



Department of
Primary Industries and
Regional Development

*We're working for
Western Australia.*

Western Australian health-focused oat extracts

Business opportunity outline



Western Australia has the perfect climate for producing **high quality oat extracts and products.**

Western Australia (WA) has a large supply of raw oats and an efficient post-harvest supply chain.

Oat supply is abundant and there are clear opportunities to construct oat processing and extraction facilities with total oat processing capacity around 215,000 tonnes annually and mostly running at capacity. There are also extensive opportunities to develop consumer facing oat extract brands, leveraging our clean green reputation, particularly into Asia's growing markets.

Clear opportunity for **growth**



Growing global demand

Global demand for nutraceutical oat extracts is forecast to continue growing strongly. Oats are full of healthy compounds including fibre, vitamins, minerals and antioxidants. In particular oats contain beta-glucans and avenanthramides, both compounds with strong and growing scientific support for their health properties. Growing global awareness of these health-giving properties have made oats a superfood. Consumers in Asia especially, understand the health properties of oats. Oat based health products are supported by a long-term consumer shift to self-treatment and plant-based diets. Alongside oat extracts there are also opportunities to produce oat syrup and oat milk.

#1

Oat producing State in Australia.

#2

Producer of oats in the southern hemisphere.

Solid drivers

Demand for oats for use in plant-based foods, supplements, powders and other nutraceutical products is surging, driven by increasing scientific evidence and growing consumer recognition of their health properties.

Beta-glucan (β -glucan) is a dietary fibre that is attracting attention as one of the most efficient sources of cholesterol control. β -glucan is a glucose polymer found in the cell walls of cereals such as oats. Oat β -glucan generates viscosity within the intestinal tract, which is thought to be their main positive health effect.

In addition to cholesterol control, Oat β -glucan is also considered to have several other positive health effects, including lowering the postprandial glucose response and building immunity.

Scientific research has shown that whole oat grain, which is rich in β -glucans and arabinoxylans, protects against cardiovascular disease, type-2 diabetes, obesity, and some cancers. The growing awareness of heart disease and health risks associated with elevated cholesterol levels has accelerated the use of β -glucans around the world.

Rapidly growing demand

While there are multiple possible sources for β -glucan, oats contain the highest concentration, with one and a half cups of cooked oatmeal providing three grams of β -glucans.

Increasing awareness of oats' health benefits has stimulated industry growth, with β -glucans being promoted in product labelling.

