



Department of  
Primary Industries and  
Regional Development

*We're working for  
Western Australia.*

# Western Australian plant protein processing

Business opportunity outline





There's a clear opportunity to construct a **plant protein powder ingredient facility** in **Western Australia.**

In addition, there are extensive opportunities to develop consumer facing, highly functional plant protein powder brands leveraging the pristine growing environment available in the State.

Western Australia (WA) is ideally placed to supply the growing market demand for plant protein with innovative new and emerging products, alongside abundant supplies of barley, oats, lupins and other crops suitable for processing into plant proteins. AgriFutures predicts an Australian alternative plant protein industry of \$3.1 billion by 2030.

## Clear opportunity for **growth**



### Growing global demand

Plant-based foods, vitamins, minerals and supplements (VMS) and sports nutrition companies require a high-quality, trusted, traceable, reliable supply of plant protein ingredients. With growing global demand, further supplies will be needed in the future.

WA provides the perfect climate, a large supply of raw materials and an efficient supply chain for a wide range of plant proteins. Key protein crops available currently at scale include oats, barley, canola and lupins. All are **newer 'Generation Two' plant proteins** seeking to replace soy. With its mild Mediterranean climate, a wide range of grains and seeds excel in WA beyond these big four.

# #1

Producer of wheat, barley, oats, canola and pulses in Australia.

# #2

Producer of oats in the southern hemisphere.



# Solid drivers

Shifting consumer attitudes, changing eating habits and the growth of fitness activities are supercharging demand for sustainable plant-based proteins that address health, environmental and social concerns.

## Environmental impact

Climate change concerns have increased consumer drive towards sustainably produced and environmentally friendly foods. Plant proteins have a lower environmental impact than meat products in terms of greenhouse gas emissions, land and water use. In addition, trends towards greater supply chain transparency, are increasing demand for business's who can demonstrate positive environmental impact, whilst still offering high protein content from a trusted source.

## Health and wellbeing

Concerns surrounding health and wellbeing are driving a shift towards plant-based diets, including plant-proteins. A growing share of consumers worldwide are experiencing weight management issues and a variety of other health concerns. Plant proteins are lower in calories than whey, and can help to reduce blood pressure, cholesterol and risk factors of cardiovascular disease, thus promoting overall health and assisting weight management.

## Eating habits

Consumers are eating more plant-based foods, with vegan, vegetarian and flexitarian diets all growing the demand for plant proteins. The rising appeal of plant-based eating is only expected to expand, which will drive the demand for new plant proteins able to produce a desirable texture and taste.

## Rapidly growing demand

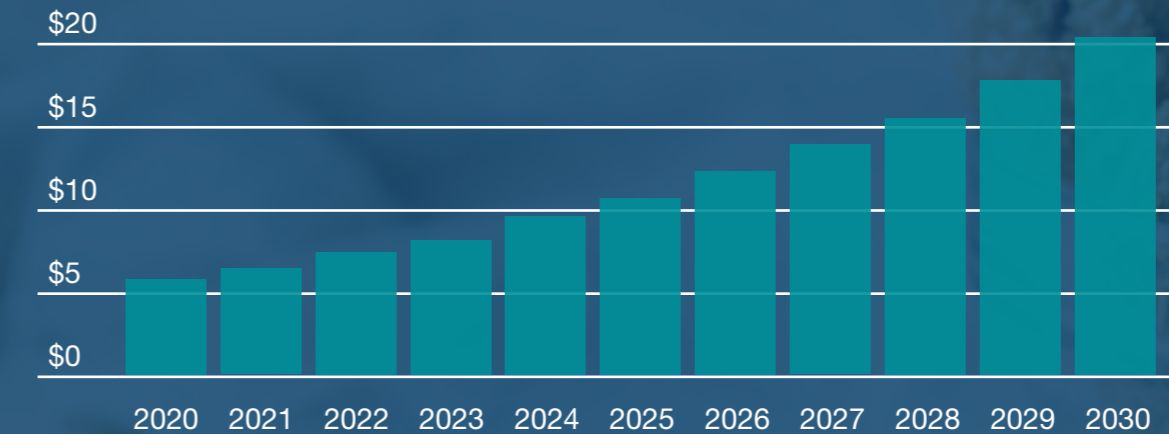
As a result of these solid drivers, global demand for plant protein powders, as a meat and whey alternative, is rapidly growing. Plant based protein powders were a US\$5 billion market in 2020 growing at a 14% compound annual growth rate (CAGR). The market is projected to reach US\$20 billion in less than 10 years (2030), when it will match the size of dairy whey-based protein powders.

