luxexecutive**summit** 2018

Amsterdam • June 6-7

Future of Alternative Proteins

Driving opportunities across the food value chain

Presenter: Harini Venkataraman, Research Analyst, Lux Research



Agenda

- 1 Alternative protein drivers and trends
- 2 Innovating across the value chain
- 3 Profiting from the consumer impact

Drivers for alternative proteins

Growing population
Environmental concerns
Consumer preference



Demand for alternative proteins

Drivers for alternative proteins

Consumer preference
Supply concerns
Environmental concerns



Demand for alternative proteins



Plant proteins



Algae



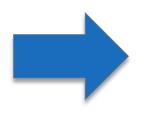
Insects



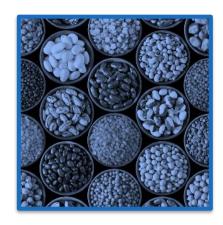
Cellular agriculture

Drivers for alternative proteins

Consumer preference
Supply concerns
Environmental concerns



Demand for alternative proteins



Plant proteins



Algae



Insects



Cellular agriculture

Diving into plant proteins



1st generation: soy

2nd generation: pea, lupin, chickpeas, canola etc.

3rd generation: quinoa

Plant proteins

Alternative proteins market set to grow fast

By 2024:

37.8MMT

\$12 Billion Market

Alternative proteins market set to grow fast

By 2024:

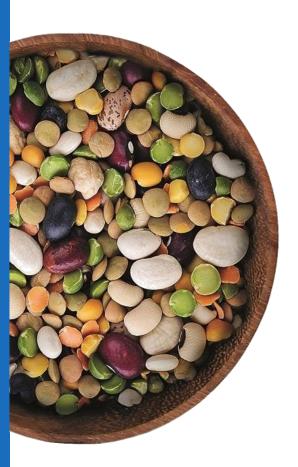
37.8MMT

\$12 Billion Market

Opportunity:

Second generation proteins will grow much faster than soy

Second generation plant proteins on the rise



Second generation plant proteins on the rise





Meat substitutes and lentil pasta: Legume products on the rise in Europe

GULF NEWS

On the pulse: why beans, peas and lentils are making a comeback



Big Ag turns to peas to meet soaring global protein demand

Second generation plant proteins on the rise



Meat substitutes and lentil pasta: Legume products on the rise in Europe

39% increase in legume products in the EU

(EU TRUE project)

comeback



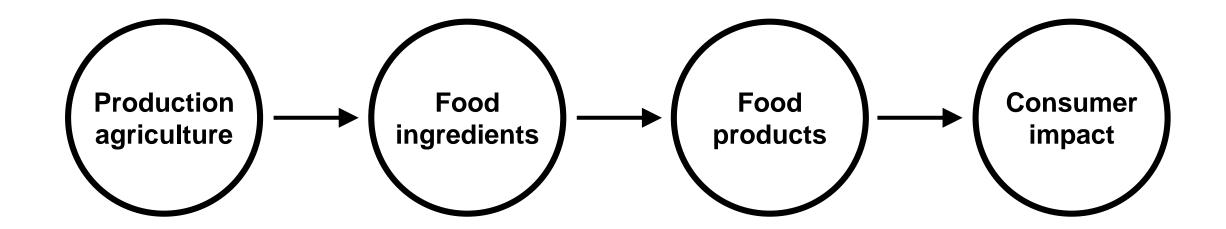
REUTERS

Big Ag turns to peas to meet soaring global protein demand

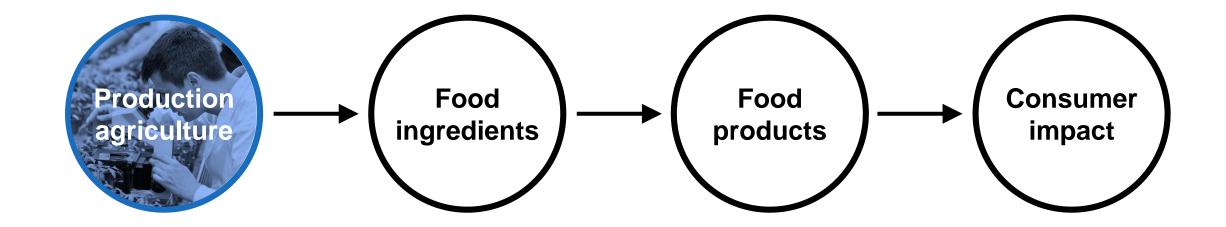
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Where are the right near-term opportunities across the value chain for "second generation" proteins?