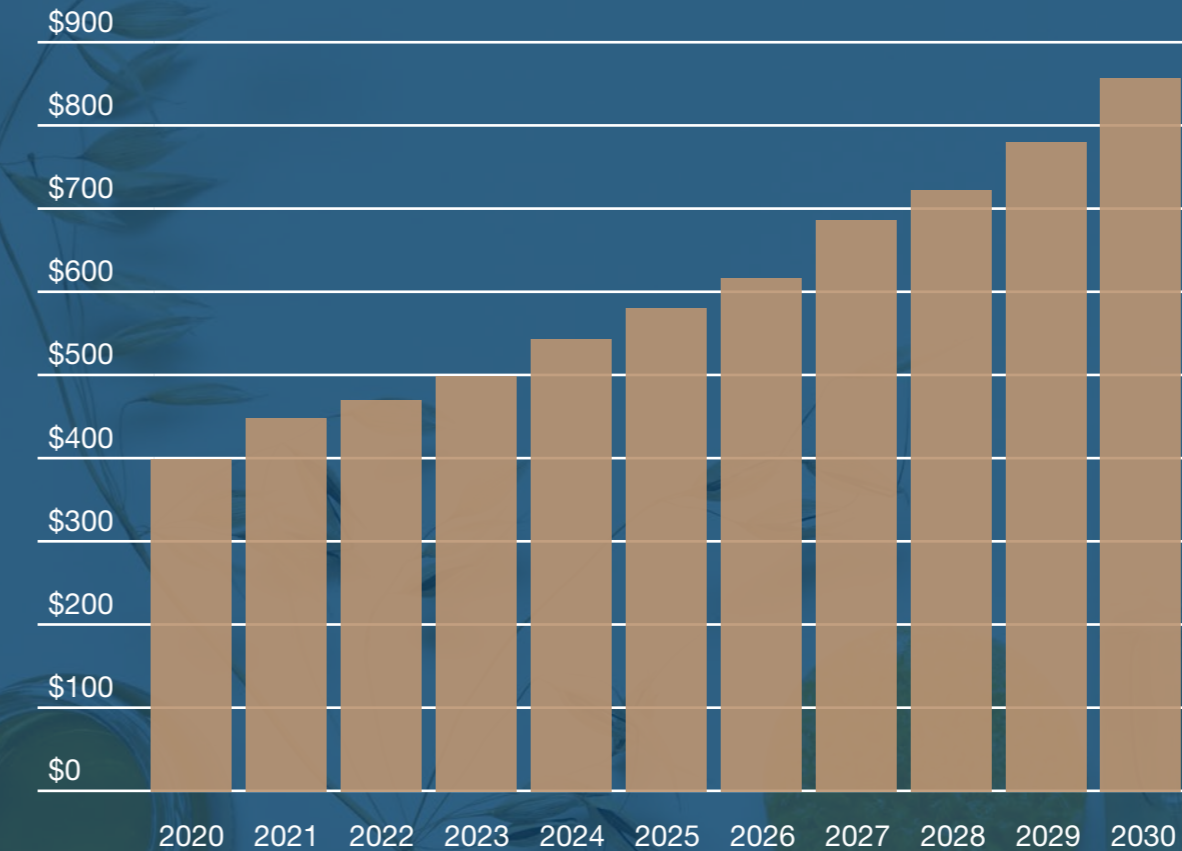
With growing use as a functional food ingredient, the food and beverage industry is the β -glucan market's biggest end-user.

β -glucans are added to a wide variety of foods, such as baked goods and pasta, muffins, cakes, muesli, dairy products, soups, sauces, drinks, low-fat milk and meat products.

There is also increasing use of β -glucans in pharmaceutical and nutraceutical industries as an immunity booster supplement or medicine and its use as a targeted health supplement is anticipated to drive demand into the future.

β -glucan supplements are a growing market segment and there is now significant new product development, brand development and product promotion. Leading producers are identifying the source of their oat β -glucans, creating a real opportunity to call out and leverage Brand WA.

Forecast global beta glucan market size (US\$; billion; 2020 to 2030).



7.6% CAGR

Forecast global market growth over the next decade (2020 to 2030)