## Shifting to new proteins

The plant protein market was traditionally dominated by soy. However, due to growing evidence of health issues around soy, a hard shift from soy to other plant proteins is underway. Consumers are turning to new 'Generation Two' proteins in growing numbers. As a result, leading brands are seeking new proteins in line with consumer needs.

There's a large and clear opportunity available for WA plant proteins and those willing to invest in plant protein processing. WA oats, barley, canola and lupins are all attractive new plant proteins bringing innovation and variety to the global trade.

Forecast global plant-based protein powders market (US\$; billion; 2020 to 2030).



14% CAGR ↑

Plant-based protein powder global expenditure growth (Forecast CAGR; 2020-2030)

40% CAGR ↑

Australian plant protein export value growth (2018-2021 financial years)



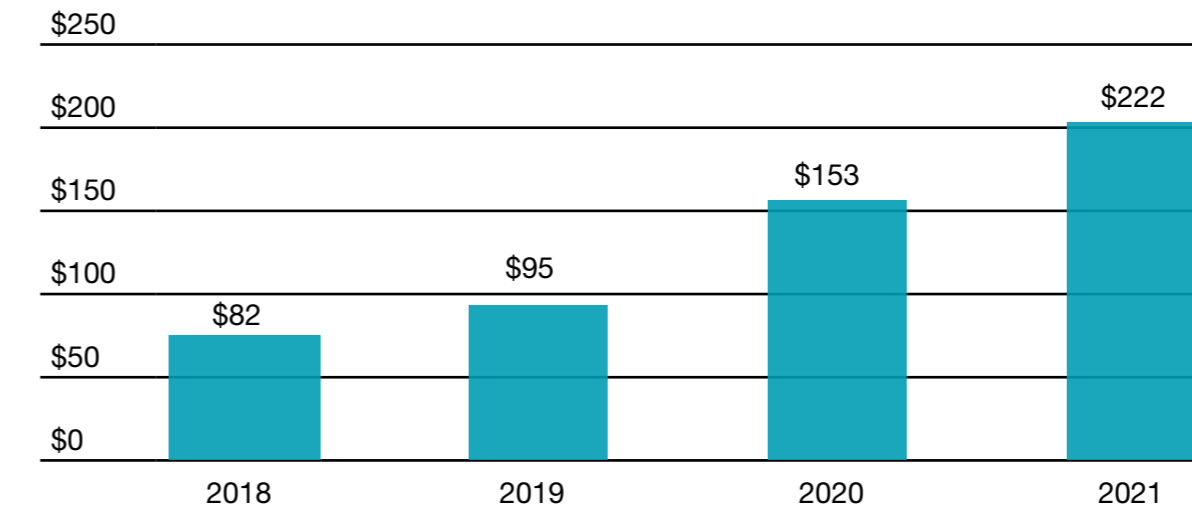
# Exports



## Growing exports

Total Australian exports of protein concentrate (HS210610) and protein derivatives (HS35040400) were worth \$222 million in the 2021 financial year\*, growing strongly with a 40% CAGR between the 2018 and 2021 financial years\*. Although exports are showing strong growth, with the global plant-based protein market expected to reach US\$15.6 billion by 2026, there are significant opportunities for further growth, particularly in WA.

