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New products and solutions for a changing planet

– Food & Water Division

Nish Patel
Head of Food&Water Division
Alfa Laval Group

Innovation driving factor for Food & Water



New customer tastes,
preferences and trends



Getting more out of natural
resources

Getting more out of less...

– Good for business and the environment



Traditional – maximize yield, minimize water & energy consumption



New – turning waste, bi-products into food for animals and humans

Taking traditional methods to new levels...



– Some innovations launched lately



Alfa Laval ThinkTop®

- 90% less CIP

- 10M litres reduction
- 100K euro annual savings (Dairy, UK)



Alfa Laval G3 VecFlow™

- 10% less polymers
- 20% lower energy consumption

- 170K euro annual savings (Waste water plant, Chile)



Alfa Laval Brew 750 eMotion™

- Increased yield
- Up to 75% energy reduction

- 250K euro more beer annually
- 234 Mw less annual energy consumption (Brewery, Poland)

Global demand for protein...

– Factory using 100% of fish for human food consumption

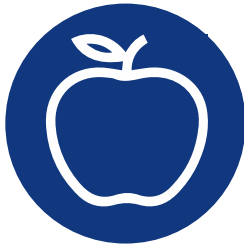


- ✓ Customer challenge
- ✓ Closer relationship
- ✓ Jointly developed process

New

Macro drivers

– Optimizing current protein sources and finding new sources



Environment

CO₂ emissions from meat production are driving the development of alternative proteins.



Lifestyle

Increased end-user awareness of functional proteins for health and pharmaceutical use.



Urbanization

Urbanization and a growing middle class in Asia and developing countries are driving demand.

Global trends in protein



Global meat production is projected to increase by 15% in 2027 compared to the past decade.



Global fish production will continue to grow, albeit at a much slower pace compared to the past decade.



The vegetable proteins market is expected to increase, with pea proteins taking a larger market share to meet demand.

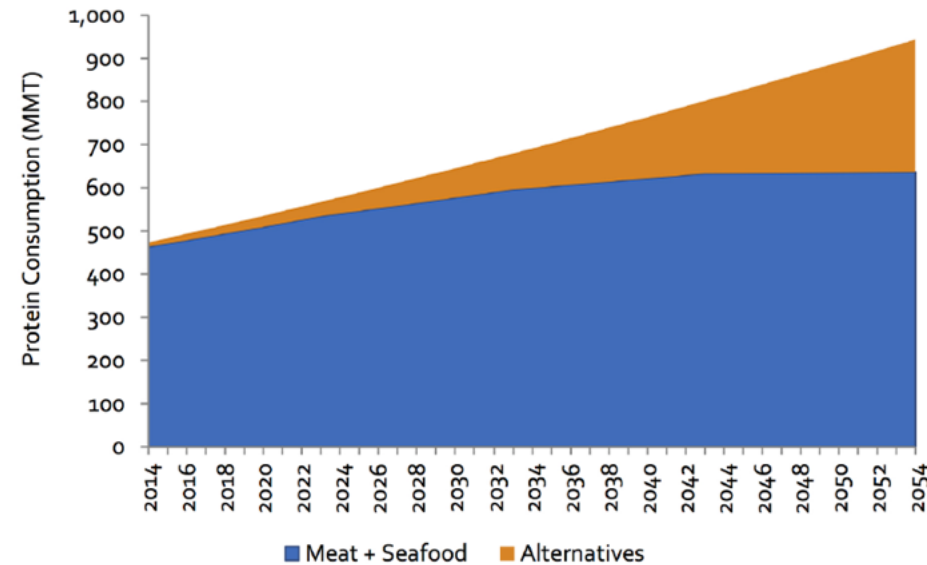


The alternative proteins market is small but fast growing, with significant investments in cultured meat and insects.