us\$435 million

Estimated global market value in 2021

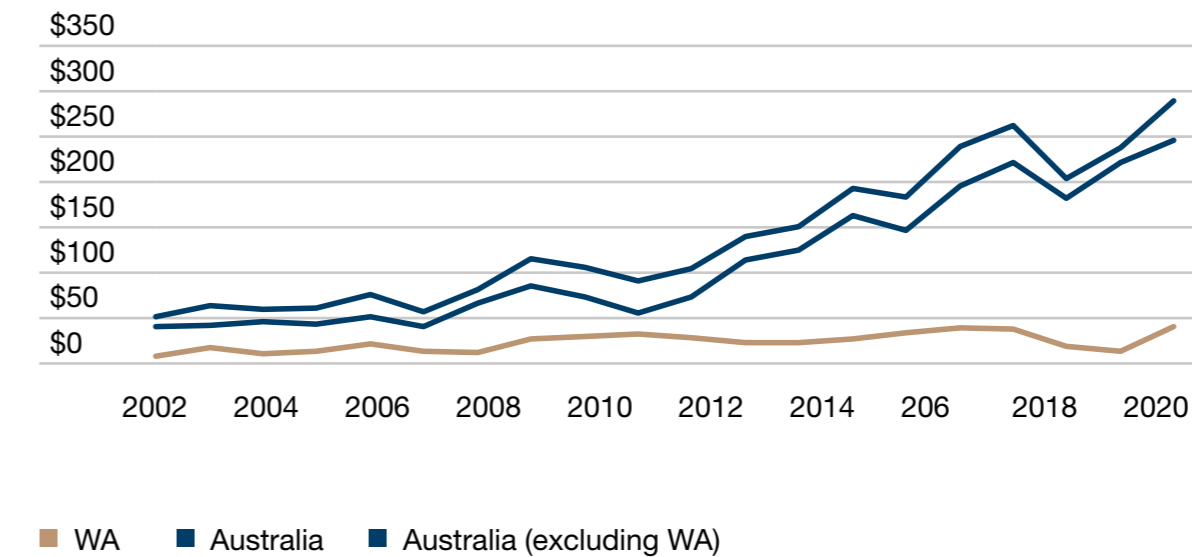
Exports



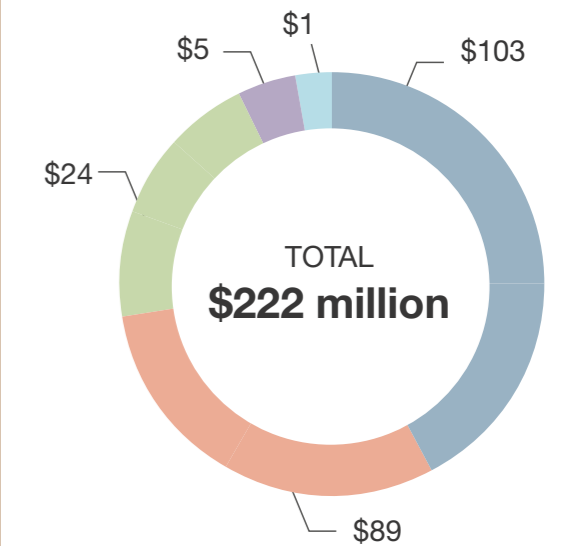
Growing exports

WA is a major exporter of oats (HS100400, HS10049010 and HS10049020), oat seed (HS10041000) rolled oats (HS110412), and kibbled oats (HS110422). Our total exports in these categories were worth more than \$222 million in 2020 financial year, representing more than 93% of Australia's total oat exports. Our oat exports have shown strong and increasing growth, achieving an 18-year compound annual growth rate (CAGR) of 9.5% from 2002 to 2020 financial years, and a 9-year CAGR of 16% between 2010 and 2019 financial years.

Oat export value
(AU\$; million; 2002 to 2020 financial years)



WA oat export category value
(AU\$; million; 2020 financial year)

