WESTERN AUSTRALIAN **ARABLE CROPS INDUSTRY**

Overview for Potential Investors and Other Stakeholders

July 2017

CORIOLIS FOR

Department of Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

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Who and why?

This research seeks to provide a high-level guide to where investment is most needed in the arable crop chain

When looking at opportunities for investment in the Western Australian arable crop production system, one must consider by whom? If you were to judge purely from the popular press, you would believe Western Australia agriculture was totally controlled by billionaires and foreign speculators. Nothing could be further from the truth.

The largest farmer, the largest farmland owner, the largest investor, the largest employer and the largest agrifood research funder in Western Australia (WA) is the government. The government is also the largest builder of the infrastructure used by the industry. At the same time, the government invests in food safety systems, biosecurity systems, trade negotiations, training, education, contract enforcement and a whole range of other services to industry. That it could achieve more, or do many of these things different, is not disputed. But any discussion of investment in the Western Australian arable crop industry, must begin with the largest participant. And remember that government is just the collective will of the people.

The second largest investor in the WA agrifood system is the 11,177 farmers, including the 4,543 farmers growing arable crops. They own or lease the land and equipment. They have the skills, do the work, and take the risk. They also collectively own the major collection and storage operator (a co-operative), as well as invest in a wide range of activities down the chain. All these farmers are silently, invisibly investing regularly and constantly. The third largest investor in the WA agrifood system are the private enterprises that use, process, package, sell, export, and retail the raw material ingredients. These firms range from private individuals and small investor consortiums through to very large national and multinational firms.

The fourth largest investor in the WA agrifood system is large scale professional investors, including retirement superfunds and private equity firms. They invest both directly, through buying firms and farms, and indirectly, through investing in others. While most of this investment is Australian in origin, global sovereign wealth funds and pension funds are also participating in the Western Australian opportunity.

Finally, the smallest group of investors is global "hot money." This class of investor is not always committed, often does not add a lot of value, and is not a major component of the industry. While a handful of high profile billionaires make the news, they represent only a small percent of total investment (ca. 5%).

It is important to keep this relative ranking and importance in mind while accessing, absorbing and using this material.

This project does not seek to duplicate or replace existing roles provided by the market. Real Estate Agents can market farms. Investment Bankers can sell larger businesses. Share Brokers can evaluate shares in listed firms. Internal Analysts can model and measure infinite details about business segments. Therefore, this work stops short of outlining or profiling specific transactional opportunities immediately or currently present.

What this project instead seeks to do is set the scene for investment. It seeks to provide a preliminary, high-level introduction and overview of the Western Australian arable crops industry. It takes a longer term point-of-view, looking at long term trends, rather than being month-to-month or quarterly focused.

It seeks to present a relatively neutral, fact-based analysis of the Western Australian arable crops sector. It seeks to present this analysis at 'board-level,' in a business friendly format, style and tone.

It does all of this to channel available investment to where it is most needed. This is typically where growth is occurring. This is also where employment is being created.

The intended primary audience for this research is investors, those seeking investment and government (in all its roles). However, the experience of other regions globally with similar research is that it will be useful to a much wider ranging set of stakeholders, including scientists, journalists, industry bodies and many others.

