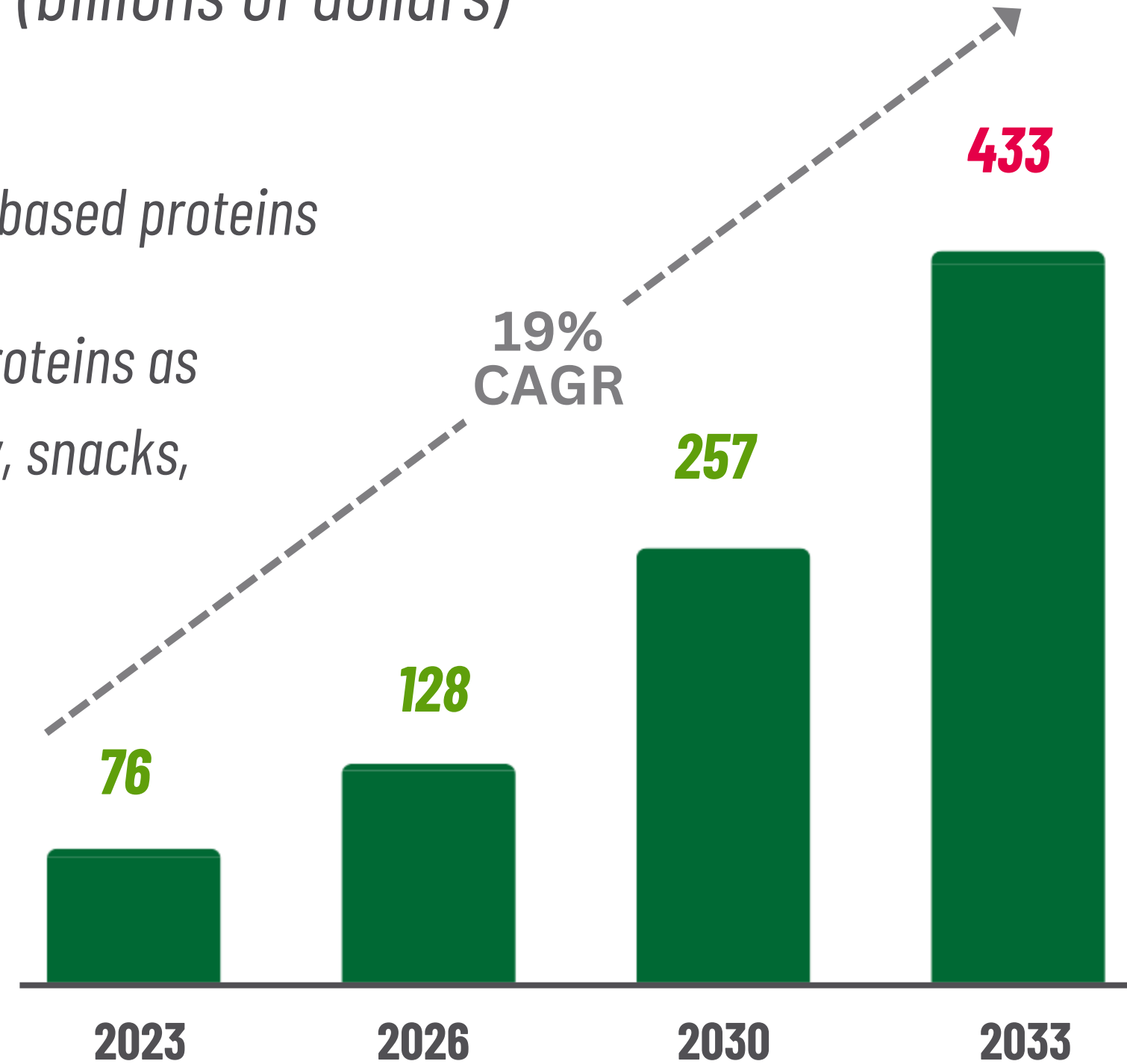
SAM: \$ 75 bln.

SOM: \$ 35 bln.

Market for plant-based proteins

Market for plant-based proteins as ingredients in meat, dairy, snacks, supplements.

Alternative Protein Market Size
(billions of dollars)



This **growth** is possible

ONLY IF...

More and widely-available

plant-based proteins are introduced

Everyone who has learnt of our sunflower isolate has requested a sample

ExSeed is a **B2B** supplier of plant-based protein.

51%

functional fit

= % leads that have expressed interest in product / USP after customer interview.

100% have asked for samples.



Graph not exhaustive

And companies, both big and small,
have **loved what they have seen**



I'm excited to share my feedback. Both visually and in terms of flavor, the product exceeded my expectations. Very promising initial results.

Can you deliver 20 tons and at what price?

Looks quite nice, and is very fine compared to what I know.

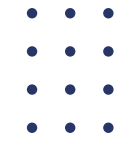
Very good and satisfying!

90%
positive sample
feedback

100%
wanted more
product



Use case #1 - Plant-based meatballs



Test samples with sunflower isolate from **ExSeed** displayed a **better taste and mouthfeel** compared to reference using pea isolate.