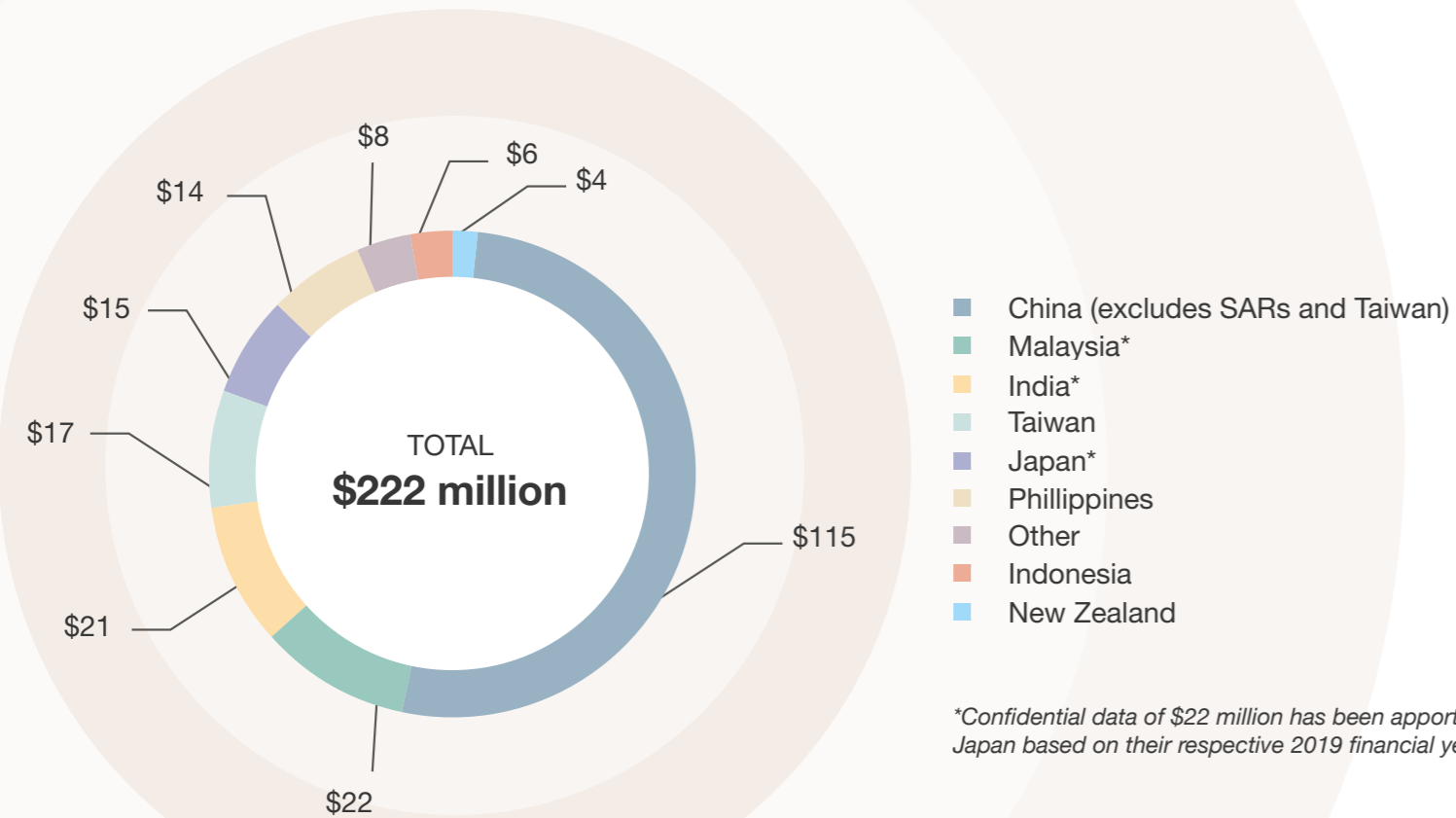


- HS10049010 - Oats, in bulk (excl. seed and oats in bags)
- HS11041200 - Rolled or flaked grains of oats
- HS11042200 - Worked (inc. hulled, pearled, sliced or kibbled), grains of oats (excl. rolled or flaked grains)
- HS10049020 - Oats, in bags (excl. seed and oats in bulk)
- HS10041000 - Oats seed

Key markets

WA exports oats to more than 25 countries in an average year. All major high income Asia Pacific markets currently buy WA oats with key markets in China (\$115 million), Malaysia (\$22 million), India (\$21 million), and Taiwan (\$17 million).

WA oat export value
(AU\$; million; 2020 financial year)

