



Pulse Protein

Cooperative Research Centre

Building an Australian high-value protein supply chain from pulse crops that delivers ingredients and products to domestic and global consumers.

PULSE PROTEIN CRC 2020

pulseproteinaustralia.com.au

THE WORLD IS DEMANDING MORE PROTEIN

Protein is a key ingredient in our diets. Total protein demand is increasing, driven by a growing population.

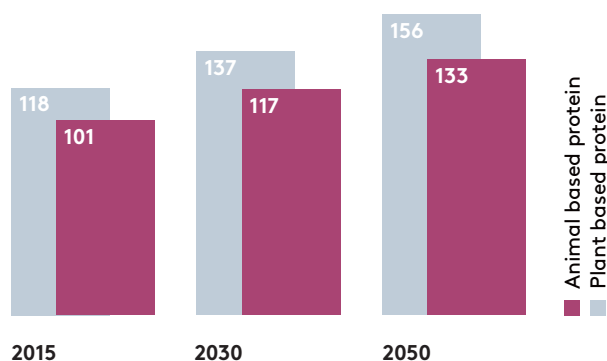
By 2050 total protein demand is forecast to rise by 30% or 289M tonnes.

Future protein demand will be delivered by a combination of animal, plant and other sources.

Animal based proteins cannot meet the increase in global consumption and the growing trend is towards healthier, more sustainable protein sources.

At current rates, global plant protein demand will be 137 million tonnes in 2030 – about 54% of total protein demand on a grams per day basis.

This is a significant opportunity for the Australian pulse protein market.

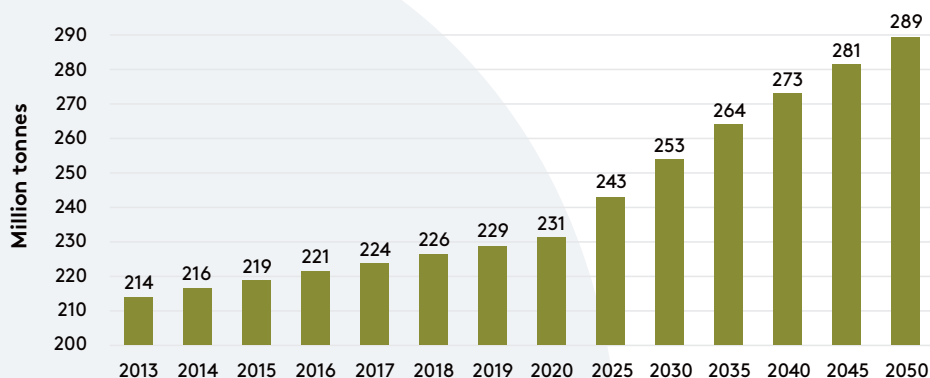


Protein demand forecast by type based on population growth (million tonnes).

Current global protein demand is 229 million tonnes with a 7.7 billion population.

By 2050, with a projected 9.7 billion population, the annual demand will be 263–289 million tonnes.

Our strategy is to help bridge this gap and realise the potential of the Australian pulse protein industry.



World forecast demand for total protein 2015 to 2050 (million tonnes).



MORE PEOPLE ARE CONSUMING MORE PROTEIN PRODUCTS



Consumers are also demanding greater choice of healthier and more sustainable food protein options.

Increased demands for alternative protein choices are driving substantial growth in the high protein or protein-added product markets. Quality and product provenance are also key drivers.

Currently, soy and pea are the most common plant protein ingredients imported into Australia.

We believe that expanding the use of other pulses grown in Australia will enable plant-based protein markets to be a key driver in the quest for greater food security, sustainability and ultimately value-added profitability for Australian producers and the agri-business sector.

In 2017, there were 5,897 new products launched globally with a protein claim on the label.

Plant-based foods are no longer niche and are starting to form a more central part in the innovation pipelines of food and drink brands.



Plant-based options abound in the US retail sector. In 2019, 15% of food and beverage revenue came from products that met a plant-based diet, up 1.6% from 2018.

Foods with protein base of	grew	with annual sales of
Tofu	2%	\$119M
Pea	3%	\$576M
Yeast	19%	\$21M

Plant based foods with alternative proteins: \$US and growth for average supermarket in the US (Neilson 2019).

AUSTRALIA HAS THE POTENTIAL TO PROVIDE MORE PULSE PROTEIN

We need to build an Australian high-value pulse protein industry to meet a rapidly growing global market.

Current situation

In 2016, Australia produced 4.25 million tonnes of pulses, delivering 0.39% of global protein demand.

Export commodity models are under-performing. In 2016 the Australian price was on average 14% – 50% lower than the top eight exporting countries.