**Australian protein concentrate export value**  
(AU\$; million; 2018 to 2021 financial years\*)



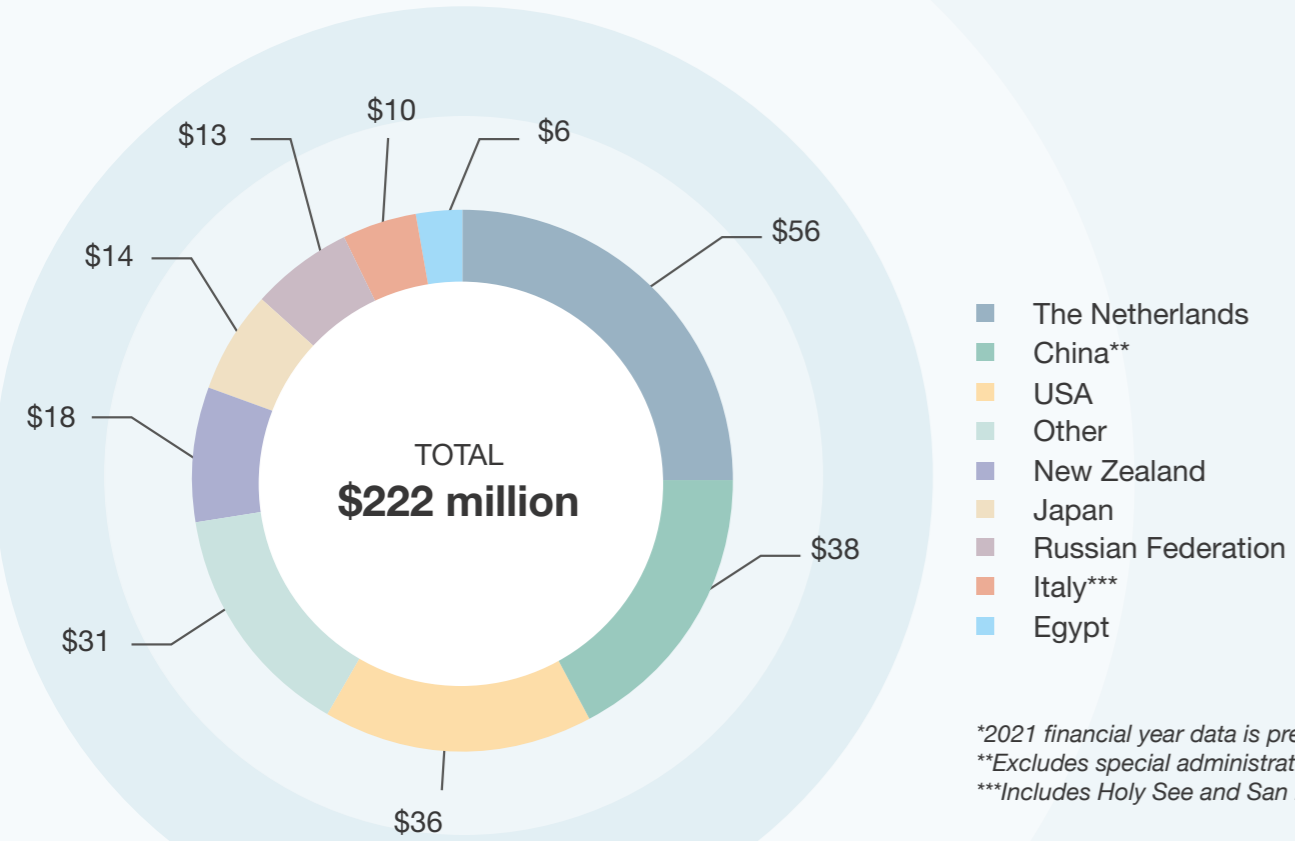
\*2021 financial data is preliminary and doesn't include confidential data.



## Key markets

Australia exports protein concentrate and derivatives to more than 60 countries in the average year. All major high-income markets buy protein products from Australia. Key markets include the Netherlands (\$56 million), China (\$38 million), United States of America (\$36 million) and New Zealand (\$18 million).