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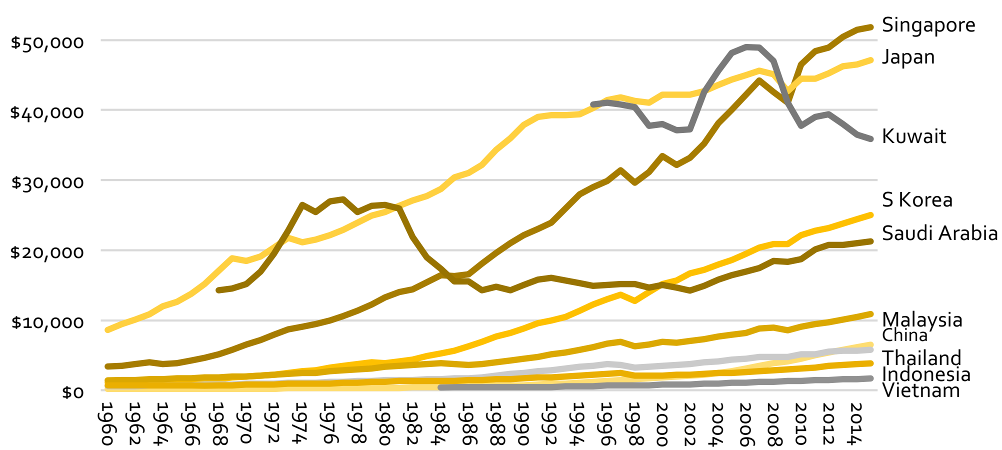
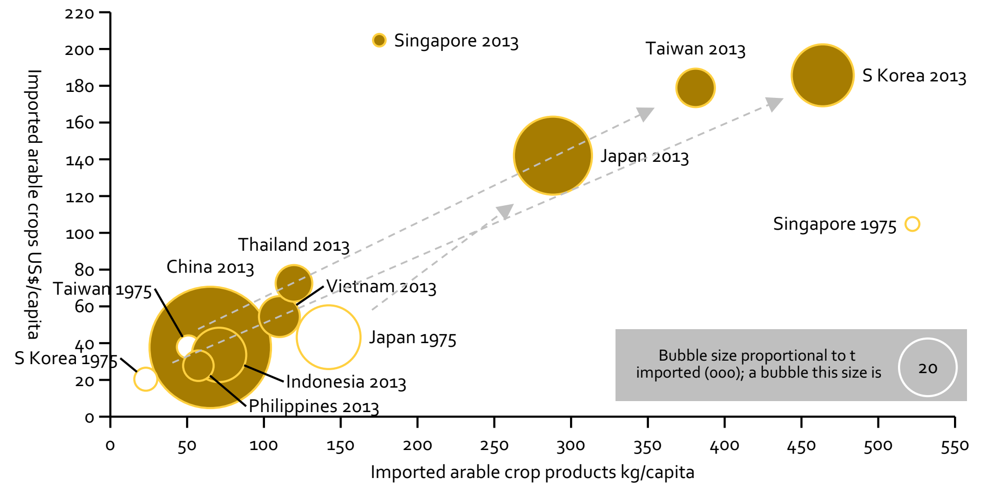
Increasing demand for imported arable crop products in Asia

Growing income in Asia and the Middle East is increasing demand for imported arable crop products

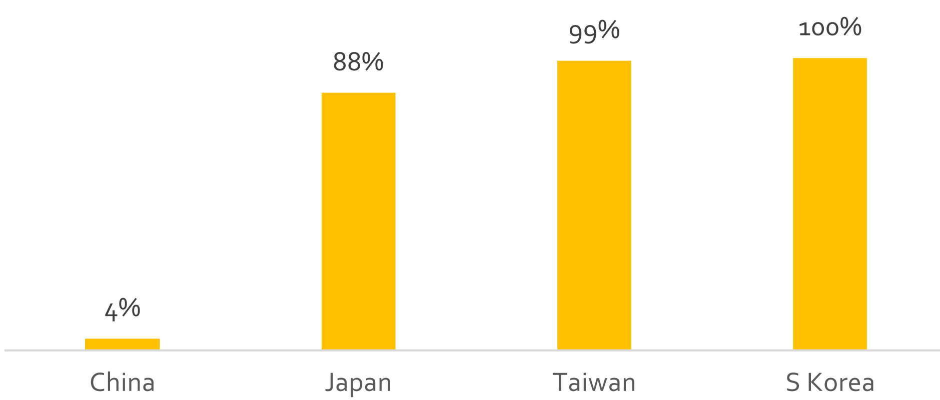
GDP per capita (constant 2010 US$)