Sustainable ways to produce second generation proteins

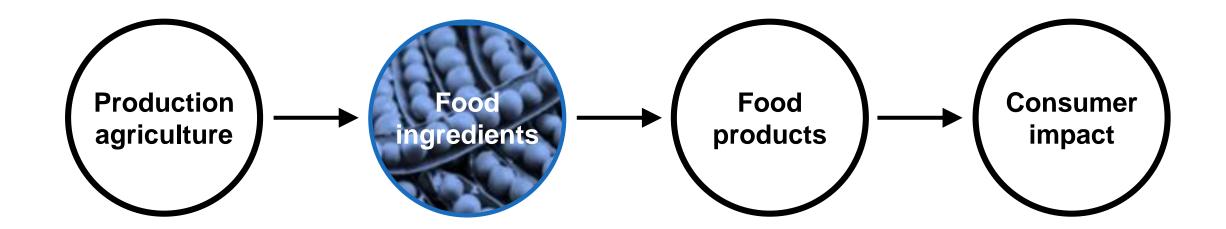


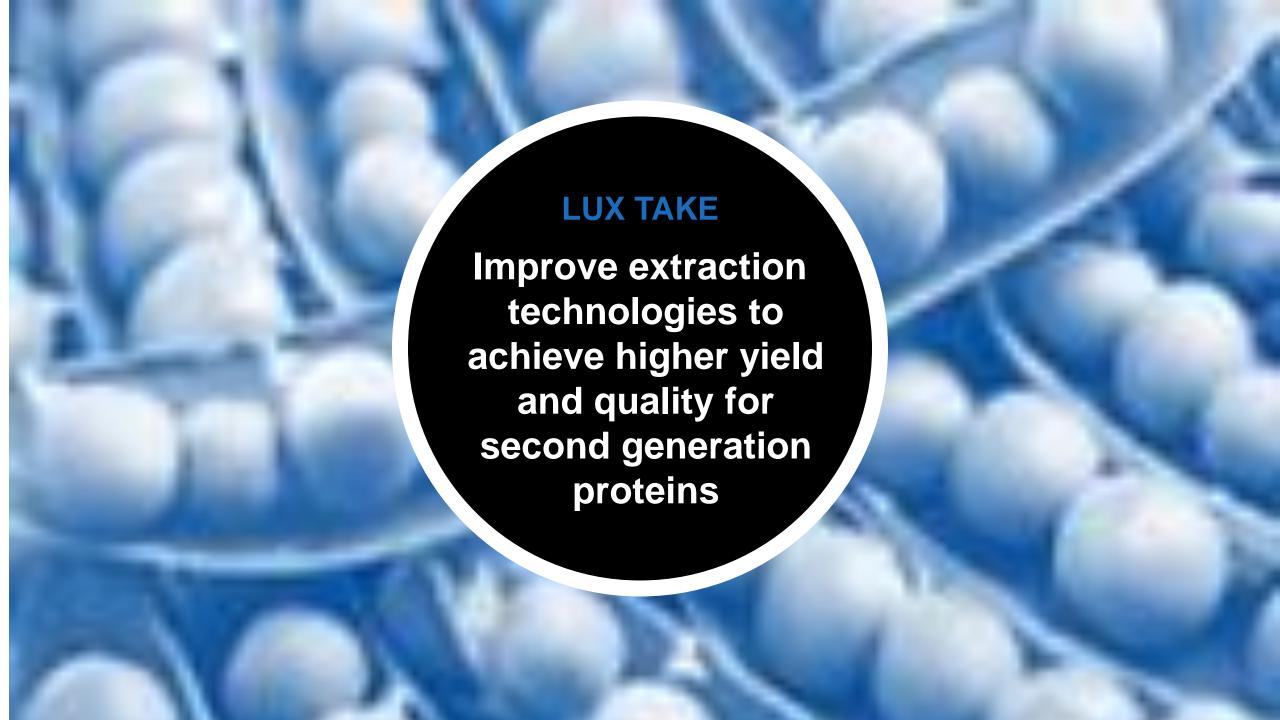


INNOVATIONS IN Production agriculture

Who?	How?
EQUINOM	Directed breeding process, combining genomic sequencing and big data analysis to pick hybrids
calŷxt	Non-transgenic approaches to crop modification of one or more nutrition-related traits
THE UNIVERSITY OF QUEENSLAND AUSTRALIA	Speed breeding techniques to cut novel trait development time in half

