



Department of  
Primary Industries and  
Regional Development

*We're working for  
Western Australia.*

# Western Australian plant-based milk

Business opportunity outline





**Plant-based milks** are leading the ongoing surge in demand for vegetable-based food products.

**Plant-based milk production requires high-quality, trusted, traceable, and reliable ingredient supplies and growing global demand means further ingredient supplies will be needed.**

Western Australia (WA) is ideally placed to meet the demand with innovative new and emerging base ingredients, including oats, barley, canola and lupins.

## Clear opportunity for **growth**



### **Growing global demand**

WA's mild Mediterranean climate, ready supply of raw materials and efficient supply chains are well suited to plant-based milk production. Generation Two plant-based milk crops currently available include oats, barley, canola and lupins, and all are seeking to replace soy. WA has a large, long established and well-developed traditional dairy industry with capabilities transferrable to plant-based milk production. We already have a rapidly emerging plant-based milk sector that includes a range of innovative producers that is only set to grow.

# #1

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

There are clear opportunities to build plant-based milk businesses in WA, that can leverage our clean green standing, key ingredient supply advantages and our already strong reputation as a supplier of dairy milk to many markets in Asia.



# Solid drivers

**Plant-based milks support a wide range of consumer needs. Changing diets, increasing health concerns and the growth of fitness and exercise activities are driving consumer demands for sustainable plant-based milks that address health, environmental and social concerns.**

## Environmental impact

Climate change concerns have increased consumer drive towards sustainably produced and environmentally friendly foods. On average, plant-based milks produce three times less greenhouse gasses than traditional dairy milk and use substantially less land and water in their production. In addition, trends towards greater supply chain transparency are increasing demand for businesses who can demonstrate positive environmental impact, whilst still offering high quality product from a trusted source. These environmental drivers make WA's clean green standing and key ingredient supply advantages an ideal fit.

## Health and wellbeing

Concerns surrounding health and wellbeing are driving a shift towards plant-based milks. A growing share of consumers worldwide are experiencing weight management issues and a variety of other health concerns. Plant-based milks are typically lower in calories than traditional dairy milk and can help reduce blood pressure, cholesterol, and cardiovascular diseases. Additionally, many consumers with lactose intolerance or sensitivities to dairy are finding relief in these plant-based alternatives.

## Eating habits

Consumers are eating and drinking more plant-based products, with vegan, vegetarian and flexitarian diets all growing the demand for plant-based milk. The rising appeal of plant-based eating is only expected to expand, which will drive the demand for new non-dairy alternatives that meet consumer taste expectations.