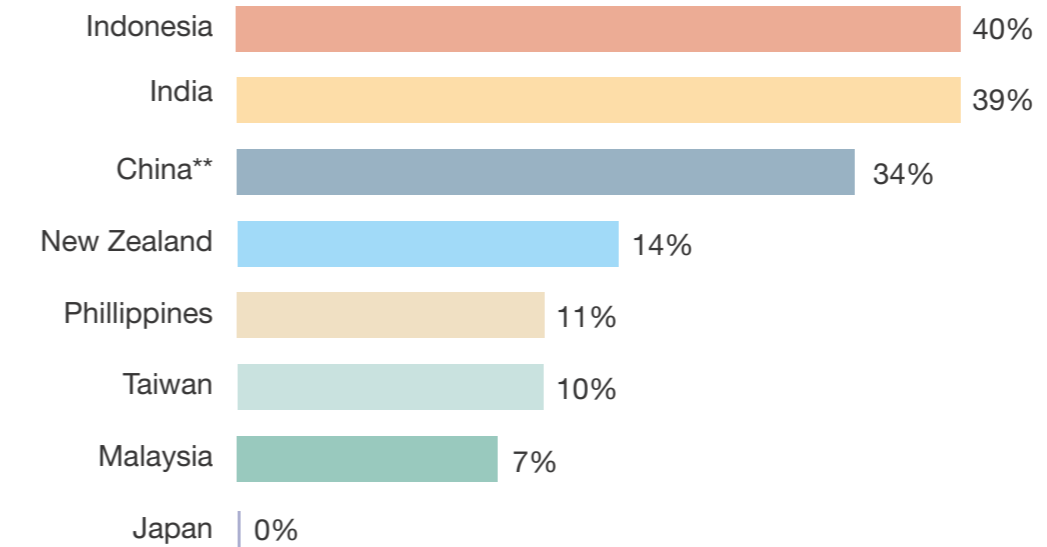


*Confidential data of \$22 million has been apportioned to Malaysia, India and Japan based on their respective 2019 financial year data.

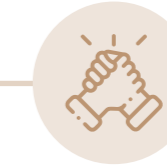
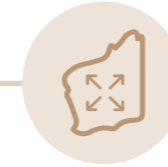
Market growth

Australian exports of oats are growing strongly to key markets. Indonesia (40%), India (39%) and China (34%) are all growing strongly. Preliminary 2021 financial year data are also showing significant export growth in key markets of South Africa and United Arab Emirates, with oat exports expected to exceed \$6.4 million and \$10.9 million, respectively.

WA oat export value 18 year growth rate
(AU\$; CAGR 2002 to 2020 financial years)



**Excludes special administrative regions (SARs) and Taiwan.



High quality raw materials

WA is a leader in delivering clean, dry and food-safe oats to processors worldwide with arable crops produced in one of the world's cleanest environments.

WA oats have a reputation for high-quality, high protein levels and stable product characteristics. Our oats are segregated from other crops and have higher protein and lower moisture content than competitors.

WA oats are grown using sustainable farming systems, and our farms can be certified to meet European Union sustainability criteria. We have the right varieties of oats to capitalise on this opportunity, with good glucan percentage meeting or exceeding the current standard of 4%.

Safe and secure

WA is part of an island continent with desert separating it from other states and our isolated Mediterranean climate is relatively free of pests and disease. We minimise chemical use by planting disease resistant crops and control weeds with crop rotation and management practices. WA can demonstrate crops are free from certain exotic pests 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 into the factories of major North American, European, East Asia and South East Asia oat processors. Being placed literally on Asia's doorstep WA is ideally positioned to build on its trusted trade relationships with the fast-growing Association of Southeast Asian Nations (ASEAN) members. Our firms can meet the markets' increasing focus on product quality and safety.

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. There are huge areas of land well-suited to high-quality oat production in rain-fed areas that do not require irrigation.

Industry support

WA's oat industry is well-organised and supported, with plant breeders ready to react to market signals and breed for desirable traits.

Research and development and breeding programs are supported by a range of organisations and logistics are provided by CBH Group (CBH) and others.

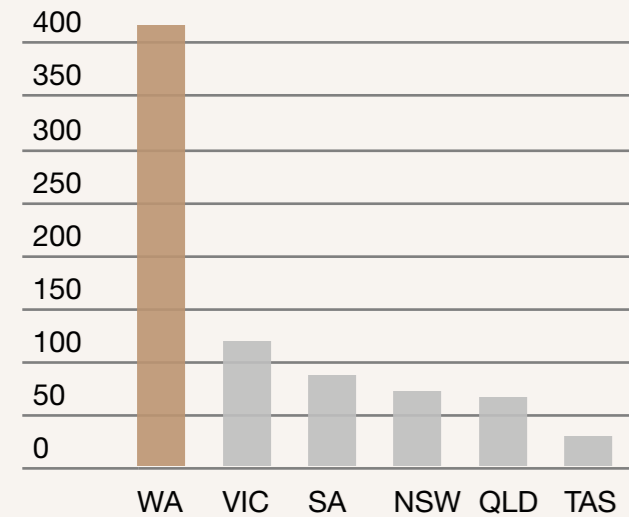
Existing primary processing is provided by a wide range of firms, including Quaker Oats Australia (PepsiCo), Blue Lake Milling (CBH), UniGrain and a range of smaller firms. There are also significant opportunities in secondary processing and extraction.