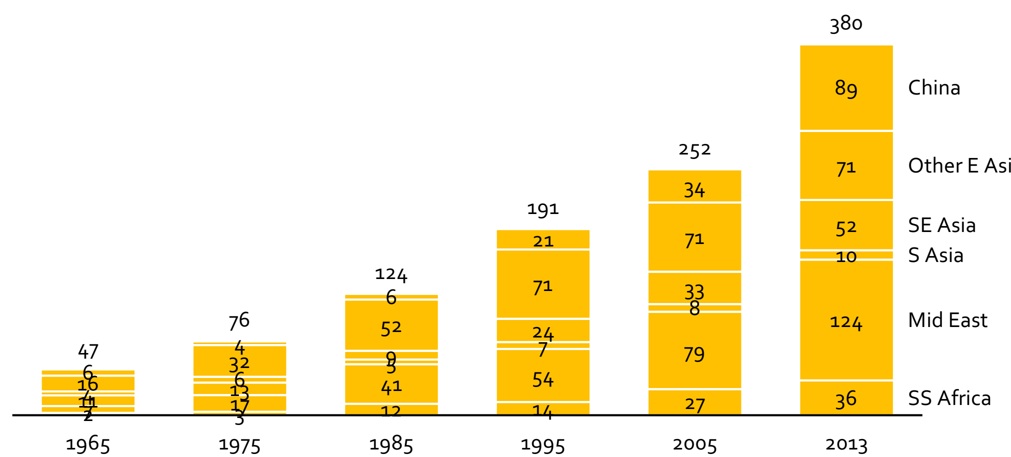
Arable crop imports per capita



Imports as a % of total wheat supply



Total arable crops import volume (t; m)

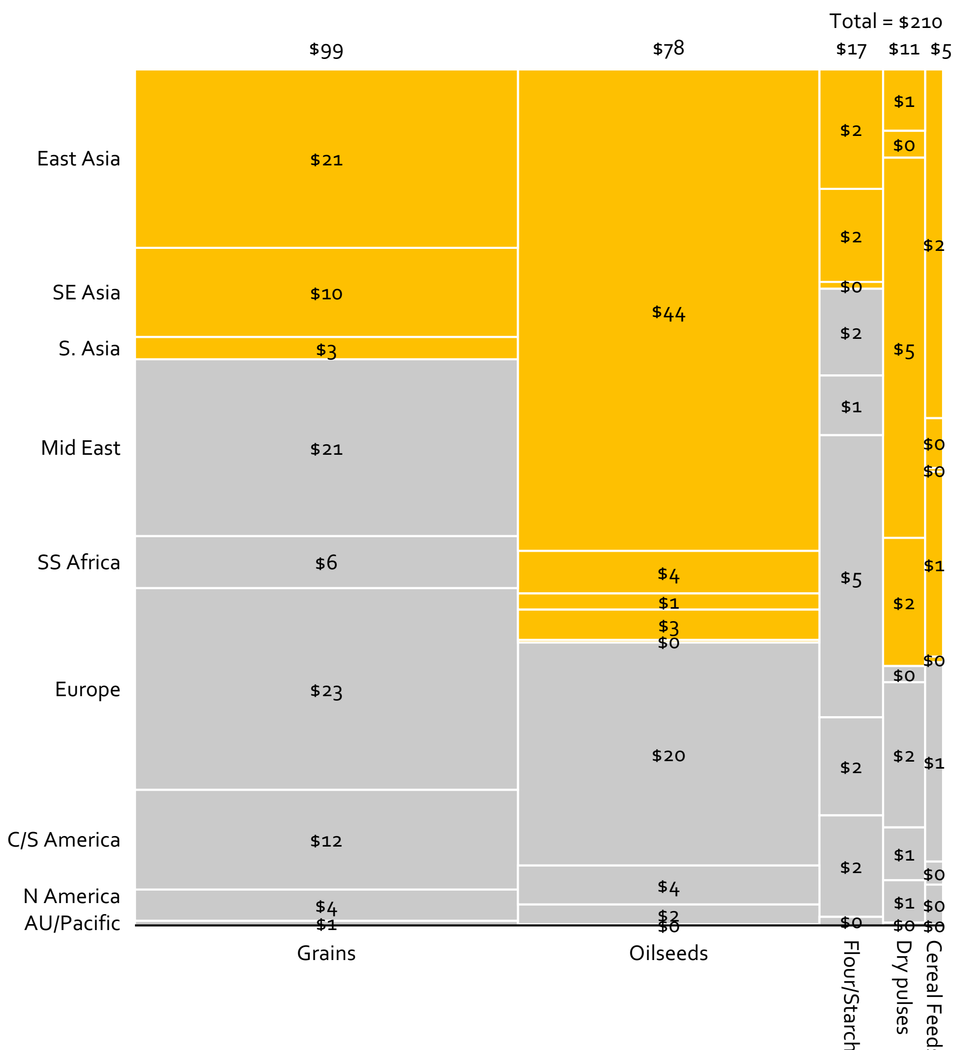


SS Africa = Sub Saharan Africa; Source: World Bank; United Nations; FAO; Comtrade, Coriolis analysis