Pea

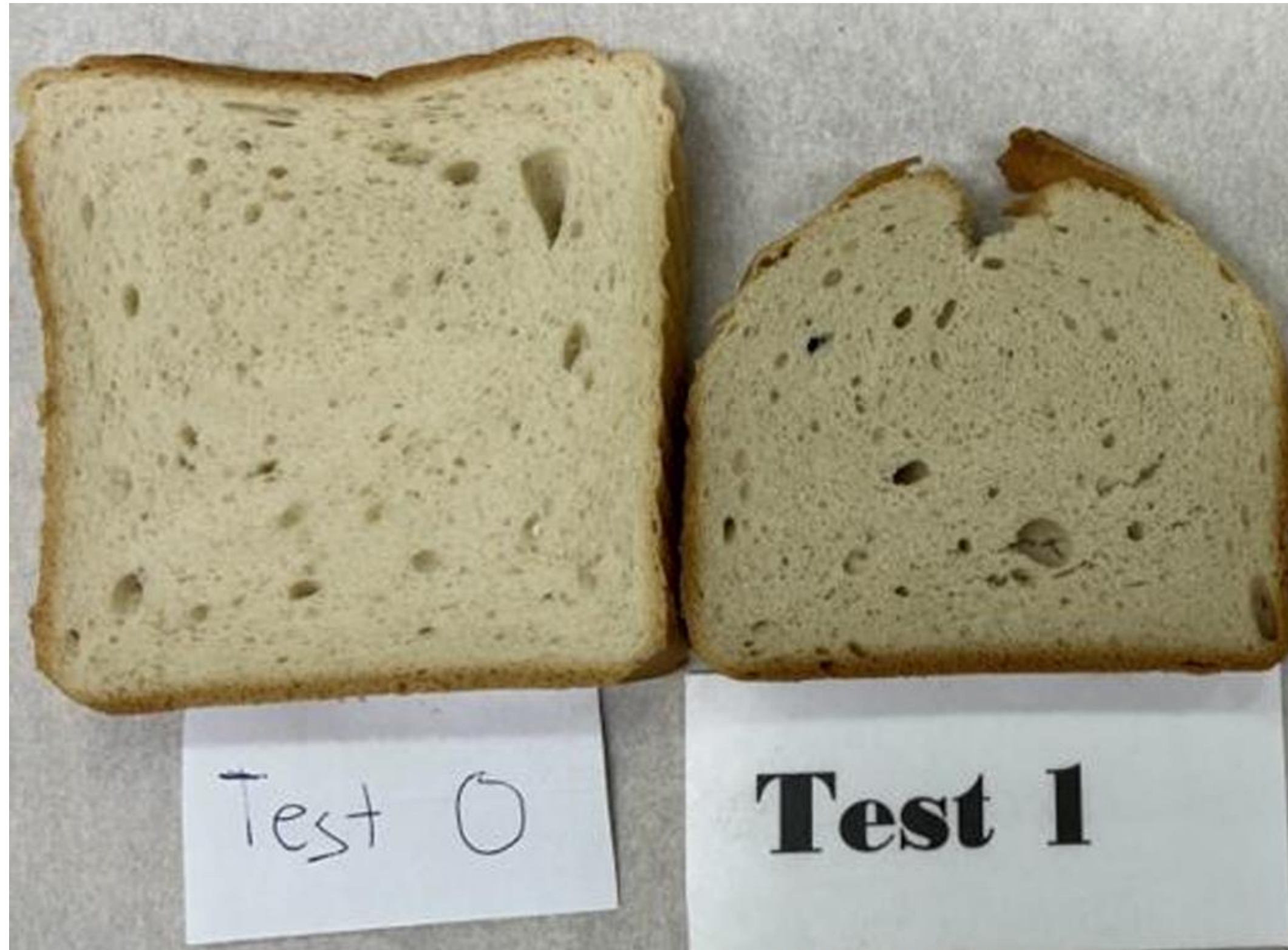
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Use case #2 - Protein bread



Compared to standard white bread, the product with ExSeed's isolate exhibited **excellent baking properties and a light, flowy and bubbly mouthfeel.**

Off-the-shelf standard white bread

Protein bread with ExSeed's isolate

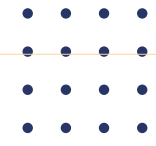
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Our product **ranks highly** compared to other types of alt proteins



	Cell-Based	Insect Protein	Mycoprotein	Precision Fermentation	Sunflower Protein
Functionality	✓	✗	✓	✓	✓
Price (EUR/kg)	50 €	6 €	35 €	15 €	7 €
Tech readiness	✗	✗	✓	✓	✓
Regulation	✗	✓	✓	✗	✓
Consumer Perception	✗	✗	✗	✗	✓



Our team is **dynamic, experienced and growing**



Boyan Zahariev
Co-Founder, CEO



Assoc. Prof. Angel Iliev
Co-Founder, Chief Scientist



Prof. Todor Dzhurkov
Chief Engineer



Lora Frateva
COO



Tomislava Zaharieva
Lab Assistant

Supported by:



And our pledge to the environment is **strong**.



-25kg CO2eq

*per kg of sunflower isolate
produced and consumed*



ExSeed

Thank you

Potential and Future of Sunflower Protein Isolate

Novel Optimal Technologies



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