Large, efficient, sustainable farms

WA has a deep pool of experienced oat farmers using modern, automated production systems. Our oats and other agricultural products are competitive globally and are produced with negligible agricultural subsidies.

In 2020 WA had more than 1,600 oat growers farming around 300,000 hectares producing 650,000 tonnes of oats. By global scale, our oat farms are large, highly productive and efficient.

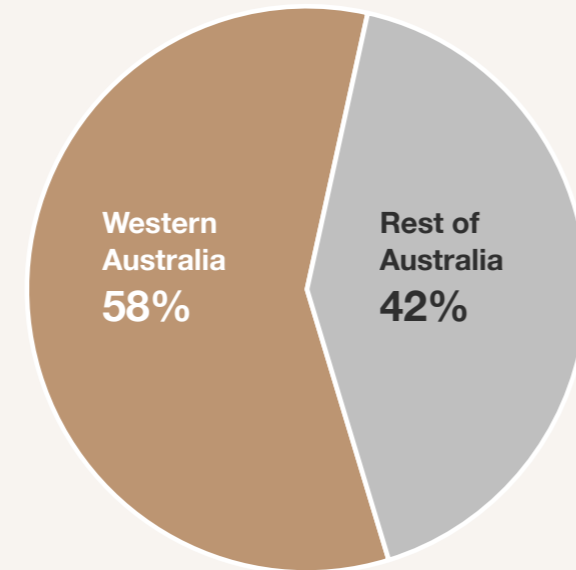
Average tonnes per grower (2020)



A major producer of oats

WA is a major oat producer and one of the world's leading oat exporters, accounting for 58% of Australian oat production. We are the Southern Hemisphere's second largest oat producer and the largest per capita.

Share of Australian oat farmgate value (per cent of AU\$; 2020)



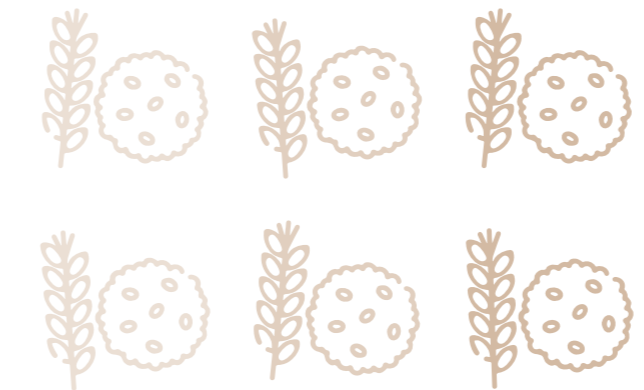
Macro drivers for the WA oats industry present a solid, though relatively low growth environment, with flat farmland, increasing yields and growing production.

Part of crop rotation

The WA arable production system focuses on five key export crops in which we have clear comparative advantage. Wheat is the lead crop, with oats, barley, canola and lupins all grown as part of a crop rotation sequence. Crop rotation means annual supplies of oats can be varied depending on market demand.

Use of by-products

The by-products of crushing oats to obtain its extracts has a wide variety of livestock, pet and aquaculture feed uses. Oat by-products are currently used to complement WA's growing aquaculture industry and are also 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 logistics. We have well-developed and efficient supply chains with world-class quality control and quality assurance systems.

The majority of oat and other arable crop handling is conducted by CBH, a grower owned cooperative concentrating on large scale, high throughput collection and storage infrastructure. The sector is regarded as highly efficient by industry participants and is well-regulated and audited, with high supply chain integrity. 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.

Oats are produced across large areas of WA, however most existing value-added food processing facilities are in the southwest, typically close to Perth or other population centres. There are numerous potential locations for further value-added oat processing, 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.

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.
5. **Value adding:** The Australian Export Grains Innovation Centre (AEGIC) is actively investigating potential new opportunities for Australian oats, including oat noodles, oat rice and oat milk.



Productive arable crop farming



Efficient bulk handling



Oat extract 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

Traditional Chinese medicine has long used foods and plant extracts as part of its health solutions. Rapid economic and population growth across Asia and increasing health concerns have amplified demand for plant-based health compounds, including oat extracts.

