



IMPACTING
BETTER FOOD™

Leveraging Germination Technology to Tackle Key Challenges in Plant-Based Foods

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Impacting better food.



ICL Food Specialties is an ingredient solutions provider with over 80 years of experience in the food and beverage industry.

We combine the power of a global leader with the passion of an agile team of local experts to help you create solutions that impact the future of food.

Consumers Demand for Better Plant-Based Meat

“Improved **Taste** and **Texture** are key to building consumer loyalty and driving repeat purchases”



Customer Expectation

Demand for meat-like flavor, savoriness, juiciness, tenderness



Taste Challenges

Beany off-flavor & aftertaste hinder mainstream adoption



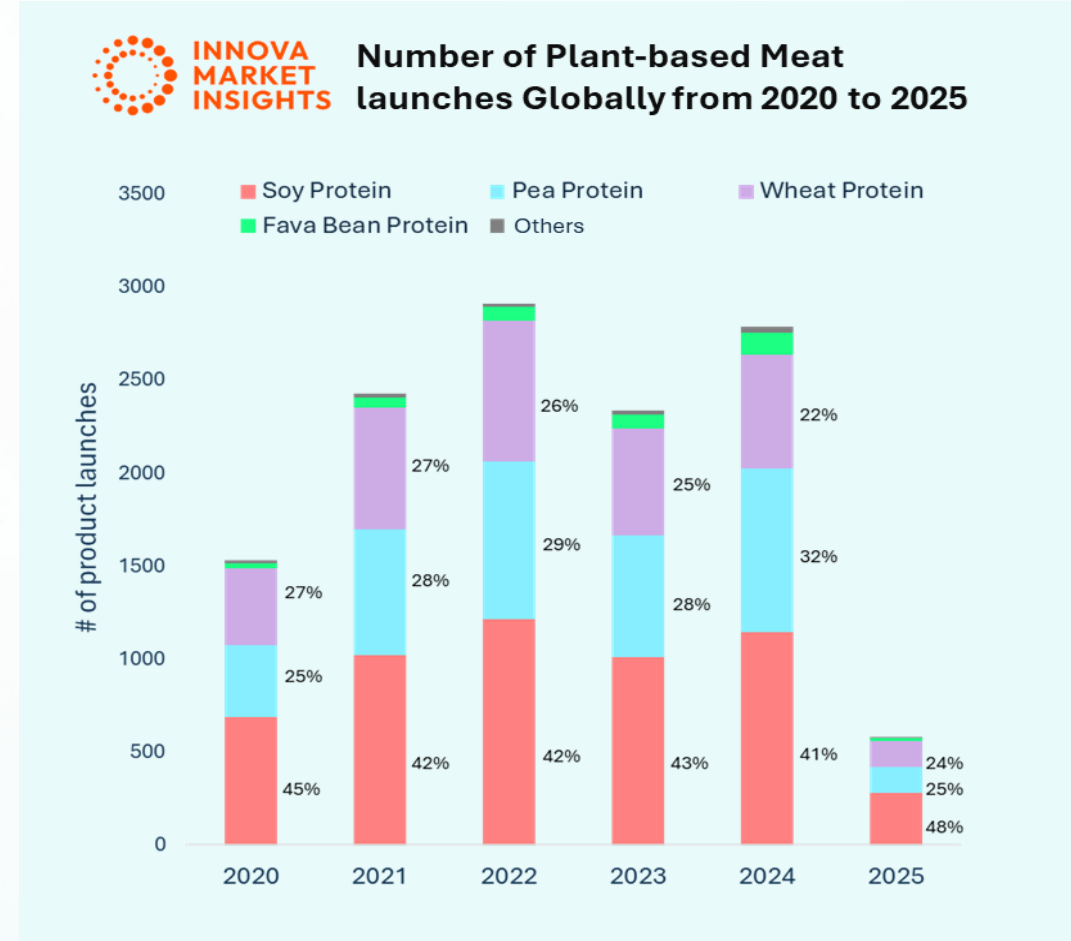
Texture Challenges

Perceived as mushy, dry, less juicy than traditional meats

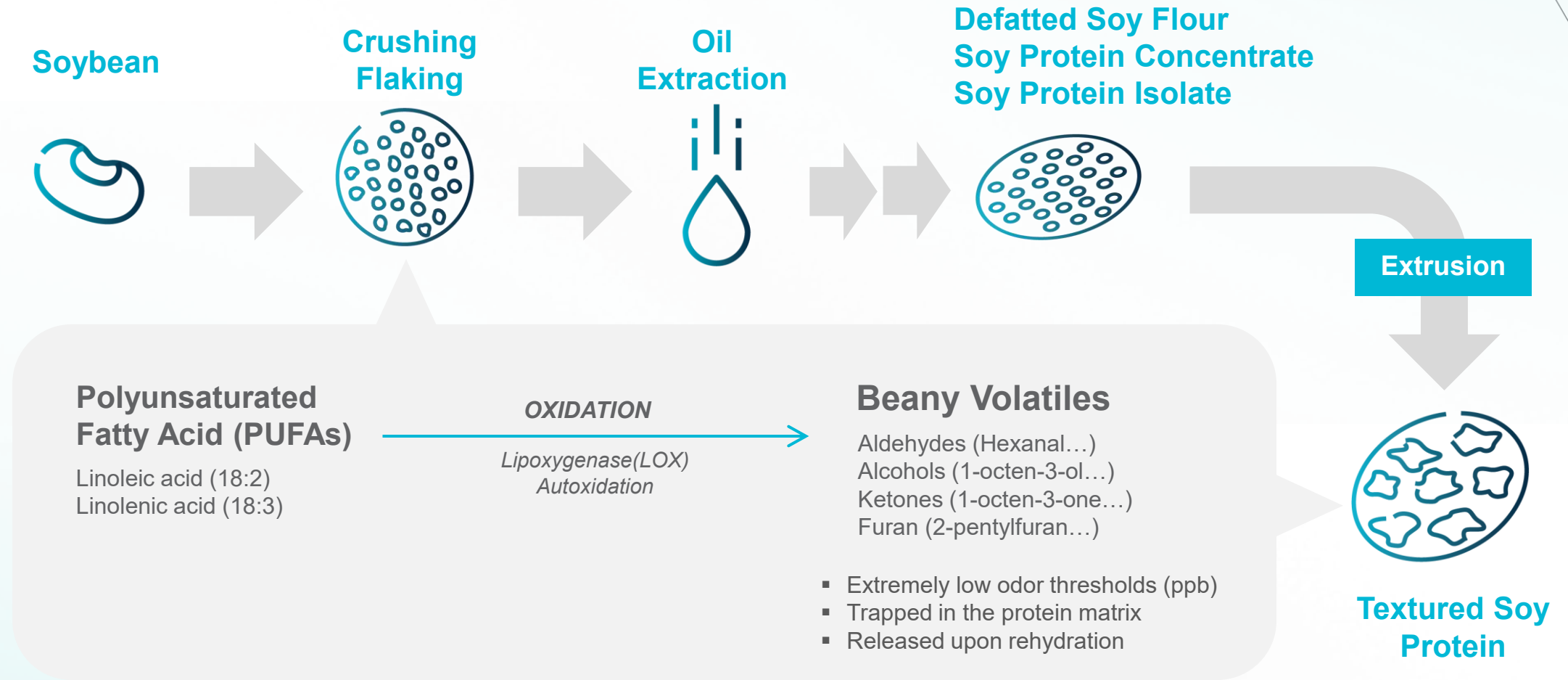


Soy Protein Maintains Its Dominance in Plant-Based Meat

- Soy protein is the leading protein source due to its high functionality, complete amino acid profile, high PDCAAS, cost-efficiency, and established supply chain.
- Soy is widely accepted by consumers for its familiarity, traditional use, and positive perception as a reliable protein source.
- In key categories like plant-based burgers, poultry, and red meat analogues, soy serves as the primary or co-primary protein.



