



Animal protein processing with microbial enzymes

Boost your efficiency and sustainability.
It's good for the planet — and for your bottom line

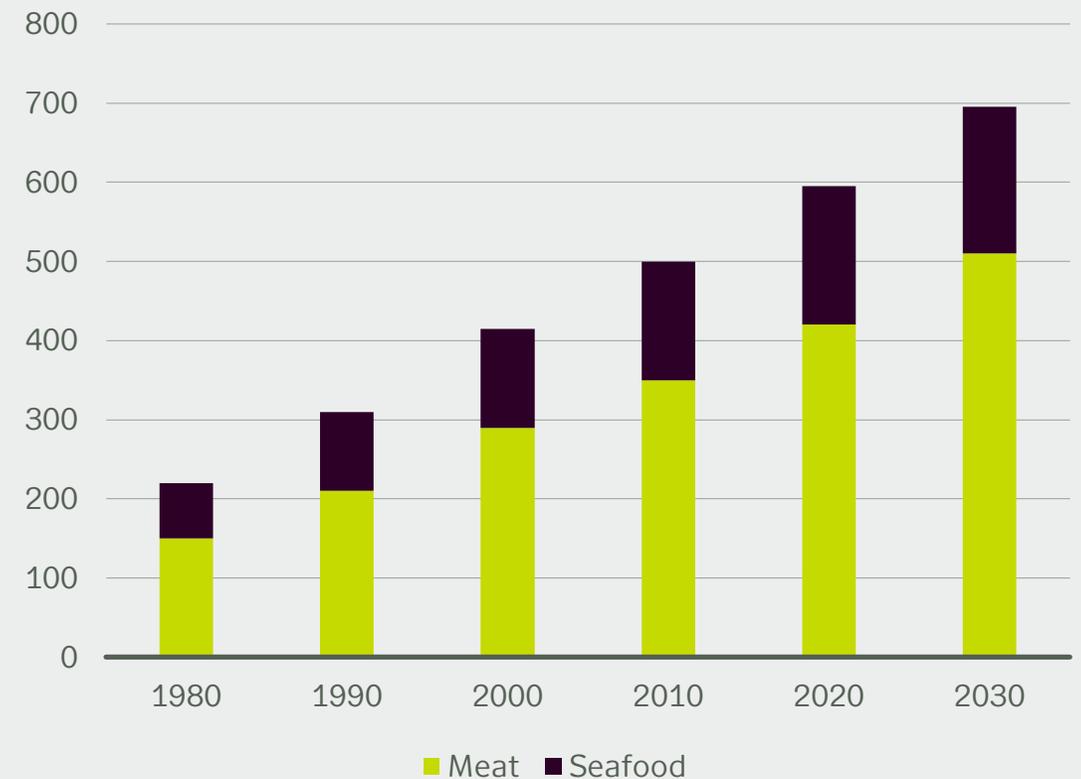
Rising population and growing demand for proteins

- The world's population is expected to grow to nearly 10 billion by 2050.
- Proteins are vital for human health, yet production of them can put a strain on land and water use.
- Traditional meat-based proteins won't be able to feed a hungry planet.
- There is a need for better use of animal proteins, as well as increased production of alternative protein sources.

– The Meat Site

The demand for meat and seafood is rising

Global protein demand 1980-2030
(million metric tons)





Protein ingredients market size including plant protein and animal/dairy protein, was valued at **\$ 38 billion** in 2019, and is forecasted to experience a **9.1%** CAGR from 2020 to 2027.

- Grand View Research



Global food trends

More protein

- The demand for more proteins is a global megatrend, with more consumers seeking for protein rich diets.

Waste not

- Almost a one-third of the food produced in the world is wasted. Using more of this wasted food offers a great opportunity for innovation. Exploiting previously discarded co-products from meat and fish processing, is key for sustainable production.

Time is of the essence

- Busier lifestyles are a challenge to meeting nutritional requirements. Protein-rich snacks to eat on-the-go are gaining ground.

Affordability

- Low-income consumers make up a large part of the global consumer base, particularly in emerging markets. Affordability is an important topic for the food and beverage industry.

What are enzymes?