WA is close to Asia, particularly East Asia and South East Asia, both of which are large and growing markets. We are 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.

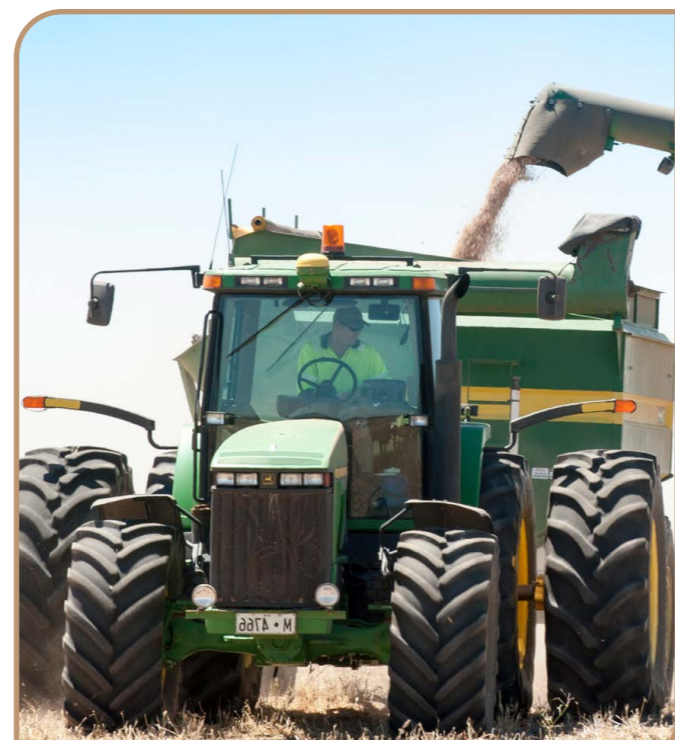
Large segments of WA's agri-food industry have been exporting for more than 100 years and we have been the leading supplier of many key products, including oats, to numerous Asian countries for that time.

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 export markets. We are within the same time zone as much of South Asia and within five days we 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 oat extracts in WA is an attractive proposition. Multiple firms have already invested in significant value-added oat processing facilities in WA, but with approximately 40% of oats still exported raw there is significant potential for growth. Our oat extract industry has the required characteristics to attract further investment.

An attractive proposition for additional research and development investment would be a managed, vertically integrated production system, producing a – glucan high in soluble oat bran fibre, using non-genetically modified, gluten-free wholegrain oats with minimal use of chemicals.

WA can facilitate further large-scale oat processing operations. Investment in WA oat processing would suit a wide range of investors, including global multinationals focused on nutraceuticals, large Australian firms, leading Asian integrated food processors, global agribusiness operators and start-ups.

\$10-20 million

Potential investment for nutraceutical oat extraction plant

- Fully automated centralised facility
- Full humidity and temperature control
- Inward/outward goods
- Receiving, processing, extraction, packing, lab testing

Existing WA industry examples

WA has a large and well-developed oat processing industry. Several firms stand out as potential partners for any oat extraction venture.



Oat supply chain



Farm



Consolidator

- Raw grain
- Cleaned grain



Primary Processor

- Groats
- Hulls



Secondary Processor

- Cut groats
- Rolled groats



Ingredients

- Oat flour
- Oat milk
- Oat syrup



Specialist products

- Modified lipids
- Beta-glucan
- Oat starch

Supporting investment

The WA state government is committed to working closely with investors to develop WA's oat 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

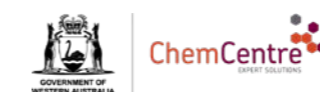
Our team is available to provide support to identify and develop your project or business' potential, including guidance on raising capital and getting your project investment-ready.

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:

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p +61 (0)8 9368 3590

w agric.wa.gov.au/investment

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Sources: DPIRD, Heritage Foundation, Forbes, UN Comtrade, UN FAO, Australian Bureau of Statistics, AgriFutures, Colere, Fior Markets, Kerry Ingredients, Grand View Research, Global Market Estimates (GME), industry interviews, Coriolis and DPIRD analysis and estimates.

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