Creating opportunities for ingredient production

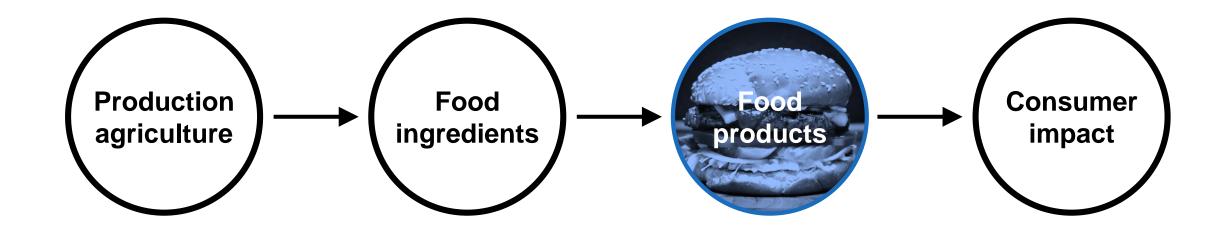




INNOVATIONS IN Food Ingredients

Who?	How?
Burcen A New World in Protein	Gentle extraction method based on ionic shift properties to produce pea, canola protein isolates
P R O Cupin	Extraction method for proteins, fibers, and oils from lupine seeds using supercritical CO ₂
# NN0V0PR0	Aqueous extraction governed by isoelectric precipitation to produce chickpea protein concentrates

Formulating the right product



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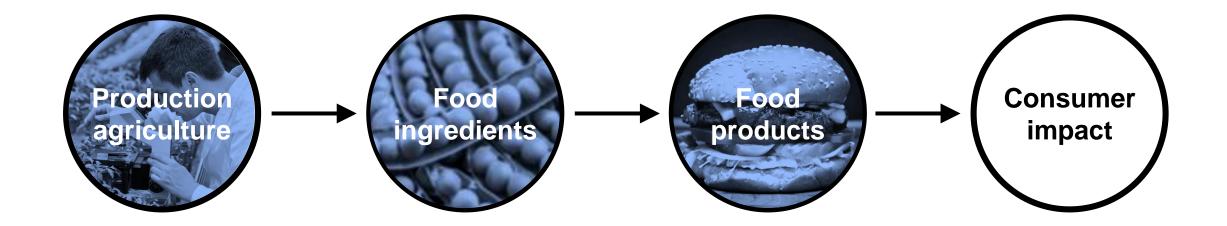
INNOVATIONS IN Food products

Who?	How?
BEYOND	Extrusion process applied to meat analog products by varying temperature and pressure
ubbla	Eliminating off-flavors for pea protein-based dairy products
WAGENINGEN UNIVERSITY & RESEARCH	Shear cell technology to impart meat-like texture to plant proteins

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Innovating based on consumer trends is quite stressful



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INNOVATIONS IN Consumer impact

Consumers are seeking better, healthier, & tastier solutions for non-meat protein sources

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Consumers are seeking better, healthier, & tastier solutions for non-meat protein sources

EXAMPLE:



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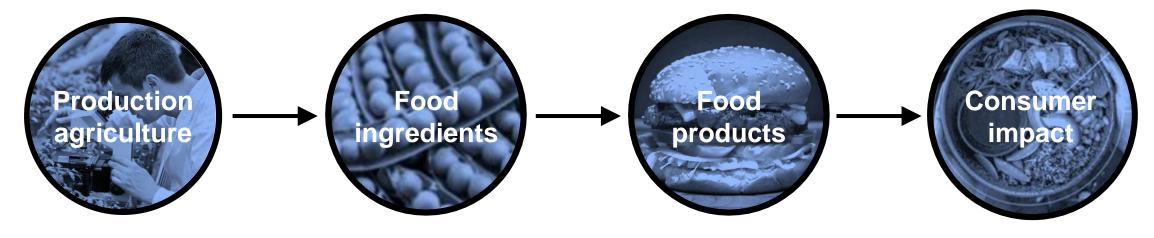
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Consumers are seeking better, healthier, & tastier solutions for non-meat protein sources