**Australian protein concentrate export value**  
(AU\$; million; 2021 financial year\*)

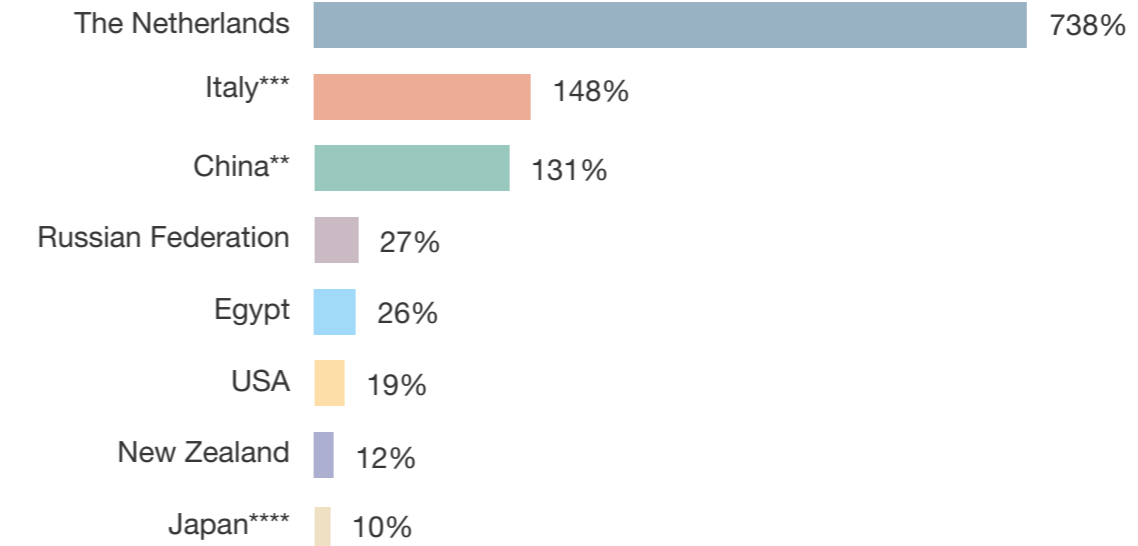


\*2021 financial year data is preliminary and doesn't include confidential data.  
\*\*Excludes special administrative regions (SARs) and Taiwan.  
\*\*\*Includes Holy See and San Marino.

## Market growth

Australian exports of protein concentrate and derivatives are growing strongly to all markets other than Japan. The Netherlands and Italy, in particular, have seen strong growth (738% and 148% respectively).

**Australian protein concentrate export value 3 year growth rate**  
(AU\$; CAGR 2018 to 2021 financial year\*)



\*2021 financial year data is preliminary and doesn't include confidential data.  
\*\*excludes special administrative regions (SARs) and Taiwan.  
\*\*\*Includes Holy See and San Marino.  
\*\*\*\*2 year CAGR from 2018 to 2020 financial year.





## High quality raw materials

Grains, oilseeds and pulses are produced in one of the cleanest environments globally, making WA a leader in delivering clean, bright, dry and food-safe products.

WA's arable crops have a reputation for high quality, high protein levels and stable product characteristics.

In addition, WA provides crop segregation, higher protein and lower moisture content than competitors. Most crops in WA are grown using farming systems that can be certified to meet sustainability criteria required in the European Union. The State can produce both genetically modified (GM) and GM-free products.



## Safe and secure

WA is part of an island continent with a desert separating it from other states. The isolated Mediterranean climate is relatively free of pests and disease. WA can demonstrate it is free from certain exotic pests and has nil tolerance of live insects in export, enabling strong market access for grains. In addition, Australia has strong biosecurity protocols and systems in place, ensuring a healthy and safe production environment.

WA is a trusted source of arable crops into the factories of major European, East and South-East Asian processors. WA is 'on the doorstep of Asia' and ideally positioned to build on its trusted supply relationships into the fast-growing Association of Southeast Asian Nations (ASEAN) region. It's a reliable counter-seasonal supplier of grains and pulses. As a result, WA firms can meet the increasing focus on quality, safety and provenance.



## Available capacity

WA is the size of Western Europe with the population of Jamaica. It has a very large land mass with a very low population. The State has huge areas of land well-suited to high-quality arable crop production, which occurs in rain-fed areas that do not require irrigation. The State also has a wide range of climatic regions and growing conditions, ranging from a tropical climate in the north to a temperate Mediterranean in the south and everything in between.



## Large, efficient, sustainable farms

WA has large, productive and efficient arable crop farms compared with other States and regions around the world. By global scale, WA has both large farming units and large production per farming unit.