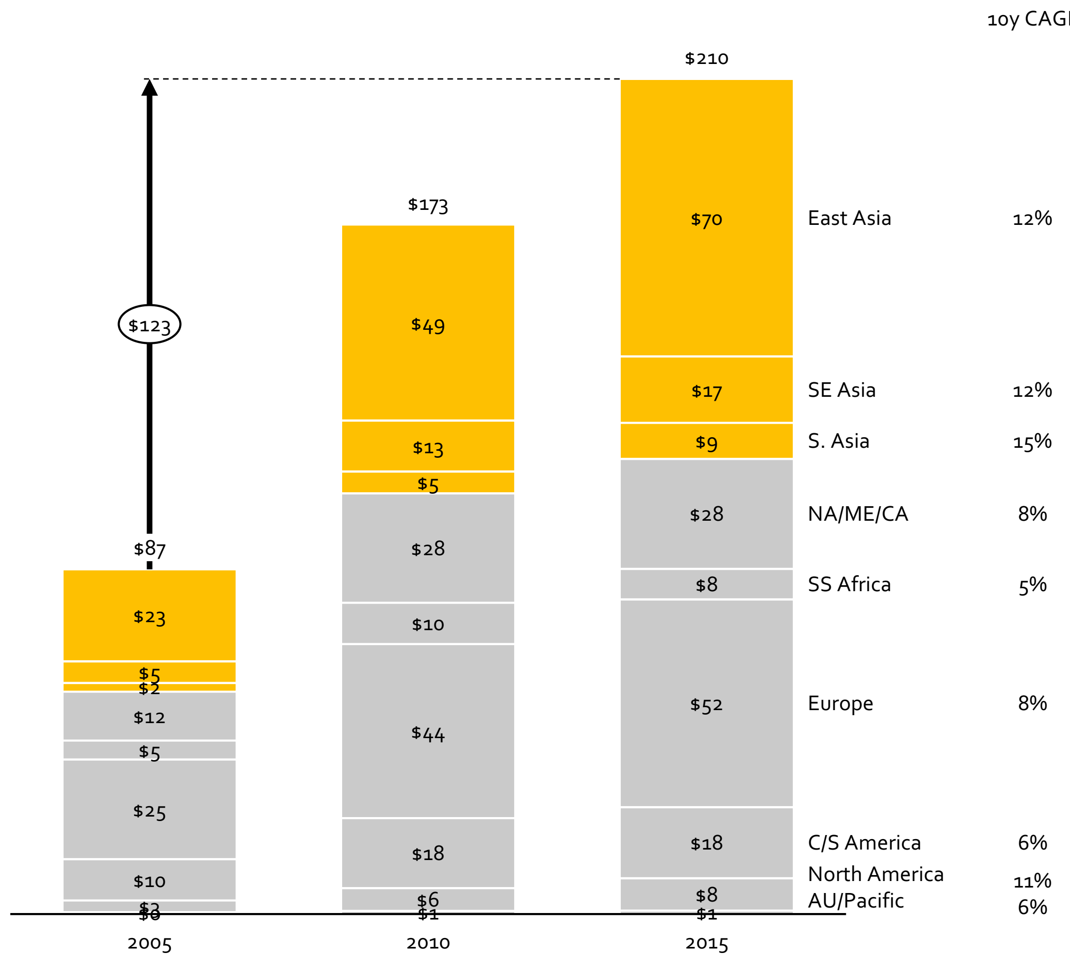
Targeting a large and growing market

Asia now accounts for almost two thirds of the global arable crop products trade, with many markets growing at double-digit rates; growth of +US$123b in global imports in the last decade