They **speed up**
vital natural
processes

They are
fully
biodegradable

They are
pure
proteins

They are
present in all
living cells

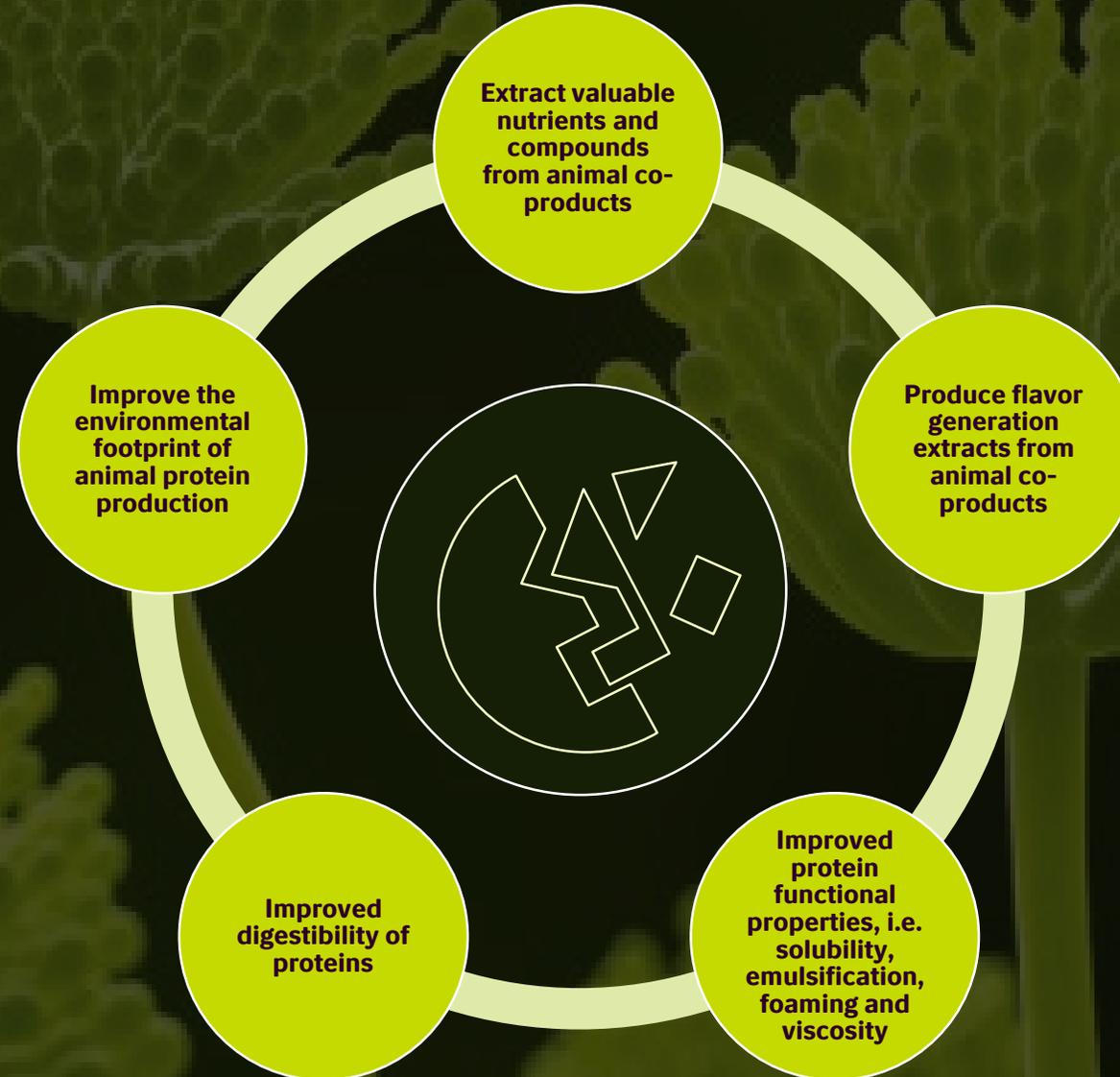
They are
catalysts,
speeding up
biochemical
reactions

They are
highly
targeted

They make
everyday
products more
sustainable

Extract valuable ingredients form animal co-products with microbial enzymes, while improving the environmental footprint

Enzymatic hydrolysis are a natural and environmentally friendly processing aid that improves the properties of proteins to make them more suitable or easier to use, and effectively extracts valuable ingredients from animal co-products.