With a deep pool of experienced farm operators using modern, automated production systems, WA agricultural products are competitive globally competitive, with negligible agricultural subsidies.





## Focused on selected products

WA's arable production system focuses on five key export crops where it has clear comparative advantage. Wheat is the core crop with other grains, pulses and oilseeds planted as part of a crop rotation sequence. WA is a net exporter of grains and a value-added facility in WA would have reliable supply at export parity prices.

### Wheat

WA is the second largest wheat producing region in the southern hemisphere. WA has more than 3,200 growers on 4.1 million hectares producing 8.5 million tonnes of wheat annually. Macro drivers for the WA wheat industry present a solid growth environment going forward, with area, yields and production all growing long term. WA typically exports 45-50% of total Australian wheat and the State has maintained this strong position through time.

### Barley

Barley is an emerging new plant protein being adopted by innovative producers across leading markets. WA is the largest barley producer in the southern hemisphere, with 3,200 growers on 1.9 million hectares producing 4.0 million tonnes of barley annually. Macro drivers for the WA barley industry present a solid growth environment going forward, with area, yields and production all growing long term. The bulk of barley exports go to Asia and the Gulf States.

### Oats

Oats are an emerging new plant protein with strong demand growth occurring worldwide. WA is the second largest oat producer in the southern hemisphere and the largest on a per capita basis, with 1,600 growers on approximately 300,000 hectares producing 643,000 tonnes of oats annually. Macro drivers for the WA oats industry present a solid production environment going forward, with real potential for long term growth.

### Canola

Canola has real potential as an emerging new plant protein. New research and technology enables canola meal to be transformed into high value plant protein for a wide range of uses in food. WA is the largest canola producer in the southern hemisphere, both in total and per capita with more than 1,900 growers on 1.5 million hectares producing more than 2.4 million tonnes of canola annually.

Macro drivers for the WA canola industry support a robust growth environment going forward, with area, yields and production increasing. WA exports more than two-thirds of the Australian total of canola and volumes are showing strong growth. Because of the high quality, canola exports predominantly go to Europe.

### Lupins

The Australian Sweet Lupin is endemic in WA and the State was instrumental in its domestication. WA lupins are pulses with a powerhouse of goodness, high in protein and nutritional value. Lupins offer a real opportunity as an alternative protein, as they are:

- One of the richest sources of plant protein, with a macronutrient composition of 40% protein offering as much as three times more plant protein than quinoa

- Low in carbohydrates but high in fibre, offering 37% dietary fibre
- Low in calories but high in nutrients, including vitamin C, thiamine, potassium, calcium, phosphorus, riboflavin, magnesium, iron and zinc
- A significant source of phytochemicals with proven antioxidant and cholesterol-lowering activities, such as polyphenols and zeaxanthin
- A good source of all nine essential amino acids for better body function, including arginine, which lowers blood pressure.

WA has 1,600 growers on 610,000 hectares producing 560,000 tonnes of lupins annually. The Australian Sweet Lupin market is valued at an estimated \$200 million with 96% consumed by livestock and 85% of the global supply produced in WA.

WA is the world's largest producer and exporter of lupins with the majority exported to the European Union, Japan and Korea. Lupins are now being promoted as human food with claimed benefits in combating high blood sugar, heart disease and obesity. Lupin protein powder and hydrolysed proteins present real opportunities for differentiated products in the market.

### Other pulses

WA has a robust pulse industry producing field peas, faba beans and chickpeas. The State has the potential to increase production of peas and other pulses (popular plant proteins) to significant scale as required. Most other pulses are grown around Esperance, in the south of the State, which is the only regional port where pulses are already exported in containers.

Esperance also has the only pulse grower group in WA to coordinate activities. The region is an ideal target for potential investors seeking these products.

### Up and coming

Beyond these core crops, WA also has several emerging alternative protein crops, such as moringa, carob and hemp, providing further opportunities.

### Use of by-products

The by-product of any processing operation targeting protein has a wide variety of uses in WA. Non-protein streams complement the burgeoning WA agri-food production system.