Beany Off-Flavors in Textured Soy Protein



Innovation Through Expert Partnership



Sproutx Inc., formerly known as DAIZ Engineering Inc.

Proprietary Germination Technology

Controlled Metabolic Changes

Mobilization of Storage Lipid

- Breakdown of lipid reserves
- PUFAs are metabolized to energy
- LOX activity is downregulated

→ **Reduced beany volatiles**

45–60% Reduction

of antinutrients such as saponins, phytic acid

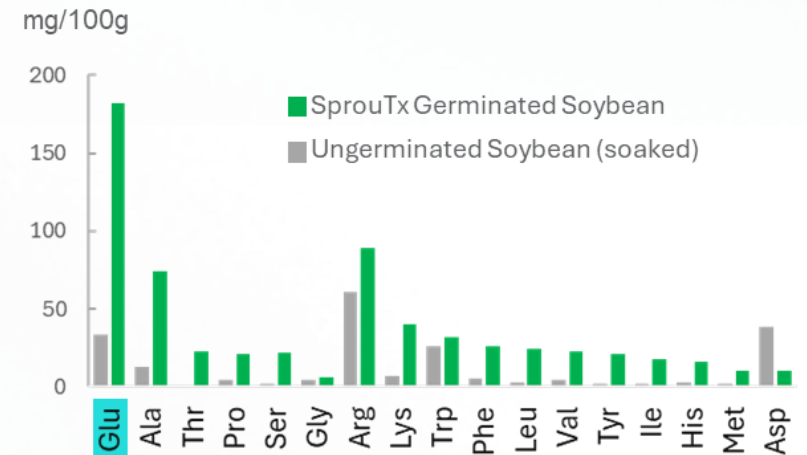


“Ochiai Sprouting Method”

Mobilization of Storage Protein

- Breakdown of protein reserves
- Significant increase in free amino acids
- Up to 6-7× increase in free glutamic acid

→ **Enhanced umami perception**



Note: 15-25 mg/100ml is sufficient to give umami taste in various stocks and soups (source: Ajinomoto)

Versatile Ingredients for Plant-Based Meats and Seafoods

ROVITARIS®
SproutX™ S



| | |
|--------------------------|--|
| Type | Granular (small) |
| Texture | Tender & Fibrous |
| Protein (%) | 53 |
| Plant-based Applications | Burgers, Meatballs, Sausage, Pâté, Bars etc. |

ROVITARIS®
SproutX™ SH



| | |
|--------------------------|-----------------------------|
| Type | Granular (large) |
| Texture | Firm & Fibrous |
| Protein (%) | 53 |
| Plant-based Applications | Taco Meat, Ground Meat etc. |