Australia has little to no local processing capability and is reliant on imported plant-based protein ingredients. In 2018, 6,400 tonnes of processed pea protein were imported, valued at US\$44 million.

Demand for processed protein is outstripping local supply.

The opportunity

To make Australian branded pulse-based protein ingredients and products.

This will facilitate the development of high-value and high-quality foods for customers.

The potential value

If production triples in 10 years, we could provide 1.1% of global protein demand.

This would provide an extra US\$18 billion for the Australian Agrifood sector, from:

- US\$9 billion export value in raw ingredients for growers
- US\$9 billion in additional profits for food manufacturers from value-adding to 15% of pulses produced.

Why pulses?

- They're healthy, versatile and in demand
- A sustainable high-quality protein source
- Highest in protein yield of plant proteins (25-40%)
- Untapped potential to develop many new ingredients and products.

The result:

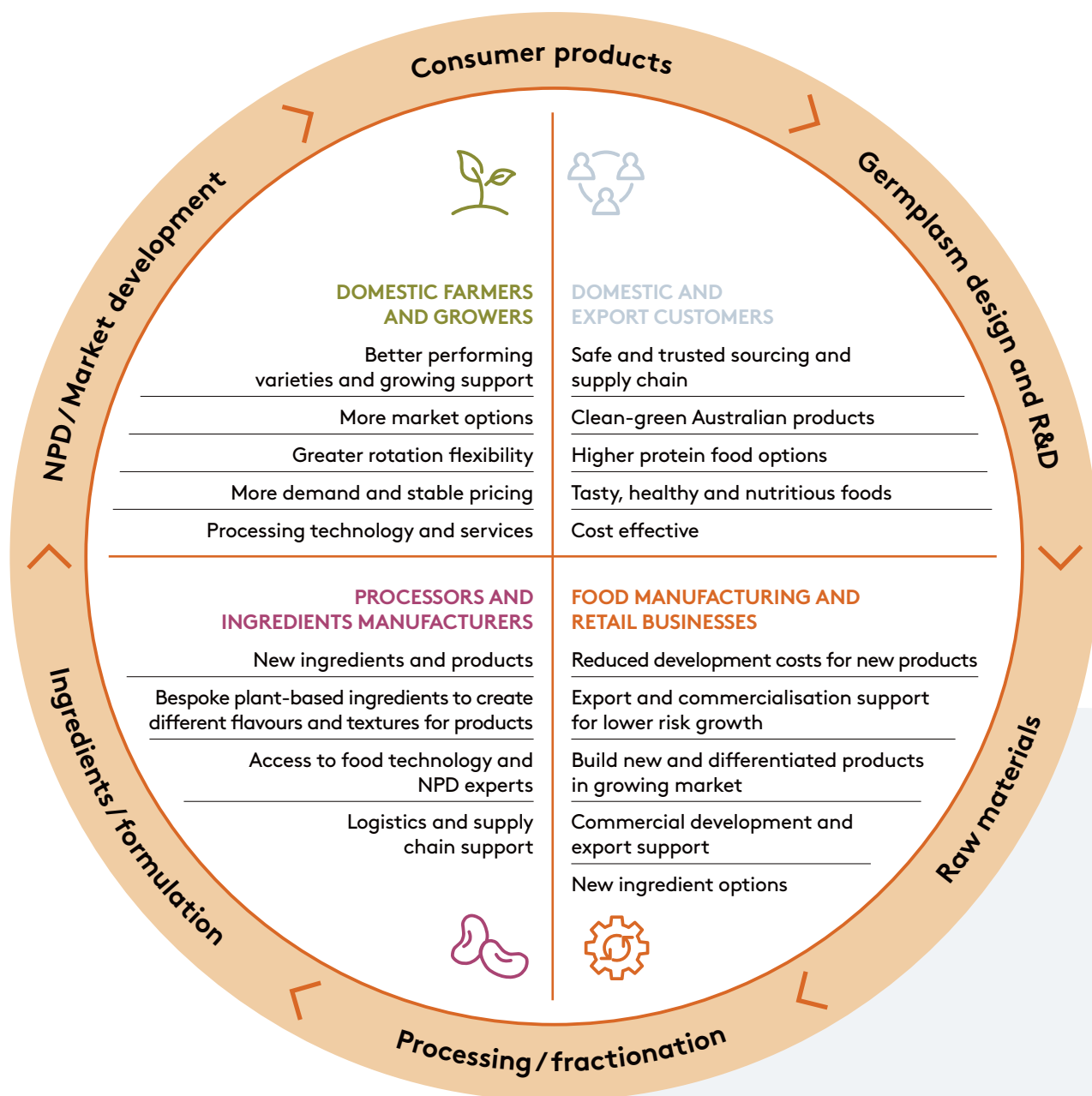
- Increased global market share
- More competitive export value for raw ingredients
- Local products containing locally grown and processed ingredients
- Branded products achieving a better price
- New protein ingredients to meet demand
- Unique, enriched, fortified products.