# Efficient infrastructure

**WA is one of the world's most advanced and productive regions and excels when it comes to efficient logistics across arable crop value chains, with efficient supply chains, world class quality control and assurance systems at all stages.**

Most of WA's grain bulk handling is conducted by CBH Group (CBH). This entity concentrates all large-scale, high-throughput collection and storage infrastructure in a grower-owned cooperative. Major terminals are managed by CBH and Bunge. The sector is regarded as highly efficient by industry participants. It's also well regulated and auditable, with high supply chain integrity. This competitiveness is endorsed by the presence of all major global crop marketers and traders. In 2021 CBH invested \$254.2 million on improving its network, including completing three site expansion projects, more than 180 sustaining capital projects, a large maintenance program and dedicating a significant portion of work to prepare for future record breaking harvests.

The WA government has also supported the industry through new grains infrastructure development, which includes:

1. \$11.5 million upgrade of the Northam Grains Research Facilities, featuring new storage, preparation and processing rooms, glasshouses, screen houses and field plots.
2. \$2.1 million refurbishment of ageing research laboratories and office facilities at Merredin.
3. \$4 million to support regional grains research and development infrastructure and equipment, such as plot seeders and tractors, glasshouses and specialist research equipment.

Plant protein crops are produced across large regions of the State. Most existing crop processing facilities are located across the South West of WA. There are numerous potential locations for further plant protein processing, including near terminals in Geraldton, Kwinana, Bunbury and Albany. In addition, the Peel Region has recently launched the Peel Business Park, including a food innovation precinct.

WA's comparative advantage in bulk handling and processing offers a strong platform for growth into plant protein powders.

## Growth ready environment

### Strong governmental support for research and development

The WA government supports research and development for WA's major crops: wheat, barley, canola, oats, lupins and pulses (field peas, faba beans, chickpeas and lentils).

This research is supported by world class experts, scientists and field research services, which provide operational management, research facilities and equipment for the delivery of grains research experiments. Grains research and development focuses on:

1. **Crop protection:** Providing effective and economic on-farm management strategies to minimise losses from pests, weeds and diseases.
2. **Genetic improvement:** Evaluating and developing new breeding lines and genetic traits under harsh WA environmental conditions and providing information and genetic resources to crop breeding companies, including InterGrain, for the development of better crop varieties.
3. **Crop science and grain production:** Optimising the management of new varieties, crop type and rotations, and seasonal risk decision making in the farm business context.
4. **Soil science and crop nutrition:** Identifying new soil management techniques to improve soil fertility and crop nutrient availability.



**Productive arable crop farming**



**Efficient bulk handling**



**Processing opportunity**



**World class distribution**



**Skilled workforce**



**Strong research and development capabilities**



**Supportive business environment**



# #9

Forbes  
'Best Countries for  
Business 2019'  
(Australia)

# #3

Heritage Foundation  
'Index of Economic  
Freedom 2021'  
(Australia)

## Close to key markets

WA is close to Asia, particularly East and South East Asia, both large and growing markets. WA is the natural and logical supplier of temperate climate foods to the tropical climate countries of South East Asia and well-positioned to supply East Asia and the Middle East.

The WA crop industry has been focused on exports for over 100 years and a leading supplier to many Asian countries for all that time.

Rapid economic and population growth of parts of Asia – and 'Westernisation' of the diet has increased demand for Western-style foods, including protein powders.

## Ease of doing business

Australia is a politically and economically stable and safe country in which to do business. WA businesses have sound governance and represent low sovereign risk to investors and customers.

## Fast time to market-free trade agreements

Geographically and strategically, WA is well placed to supply the rapidly expanding export markets of Asia. It's within the same time zone as much of South Asia, achieving shipping to Indonesia in five days, Singapore in six and Southern China in eight. Australia has Free Trade Agreements in place or under negotiation with more than 25 countries and regions. This combination of great location and privileged access, mean WA is uniquely positioned as the arable crop 'breadbasket' of the greater Asia-Pacific region.



## Attracting investment

Producing plant protein in WA is an attractive proposition. Multiple firms have already invested in significant processing facilities, however, with more than 90% of most arable crops still exported in raw form, there is significant potential for growth.