## Rapidly growing demand

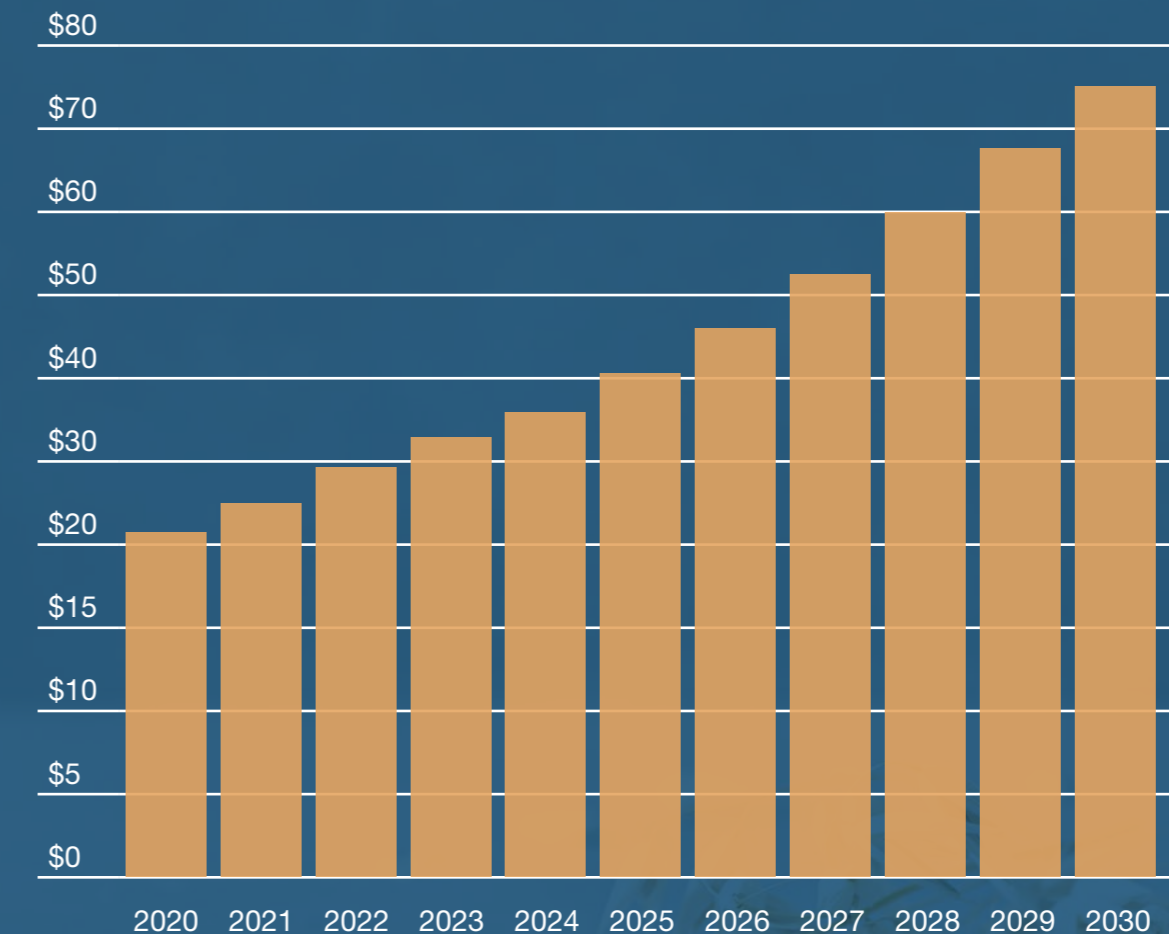
As a result of these drivers, global demand for plant-based milk is growing rapidly. Plant-based milk was a US\$23 billion market in 2020 growing at a 12.5% compound annual growth rate (CAGR). The market is projected to reach US\$75 billion by 2030 when it will still only account for 6% of the combined global dairy and non-dairy milk market.

## Shifting to new proteins

The plant-based milk market has traditionally been dominated by soy. Due to growing evidence of soy-related health issues, leading markets are shifting away from soy to other plant ingredients such as the new Generation Two plant-based milks. Leading brands are now seeking milk products made from new plant species to meet the needs of their consumers.

There are clear opportunities in WA's agriculture sector to produce ingredients for plant-based milks with oats, barley, canola and lupins, adding variety from a trusted source to the global market.

**Forecast global plant-based milk substitutes market**  
(US\$; billion; 2020 to 2030).



**12.5%**  
CAGR ↑

Forecast global growth over next decade

**\$3b+** ↑

New global sales in 2021 year alone (US\$)