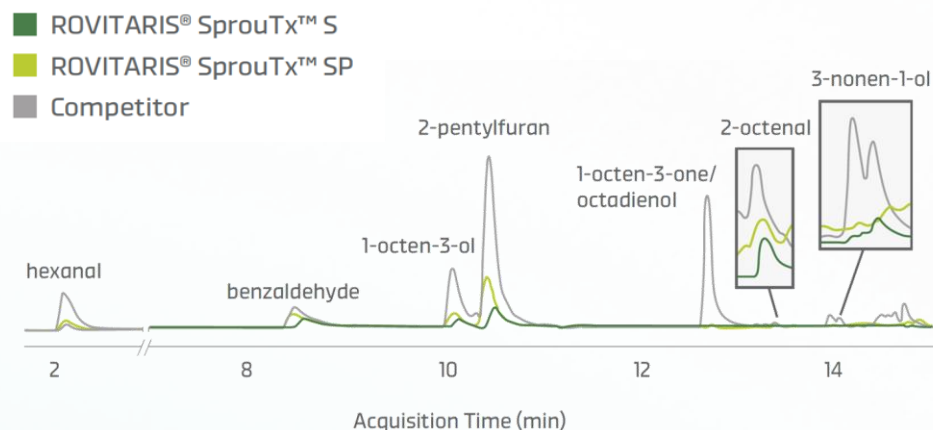
ROVITARIS®
SproutX™ SP



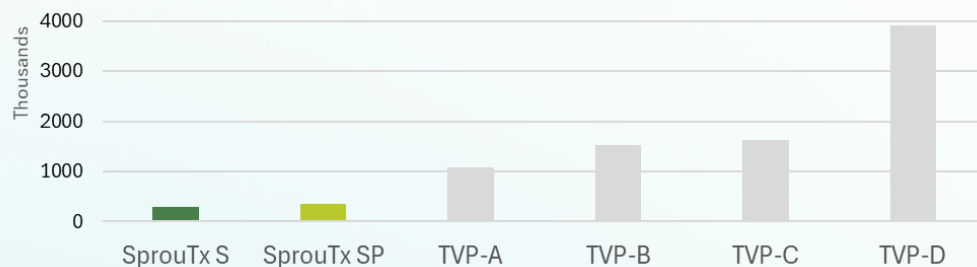
| | |
|--------------------------|---|
| Type | Minced |
| Texture | Tender & Juicy |
| Protein (%) | 51 |
| Plant-based Applications | Tuna, Fish Sticks, Sausage, Nuggets, Burgers, Pâté, Bars etc. |

Improved Taste profile of ROVITARIS® SprouTx™

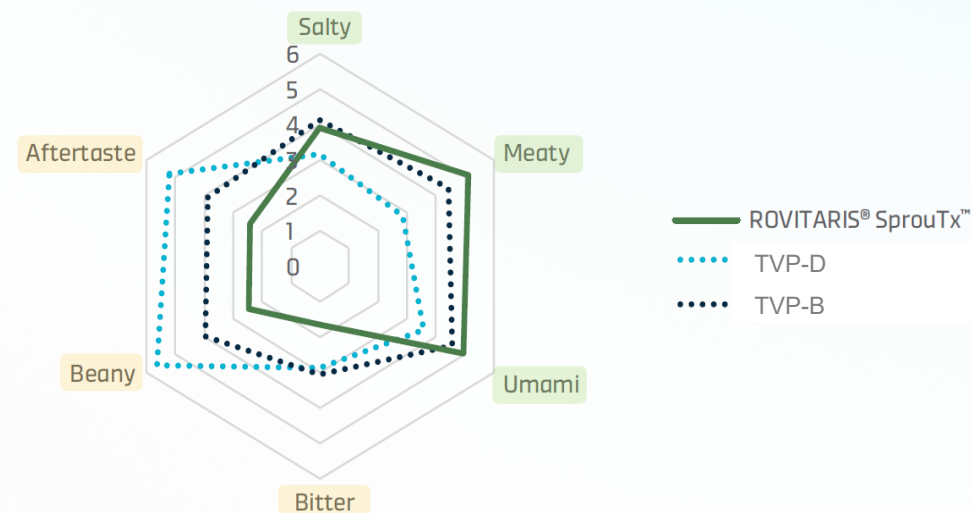
HS-SPME-GC-MS Analysis of Beany Volatiles