Customer interest in alternative proteins

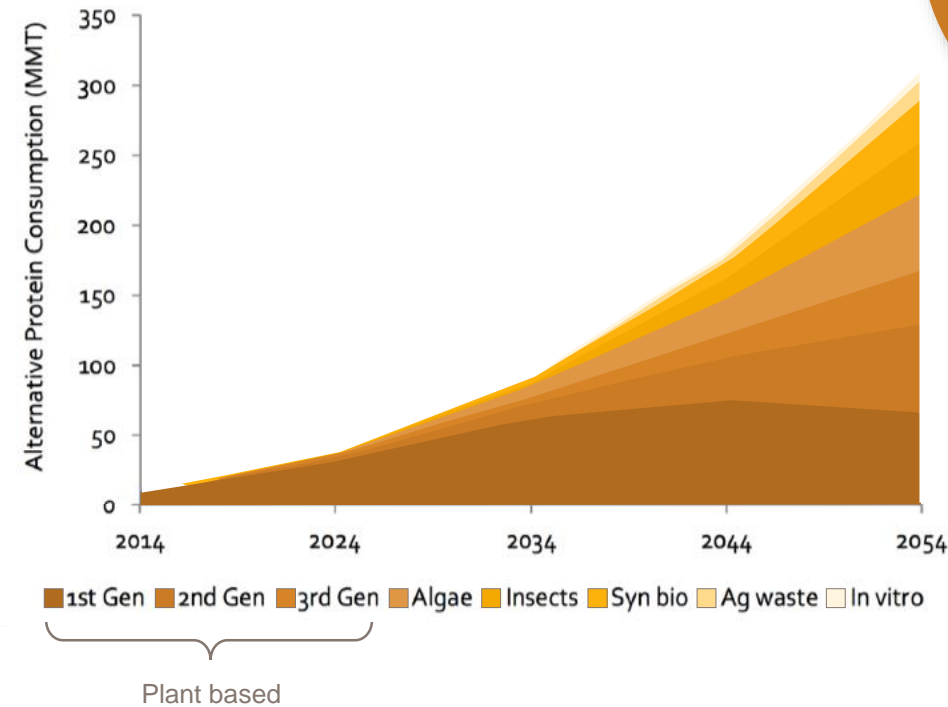


Alternative Proteins Gain Market Share as Meat and Seafood Consumption Slows



Source: Lux Research Inc.