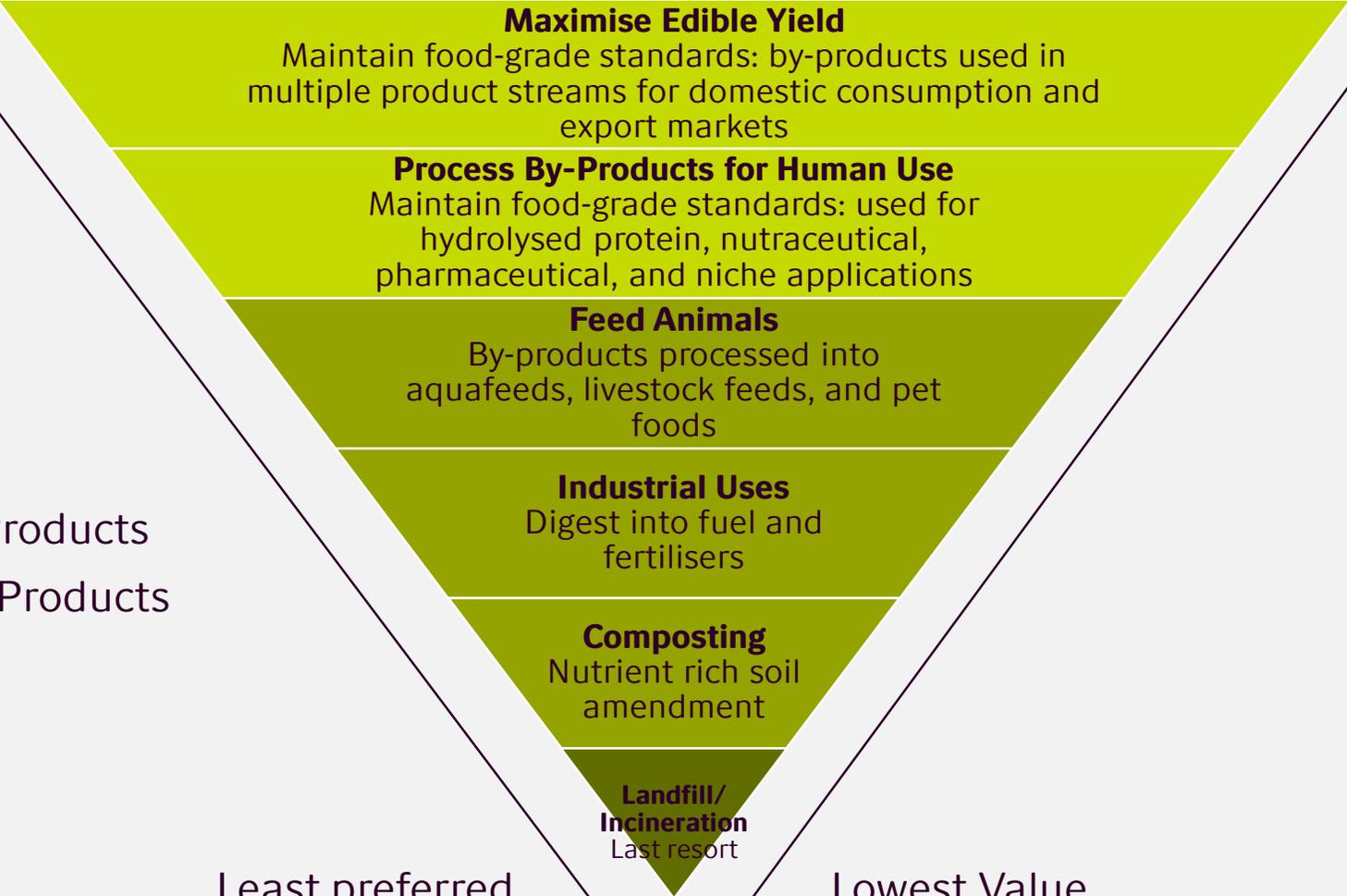


Microbial enzymes can help valorize animal co-products

Food recovery hierarchy for animal co-products

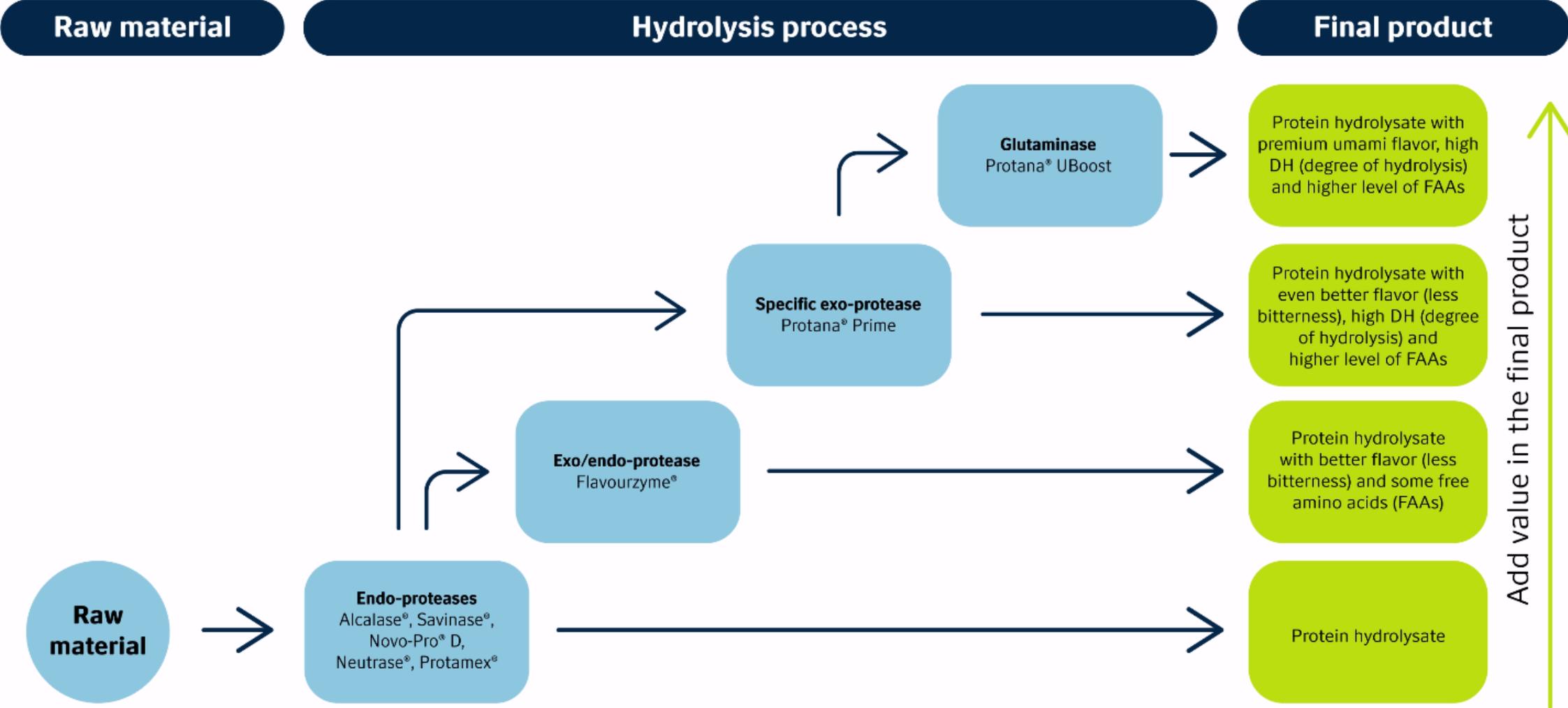
Most preferred

Highest Value



- Food Grade By-Products
- Downgraded By-Products
- Waste Products

How to add value to final products with microbial enzymes





Novozymes adds value at every step of your go-to-market journey

Understanding market demands

As the demand for protein hydrolysates grows, the requirements for meeting the market's needs are becoming more diversified. Novozymes' experts help you design the optimal hydrolysate to win in the marketplace.

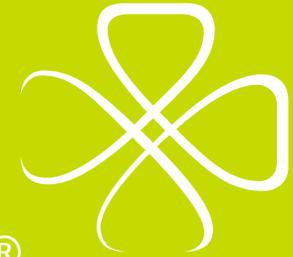
Optimizing your product - with enzymes

Enzyme technology has unique and versatile functional benefits. Through experimentation, we select the optimal balance and dosage of enzymes to develop your solution and boost its performance. The Novozymes portfolio of enzymes is the industry's most advanced and broadest, which enables us to choose exactly the solution you need.

Winning customers and sales

We help you meet your production and launch goals with a partnership mentality. You have access to a wealth of expertise, from labeling and regulatory to technical services, supply chain and commercial account management. Together we ensure that you achieve your business goals.

novozymes[®]



Rethink Tomorrow