Total Peak Areas of Volatiles



Sensory Analyses of Plant-based Burger Patties








ROVITARIS®
SprouTx™

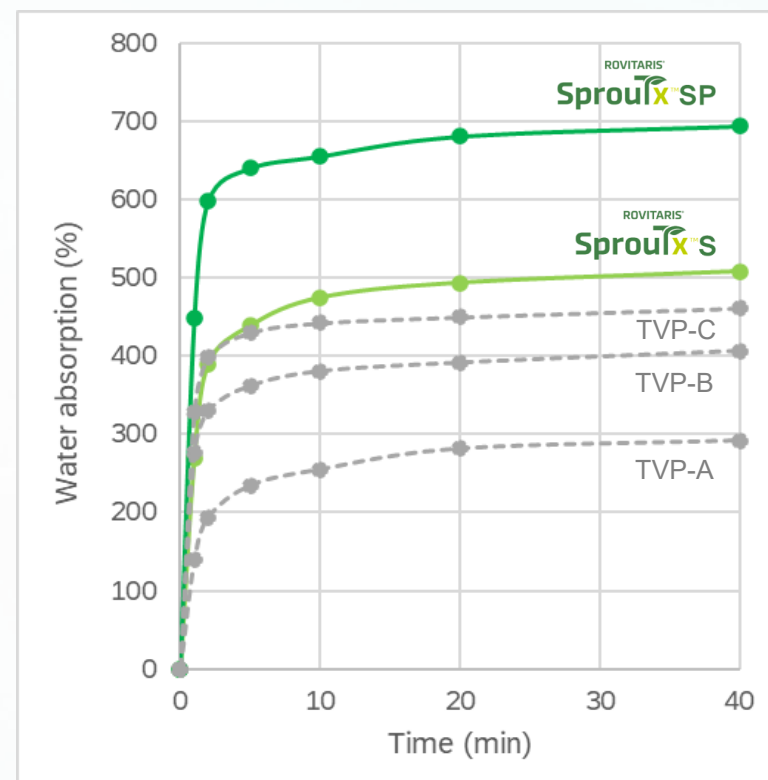
Germination enhances the overall taste profile by reducing beany notes, bitterness, and aftertastes, while boosting positive attributes such as umami, saltiness, and meatiness. Potential cost savings through elimination of flavor masking agents and reduced need for salt, flavorings, seasonings.

Improved Texture profile of ROVITARIS® SprouTx™

Firmness and Water / Oil Holding Capacity

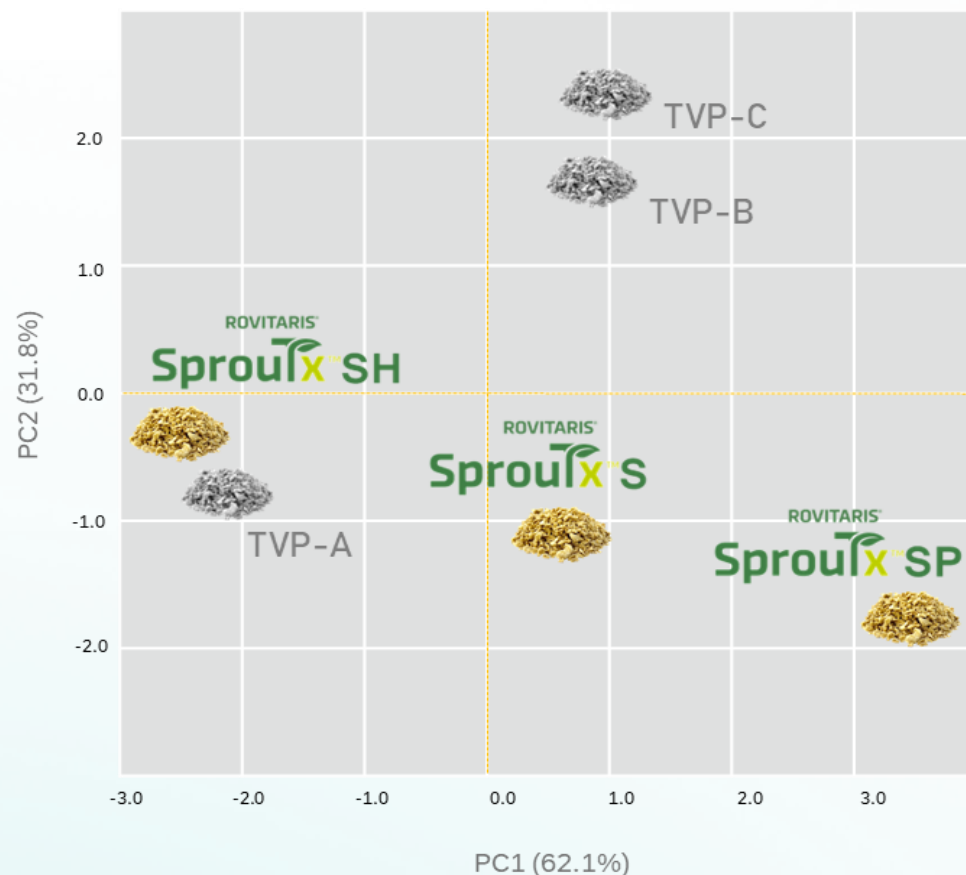
| | ROVITARIS® SprouTx™ S | ROVITARIS® SprouTx™ SH | ROVITARIS® SprouTx™ SP | TVP A | TVP B | TVP C |
|---|--------------------------|---------------------------|---------------------------|----------------|----------------|----------------|
|  Firmness (kg) TVP: water ratio 1:2 1:3 1:10 | 60 50 30 | 67 58 47 | 45 33 25 | 65 56 45 | 22 19 14 | 20 18 13 |
|  Water Absorption (%) | 508 | 362 | 695 | 292 | 406 | 462 |
|  Water Holding (%) | 319 | 235 | 375 | 247 | 274 | 309 |
|  Oil Absorption (%) | 75 | 37 | 116 | 52 | 73 | 31 |
|  Oil Holding (%) | 18 | 4 | 38 | 14 | 15 | 15 |