Support for all partners includes:

- Bespoke R&D, and product development services (in-confidence)
- Exclusive access to alternative protein market data and insights
- Digital tools for decision making and easier access to ingredients and customers
- Market development support (product incubation and acceleration, customer insights, brand and positioning).

MORE AUSTRALIAN PULSE PROTEIN MEANS NEW PROFITS FOR **A NEW INDUSTRY**

Our goal is to create value for customers and profits for partners across the supply chain.



Total value added gross profit
before consumer products

US\$9 billion

Total new gross profits for
the Australian agrifood sector

US\$18 billion

WE WILL **DELIVER** **PROTEIN** TO THE WORLD

This can be achieved by increasing demand for Australian pulses through a process of innovation:

- A customer-led approach to the development of new products and businesses using Australian pulses
- Develop processing to make high-value ingredients and products
- Optimise the varieties of pulses available to make branded products and ingredients
- Provide customer connection, market development and market insights to grow the awareness of high-value Australian pulse products.

Four Research and Innovation programs will focus on a range of technical problems. Solving market access, data-driven decision making, food formulation, processing and genetic problems.

To ensure impact, this CRC initiative will provide end-to-end customer-led innovation, R&D, training support services, and IP commercialisation with wide ranging benefits as illustrated below.



BEING PART OF THE SOLUTION

Investment into this CRC initiative will be via two legal entities to optimise investment and commercialisation of IP.

All cash investors into the Pulse Protein CRC Pty Ltd entity, will receive equity of Advanced Protein Australia Pty Ltd, which will commercialise IP.

A combination of a skills-based and investor representative board, together with the executive team, will manage both entities. The dual structure will enable operational flexibility for faster IP commercialisation and return on investment.

The planned investment phase of this initiative is 10 years, to enable commercially focused R&D activities to mature.

Funds from a successful CRC bid will leverage R&D costs (1:3) and facilitate more market enabling activities, including specialised new product development and technical support services. There will be exit opportunities throughout the Government investment phase (CRC) and as 'Advanced Protein Australia Ltd Pty' (IP vehicle) develops.

The Executive team and Board will be experienced in commercial operations, innovation and R&D management.

Investment

We aim to establish collaboration and investment across private and public funding, via the CRC program.

Direct benefits to private companies:

- At least 1:3 leverage of investment
- First access to new R&D outcomes and IP
- Equity share in the IP generated (estimated value US\$20 million revenue p.a.)
- First access to new customers looking for high-value Australian protein products
- Supported by a cluster of technical experts and market insights
- First access to new Australian varieties, ingredients, and products
- Access to funds to develop products and support business growth.

This initiative will return value for investors within two years and offers strong ROI over 10 years and beyond. Early benefits will be realised through marketing insights, access to technical experts, development of bespoke ingredients and products from R&D.

The minimum investment for a share in IP equity is \$20k per annum.

Benefit for Government and the Australian economy:

- Focused investment, driven by customer insights and business needs
- Addressing market failure by bringing multi-partners in the supply chain together
- Reducing risk for SMEs to participate
- Creation of US\$18 billion new high-value industry
- An integrated R&D impact and value creation model for other agri-food commodities to adopt.



Early investors get the best value with specific programs for their commercial interests; protected IP arrangements; first access to tools, customer and market insights; manufacturing, product development, and R&D support; as well as an equity position on all IP developed during the initiative.



WHAT IS A CRC?

Up to 50% of project value for an industry-led collaboration is available via The Cooperative Research Centres (CRC) Program.

CRCs MUST:

- Deliver medium-long term collaborative research programs
- Aim to solve industry identified problems and improve the competitiveness, productivity and sustainability of Australian industries
- Include an industry-focused education and training program, including a PhD program that builds capability and capacity
- Increase research and development (R&D) capacity in small to medium enterprises (SMEs)
- Encourage industry take up of research.

For further information and to discuss investment options in the PULSE PROTEIN CRC, please contact:

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REFERENCES: • Steady increase in total protein demand relative to population growth. Strong population growth in Asia will drive the protein market in the years up to 2050. Population growth as defined by WHO. Metric tonnes p.a. required = (Population by region x grams / capita x 365 days) / 1,000. • 2016: Comparison of Australian Export Price / tonnes \$US v's Major Competitors (average price of Argentina, Australia, Canada, China, France, Myanmar, Russia, USA). • Nielsen Product Insider 2019, Powered by Label Insight. • Mintel 2019, Global New Products Database. <https://www.mintel.com/global-new-products-database>