The Alternative Protein Landscape Diversifies in the Coming Decades



80%
of growth

Three sources of alternative proteins



Re-thinking meat consumption



Meat substitutes

Soy, chick pea and canola



Insect proteins

Insect proteins



Lab-grown meat products

Cell-cultured meat

Alfa Laval presence in protein

– From traditional to new sources of protein explained



>50 years

>10 years

<3 years



Getting more out of less

Soya beans etc

Algae, insects

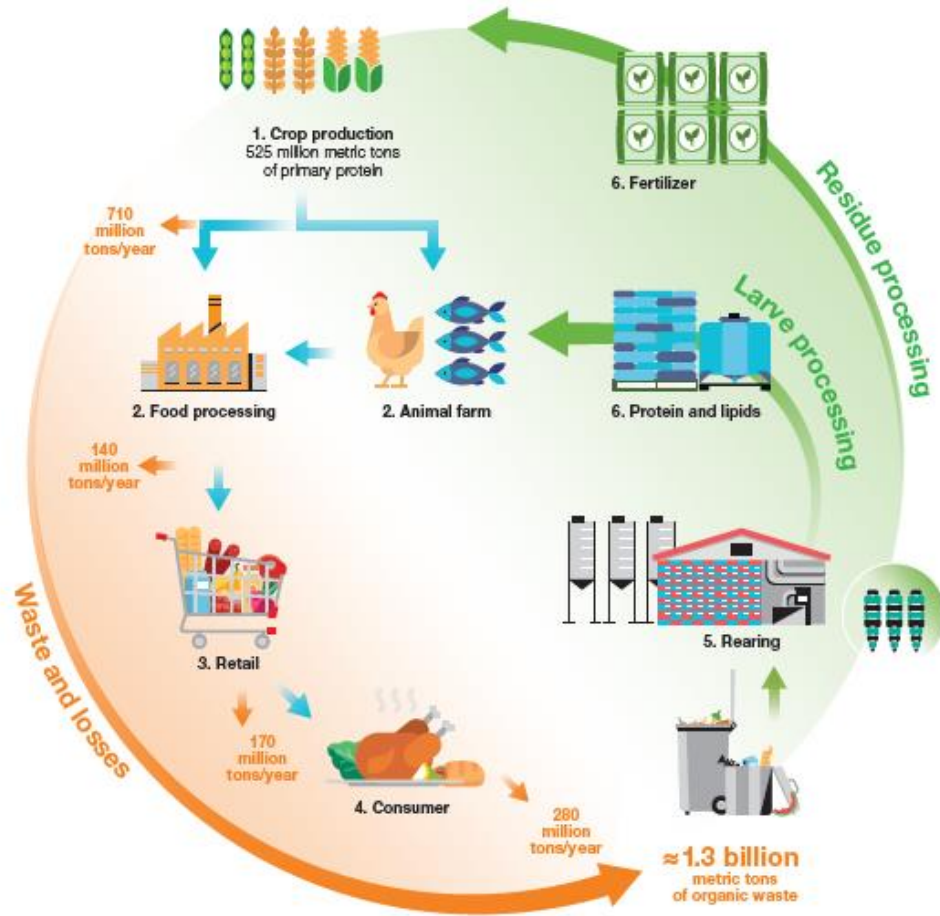
From bi-product
to human food grade

New vegetable
sources – growing market

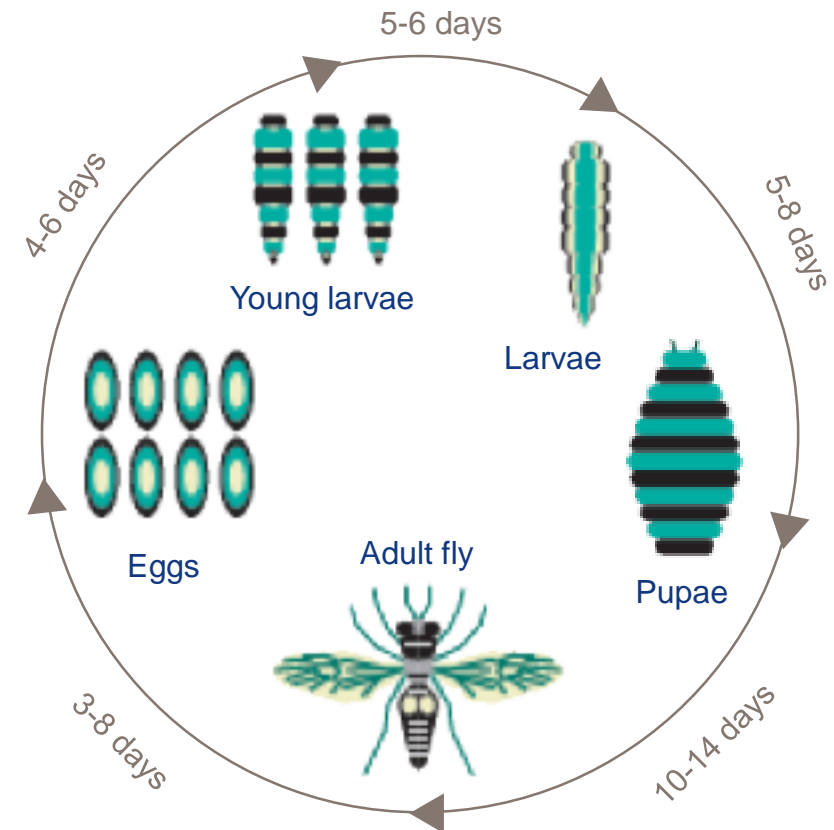
Scale up - industrialize

Insects can close the loop in the food value chain

– Alternative proteins



Black soldier fly lifecycle



Insect protein processing

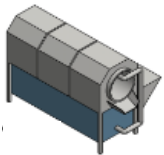
– Our scope of supply



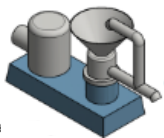
Alfa Laval scope Centri-Insect



Breeding



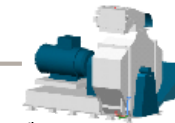
Washing



Cutting



Drying



Grinding



Protein meal



Lipids/fat



Pet food



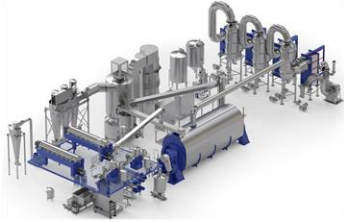








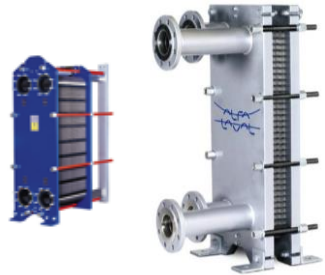



Feed

New
partnership

Protein solutions and equipment

– Using core technologies for new applications



Systems	Fluid handling	High speed separators	Decaners	Food heat transfer
<p>Process sections and plants</p> 	<p>Agitators and mixers</p> 	<p>Stickwater concentration</p> 	<p>Decaners</p> 	<p>Scraped surface</p> 