Water Absorption Rate



Improved Texture profile of ROVITARIS® SprouTx™

Principle Component Analysis (PCA)



Textural Characteristics from PCA

| | |
|---------------------------------|--|
| ROVITARIS SprouTx™ S | Balanced moisture and moderate to firm bite; tender; versatile for various applications. |
| ROVITARIS SprouTx™ SP | Exceptionally juicy and moist; moderate firmness for succulent yet structured bite; ideal for premium meat- and seafood- textures. |
| ROVITARIS SprouTx™ SH | Firm bite; low moisture/fat retention; ideal for ground meat, strong-bite formats. |
| TVP-A | Similar to SprouTx SH. |
| TVP-B | Soft and light texture with low oil/water retention; dry, airy, lacks richness, poor succulence. |
| TVP-C | Similar to TVP-B. |

Unlocking Hybrid Meat Innovation with a Clean Taste

Hybrid Meatball

- Replacing 30-35% of meat
- 25% fat reduction and 14% less saturated fat
- Increase in fibre

| Ingredients | TOTAL % |
|--|----------------|
| ROVITARIS® SprouTx™ S [Hydrated (1:2)] | 30,00% |
| Beef shoulder | 25,40% |
| Pork shoulder | 25,40% |
| Onions | 9,00% |
| Water | 7,00% |
| TARI® Spice Garam Masala C | 3,00% |
| TARI® K 2 | 0,20% |
| TOTAL | 100,00% |

| Nutrition Information | Per 100g |
|-----------------------|-----------------|
| Energy | 636kJ / 152kcal |
| Fat | 9g |
| Of which saturates | 6g |
| Protein | 14.8g |
| Salt | 1g |
| Fibre | 1.6g |



Key Takeaways

ROVITARIS® SprouTx™ uses **germination technology** to solve taste and texture challenges in plant-based foods



Minimizes Off-Flavor Naturally

Effectively reduces the formation of beany off-flavor volatiles without additives or maskers



Delivers Clean Umami & Savory Notes

Enhances umami through elevated free glutamic acid — no additives needed



Achieves Balanced Juiciness & Firm Texture

Delivers a unique microstructure that enhances water/oil absorption and firmness



Drives Cost-Efficiency & Versatility

Reduces need for masking agents and flavorings; versatile for hybrid and plant-based formats

A future of better food starts here, with your ideas and our expertise, **united.**

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