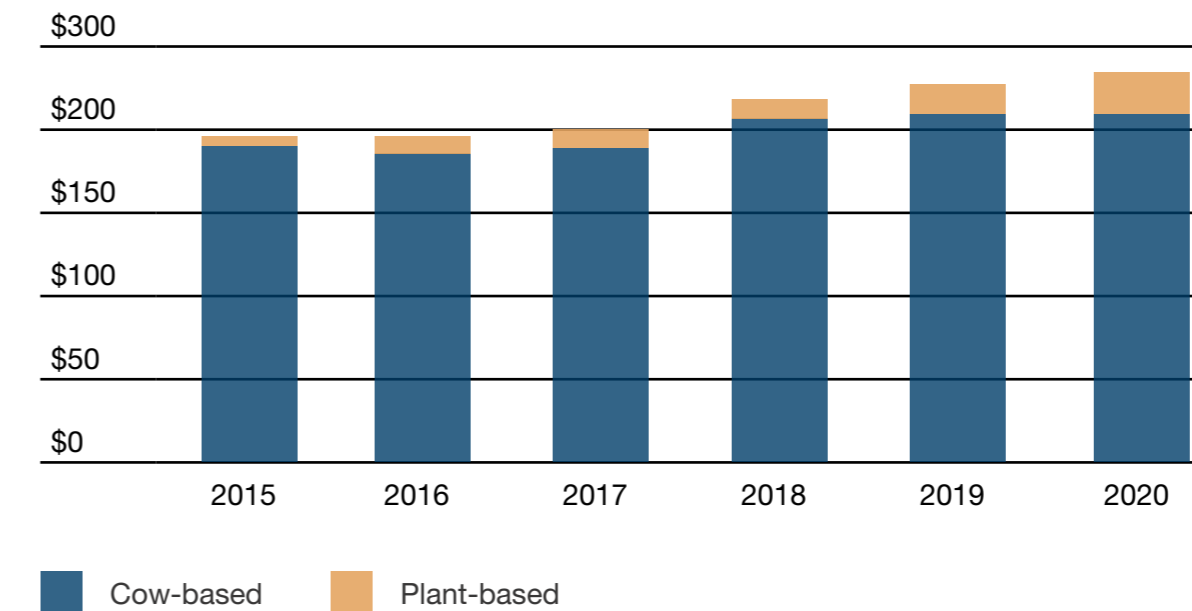
# Exports



## Growing exports

Australia is a major exporter of cow (HS0401) and plant-based (HS220290) liquid milk. Total Australian exports were worth US\$255 million in 2020, with liquid cow milk growing at 8% CAGR between 2015 and 2020, and non-dairy milk substitutes growing faster, at 14% CAGR over the same period.