The WA plant protein opportunity has the characteristics required to attract further investment. Investment in WA plant protein processing would suit a wide range of investors, including global multinationals focused on proteins, large Australian firms looking for growth, investors with access to new markets, leading Asian integrated food processors, global agribusiness operators and start-ups.

WA can facilitate further plant protein processing operations at significant scale. Investment in an open-access food-grade pilot plant for extraction and fractionating would benefit the industry.

As an example of what significant investment could look like, in 2019 Australian Plant Proteins (APP) announced a \$20 million investment in a plant processing facility in Victoria for 'clean' isolate powders using faba beans. In 2021 Bunge announced an additional \$45.7 million investment, to double capacity of this Victorian APP facility by 2022. This process yields 85% protein without the use of chemical extractions.

### Scale of potential investment

	Small	Large
Investment	\$10 million	\$100 million
Employees	12-20	180-240
Facility size	1,000 m <sup>2</sup>	10,000 m <sup>2</sup>
Input volumes	5-10 kt	80-100 kt
Turnover	\$5-12 million	\$100-120 million
Operating margins	15-20%	18-22%

Additionally, a \$378 million investment will see APP, AGT Foods Australia and Thomas Foods International build three manufacturing facilities in South Australia, turning locally produced legume crops into a range of high-value plant proteins for the food and beverage market.

## WA Examples



Wide Open Agriculture (ASX: WOA) is a regenerative agriculture company based in WA, piloting protein extraction from lupins, using a novel process developed and patented by Curtin University. WOA are looking to extend this facility into other grains and pulses.



The Lupin Co has a small scale plant in Collie and has received funding to trial extracting protein isolates and soluble molecules into powders.



## Supporting investment

The WA government is committed to working closely with investors to develop WA's plant protein industry. The Department of Primary Industries and Regional Development's Investment Services team offers a range of investment concierge services to de-risk and support investment

The team is made up of experienced industry professionals, who operate with a commercial focus, bringing together businesses, government departments and agencies to support industry investment initiatives.



## How we can help

### Information to support investment decisions

As a central point of contact for information and advice on investing in WA's agriculture, fisheries, and food and beverage sectors, we provide:

- Information on conducting business in WA.
- Various data and market intelligence.
- Background on relevant regulatory requirements and approval processes.

### Investment facilitation

Drawing on in-depth knowledge of the agribusiness, food and beverage industry, and extensive business networks in Australia and overseas, our team can provide guidance and introductions to help secure the investment or opportunity you are looking for. We can:

- Provide introductions to WA agribusiness, food and beverage businesses.
- Identify investment and research partnership opportunities.
- Help plan and conduct site visits to assess opportunities.
- Identify access to available natural resources and infrastructure.
- Identify suitable investor and investment opportunities.

### Regulatory approval support

Understanding and securing the required regulatory approvals for your project can be a roadblock to investment. We can provide assistance to streamline processes and simplify your dealings with relevant government departments and agencies by:

- Providing information and guidance on WA's regulatory environment.
- Helping obtain regulatory approvals.
- Coordinating with other government departments and agencies.

### Investment-ready project support

Our team is available to provide support to identify and develop your project or business' potential, including guidance on raising capital and getting your project investment-ready.

We can also work with you to provide information on the different types of investment available and investment partners.

By understanding your goals and requirements, we can assist you to identify and develop your project's potential.

## Support available

A wide range of national and state-based agencies, industry bodies and research institutions across Australia are available to support the industry in research and development, commercialisation and investment.





**We understand your project and investment requirements are unique.**

**To get started or expand on your Western Australian investment journey, contact us today.**

Speak to our Investment Services team for support and guidance:

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*Sources: DPIRD, Heritage Foundation, Forbes, UN Comtrade, UN FAO, Australian Bureau of Statistics, AgriFutures. The changing Landscape of Protein Production, Feb 2020, Fior Markets, Kerry Ingredients, Grand View Research, Australian Plant Proteins, FoodMag, AusFoodNews, Scalzo Foods, Wide Open Ag, industry interviews, Coriolis and DPIRD analysis and estimates.*

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ABN: 18951343745