<p>Boilers</p> 	<p>Centrifugal and positive displacement pumps</p> 	<p>Fat and oil purification</p> 		<p>Gasketed-plate-and-frame</p> 
<p>AlfaVap</p> 		<p>Blood separation</p> 	<p>Membranes</p> 	

Adding value in protein business



Alfa Laval has a wide range of solutions for extraction, concentration, purification and hydrolyzation of nearly all animal and vegetable proteins, fats and oils.



Our equipment and process solutions are based on several decades of industry experience and application know-how.



Our solutions for the protein industry contribute to food sustainability by reducing waste and increasing the utilization of raw materials.

A biobased future...

- Alga for e.g. renewable feedstock, food and feed products

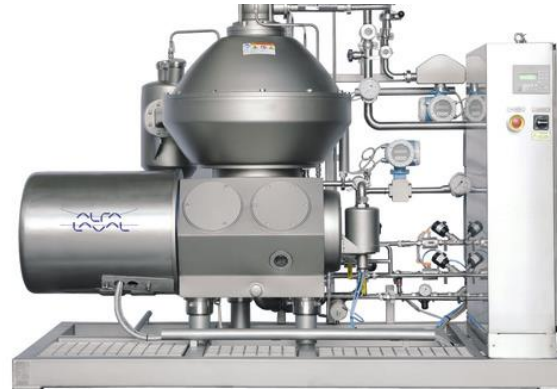


Economy of scale in production

Future

EU funded projects

– Developing solutions for the future



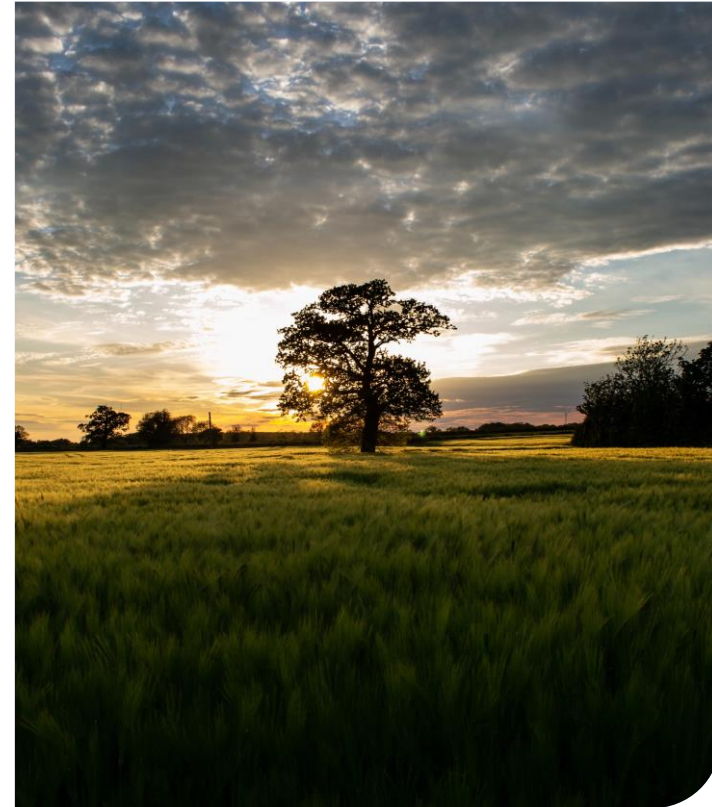
PRODIAS project (closed)
– new efficient processes to facilitate competitive use of renewable feedstocks (alga a subset)

‘Algae Coop’ EU Project (approval pending)
– chlorella algae to make food and feed products

New products and solutions for a changing planet



- ☒ Get more out of less through continuous innovation
- ☒ New partnerships and application knowledge to meet new demands
- ☒ Invest in future growth areas to develop our portfolios



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