**Australian export value**  
(US\$; million; 2015 to 2020)

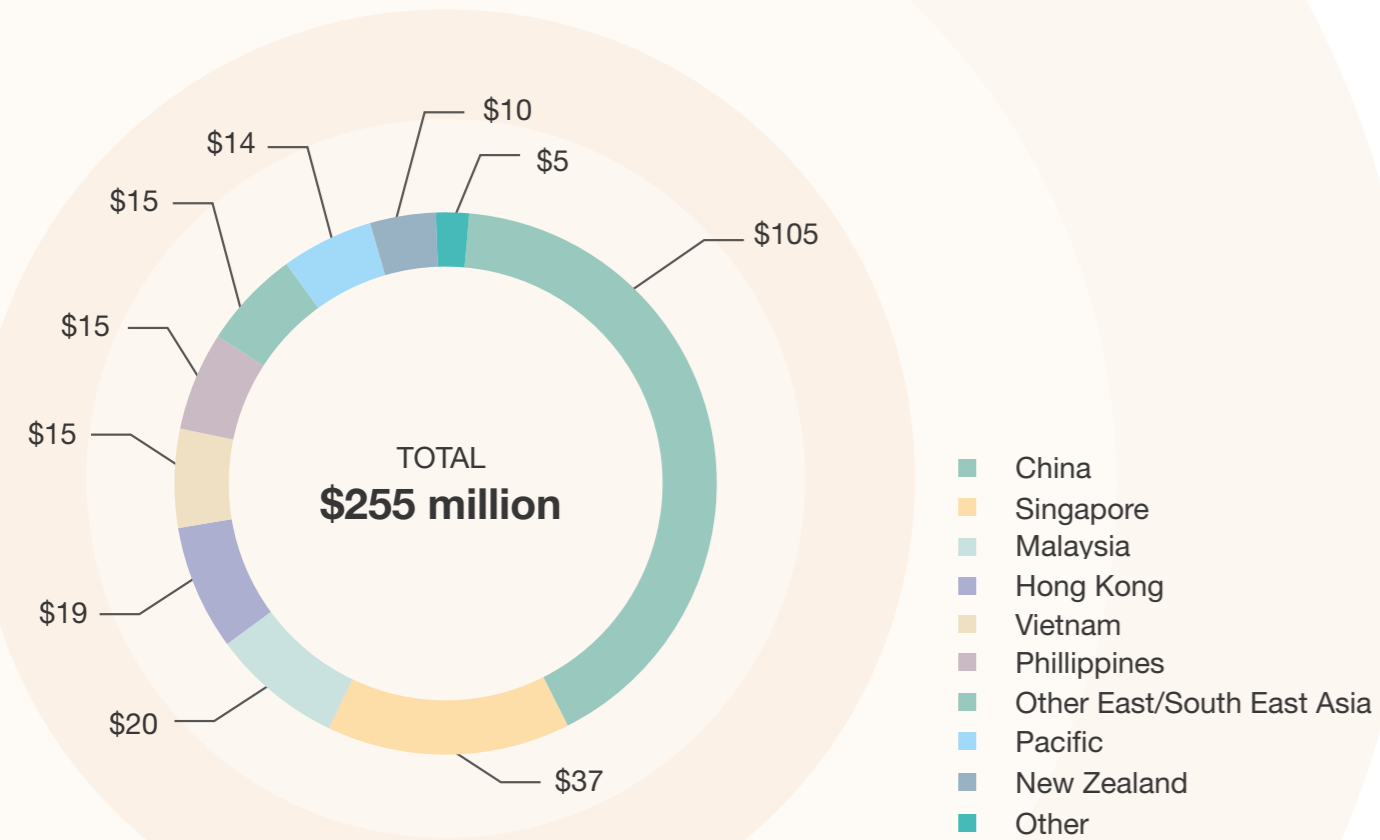




## Key markets

Australia exports cow and plant-based liquid milk to more than 80 countries, including developed and developing markets in Asia. Key markets by value include China (US\$105 million), Singapore (US\$37 million), Malaysia (US\$20 million), Hong Kong (US\$19 million), Vietnam (US\$15 million), the Philippines (US\$15 million) and New Zealand (US\$10 million).

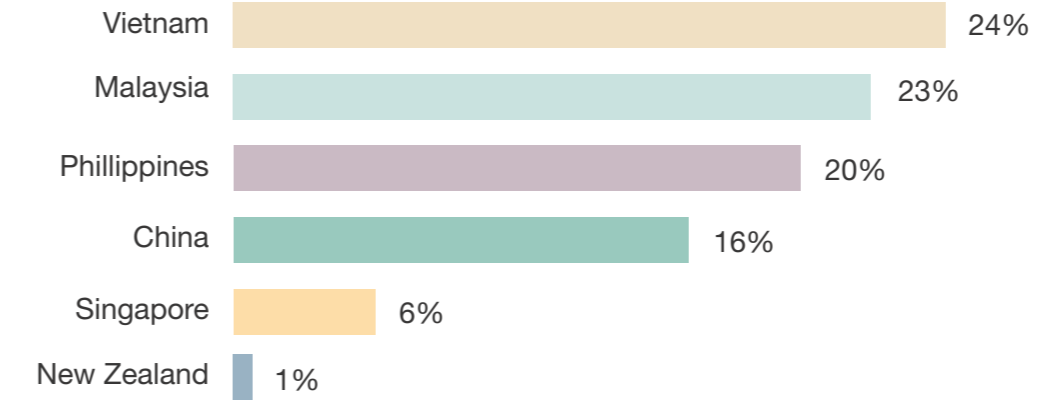
**Australian export value**  
(US\$; million; free on board; 2020)



## Market growth

Demand for liquid cow and plant-based milk is growing strongly in key markets such as Vietnam (24%), Malaysia (23%) and the Philippines (20%).