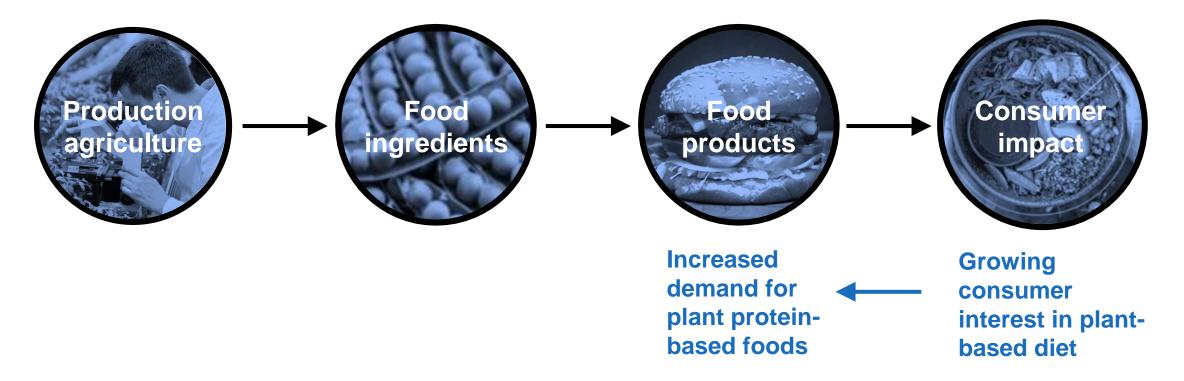
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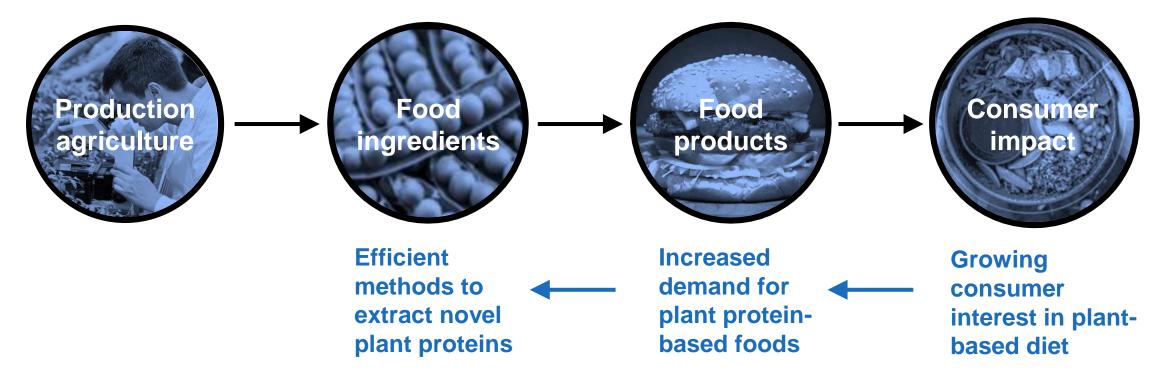
Growing consumer interest in plant-based diet can trigger novel opportunities!

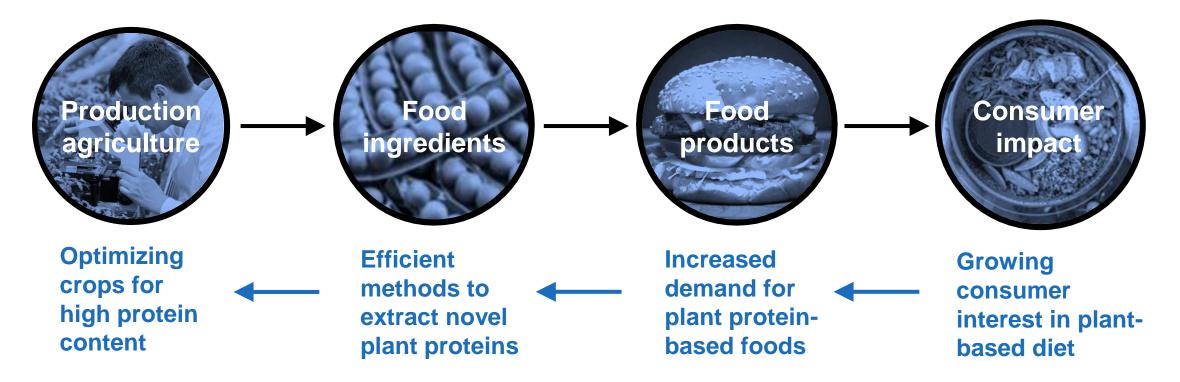


Growing consumer interest in plant-based diet



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Key Takeaways



Profit from the rising dominance of second generation proteins

Key Takeaways

1

Profit from the rising dominance of second generation proteins

2

Look for ways to innovate up and down the food value chain

Key Takeaways

Profit from the rising dominance of second generation proteins

Look for ways to innovate up and down the food value chain

Turn consumer trends to your advantage



Thank you for joining us.



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