**Australian export value 10 year growth rate**  
(US\$; CAGR; 2010-2020)



# Distinct advantage

WA is uniquely positioned to service the global rise in demand for plant-based milks, which is evident on multiple fronts.



## 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.

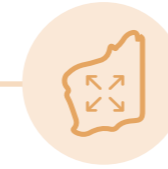


## Safe and secure

WA is part of an island continent with a desert separating it from other states. Our isolated Mediterranean climate is relatively free of pests and disease and we have zero tolerance of live insects in our exports. Nationally, Australia has strong biosecurity protocols and systems, ensuring our agricultural production environment remains healthy and safe.

WA is a trusted source of arable crops for the factories of major European, East Asian and South East Asian processors. Being placed literally "on Asia's doorstep" we are ideally positioned to build on our trusted trade relationships with the fast-growing Association of Southeast Asian Nations (ASEAN) members. WA firms can meet the markets' increasing focus on product quality and safety.

These strong biosecurity protocols translate to safe and trusted value-added products, an ideal foundation for branding plant-based milks into WA's key export markets.



## Available capacity

Being the size of western Europe with a population equalling Jamaica, WA has a very large land mass with a relatively small population. We have huge areas of high-quality arable land in rain-fed areas that do not require irrigation. These are well-suited to crop production as a base ingredient to a variety of plant-based milks. We also have a wide range of climatic regions and growing conditions, ranging from a tropical climate in the north to a temperate Mediterranean climate in the south.



## 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, with negligible agricultural subsidies.



## Focused on selected products

WA's arable production focuses on five key export crops in which we have clear comparative advantage. Wheat is our core crop with the plant-based milk suitable grains, pulses and oilseeds planted as part of a crop rotation sequence. Additional research and development investment into the unique benefits of these products is required.

### Oats

Demand for oats for use in plant-based milks is surging, with growing consumer recognition and strong scientific evidence for their healthy properties. As consumers turn to oat milk, finding a trusted and transparent supply of quality oats is growing. WA is the Southern Hemisphere's second largest oat producer and the largest per capita. We have 1,600 growers on approximately 300,000 hectares producing 643,000 tonnes of oats annually. This supply, paired with macro drivers present solid opportunities for the future. There are also major opportunities for oat syrup as a natural, plant-based sweetener.

### Barley

Barley is an ancient grain and superfood loaded with protein, healthy fats, fibre, calcium, vitamins, magnesium, and potassium. Barley is an emerging plant-based milk ingredient being adopted by innovative producers in leading markets. WA is the Southern Hemisphere's largest barley producer with 3,200 growers on 1.9 million hectares producing more than 4.0 million tonnes of barley annually, the majority as exports to Asia and the Gulf States. Our barley industry presents solid growth opportunities with area, yields and production all increasing.

### Canola

Canola has real potential as an emerging new plant-based milk ingredient with new research and technology enabling canola to be transformed into high-value milk. WA is the Southern Hemisphere's largest canola producer in total production and per capita with more than 1,900 growers on 1.5 million hectares producing more than 2.4 million tonnes annually.

The WA canola industry presents strong growth opportunities. We already export more than two-thirds of Australia's total canola and volumes are showing strong growth. Our canola is renowned world-wide as high-quality with most exports going to Europe.

### Lupins

The Australian Sweet Lupin is iconic to WA and we were instrumental in its domestication. Our lupins are pulses that are high in protein and nutritional value, and new research and technology has enabled lupins to be transformed into high-value plant-based milks.

WA has 1,600 growers on 610,000 hectares producing 560,000 tonnes of lupins each year. The Australian Sweet Lupin market is valued at \$200 million with WA producing 85% of global supply.

We are the world's largest producer and exporter of lupins with 96% exported as animal feed to the European Union, Japan and Korea. Lupins are now being promoted as a human food with medical studies confirming their benefits in combating high blood sugar, heart disease and obesity. Lupin milk offers real potential for market differentiation.

### Use of by-products

The by-product of plant-based milk production has a wide variety of livestock, pet and aquaculture feed uses. It is currently used to complement WA's burgeoning aquaculture industry and is used as feed in other animal-based production systems.





# Efficient infrastructure

**WA is one of the world's most advanced and productive regions with efficient supply chains and world-class quality control and quality assurance systems.**

Most bulk handling is conducted by CBH Group (CBH), a grower-owned cooperative concentrating on large scale, high throughput collection and storage infrastructure with major terminals managed by CBH and Bunge. The sector is well-regulated and audited with high supply chain integrity and is regarded as highly efficient by industry participants. 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.

Crops suitable for plant-based milk are produced across large regions of WA with most existing dairy and crop processing facilities located in the southwest. There are numerous potential locations for further plant-based milk processing facilities, including near terminals in Geraldton, Kwinana, Bunbury and Albany. Additionally, other potential locations include the Peel Business Park, which includes a world-class food innovation precinct and the Muchea Industrial Park.

WA's comparative advantage in dairy and arable crop production presents a strong platform for growth into plant-based milk production.

## 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.
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.

Large segments of WA's agri-food industry have been exporting for more than 100 years and have supplied many key products to numerous Asian countries for that time.

Asia has a long history of soy-based non-dairy milk consumption, however Asia's rapid economic and population growth combined with increasing health concerns around soy have increased demand for other plant-based milks.

### 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

WA is geographically and strategically well placed to supply Asia's rapidly expanding markets. We are in the same time zone as much of South Asia and within five days can ship to Indonesia, six days to Singapore and eight days to Southern China. Australia has free trade agreements in place or under negotiation with more than 25 countries and regions and our combination of location and access means we are uniquely positioned as the arable crop breadbasket of the greater Asia-Pacific region.



## Attracting investment

Producing plant-based milks in WA is attractive and there are currently no large-scale plant-based milk processors. WA needs a plant-based milk extraction facility plus additional ultra-high temperature (UHT) processing or extended shelf life (ESL) packaging facilities.

Harvey Fresh (Lactalis), WA's second largest dairy company, has ultra-high temperature processing capabilities and capacity that could be brought online. Other large regional processors also have strong processing capabilities, particularly with the right joint venture partner.



ASX listed Wide Open Agriculture is a WA based regenerative agriculture company currently selling its dairy free milk alternative, OatUp.

Oatup is made from WA oats and is presently produced and packaged in Italy. This however is expected to change as the business nears final planning stages for a commercial-scale oat milk facility in WA.

With more than 90% of most arable crops still exported in raw form, there is significant potential for growth in processed products, including large-scale plant-based milk production. There are also major opportunities for oat syrup production.

Investment in WA plant-based milk production would suit a wide range of investors, including regional and global multinationals focused on non-dairy products, investors with access to new markets, leading Asian integrated food processors and start-ups.

### Scale of potential investment

Investment	\$10 million
Litres	30-50 million litres
Wholesale price	\$0.60-\$1.50/litre
Annual revenue	\$18-75 million

### Existing WA industry examples

**Pressed Earth.**  
Balance · Pressed · Daily

**The Pure Press.**

**MADE**  
COLD-PRESSED JUICE

 **Unigrain**



## Supporting investment

The WA government is committed to working closely with investors to develop WA's plant-based milk 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 are available to support 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:

**e** [investment@dpiird.wa.gov.au](mailto:investment@dpiird.wa.gov.au)

**p** +61 (0)8 9368 3590

**w** [agric.wa.gov.au/investment](http://agric.wa.gov.au/investment)

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*Sources: DPIRD, Heritage Foundation, Forbes, UN FAO, UN Comtrade, Australian Bureau of Statistics, TetraPak, industry interviews, Coriolis and DPIRD analysis.*

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