Regional arable crop product import value (US$; b; 2015)



Regional arable crop products import value (US$; 2005-2015)



Source: United Nations; Comtrade; Coriolis analysis

Growing demand

Western Australia is supplying arable crops into high demand markets

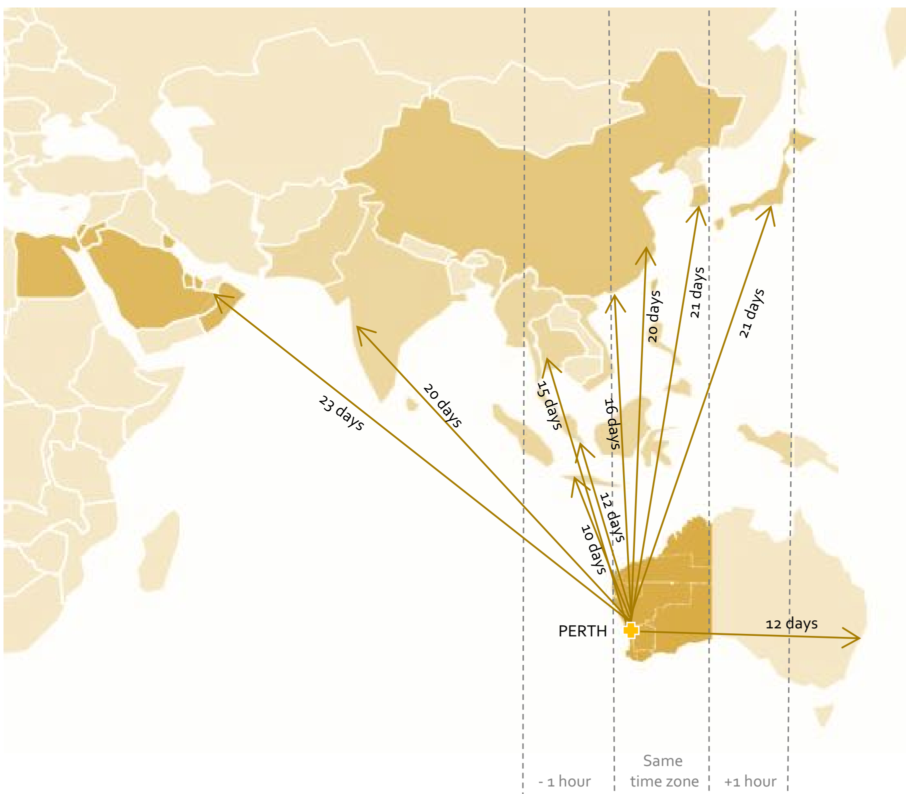
- "At the moment we can't keep up with demand. Demand in Asia is increasing at 6%. We can't increase at that rate." General Manager, grain exporter, medium
- "Commentators say that we are losing market share, but if the market is growing at 6% and the crop is growing at 3%, our share will decline. We can't keep up with demand." Manager, grain trader, large
- "There is great market demand for pulses, we are selling a lot of pulses. You need to be a good grower and have a crop that suits your climate." Director, grain marketer, large
- "As an industry and market becomes more sophisticated (like some of the animal feed markets) there is more demand for high quality and measurable feed systems." General Manager, grain exporter, medium
- "Oaten hay into China is showing huge growth." Managing Director, feed processor, large
- "In general canola is good, it has a large and broad demand. It's here to stay as a crop." General Manager, grain exporter, medium
- "There is high demand for high quality oats. The health benefits of oats is really driving that demand." Managing Director, grain processor, medium
- "Oat demand is continuing to grow so we can grow with it. Worldwide production is declining and demand is increasing. This is a good position, we just need to keep the growth managed." Manager, grain processor, large
- "There is strong demand for high quality canola." Managing Director, grain exporter, large

Source: Coriolis interviews and analysis

Well positioned to deliver

Western Australia is the closest, most accessible broadacre, rangelands and Mediterranean climate zone to Asia; it is in the same time zone as Beijing, Manila, Hong Kong and Kuala Lumpur

Shipping times and time zones from Perth

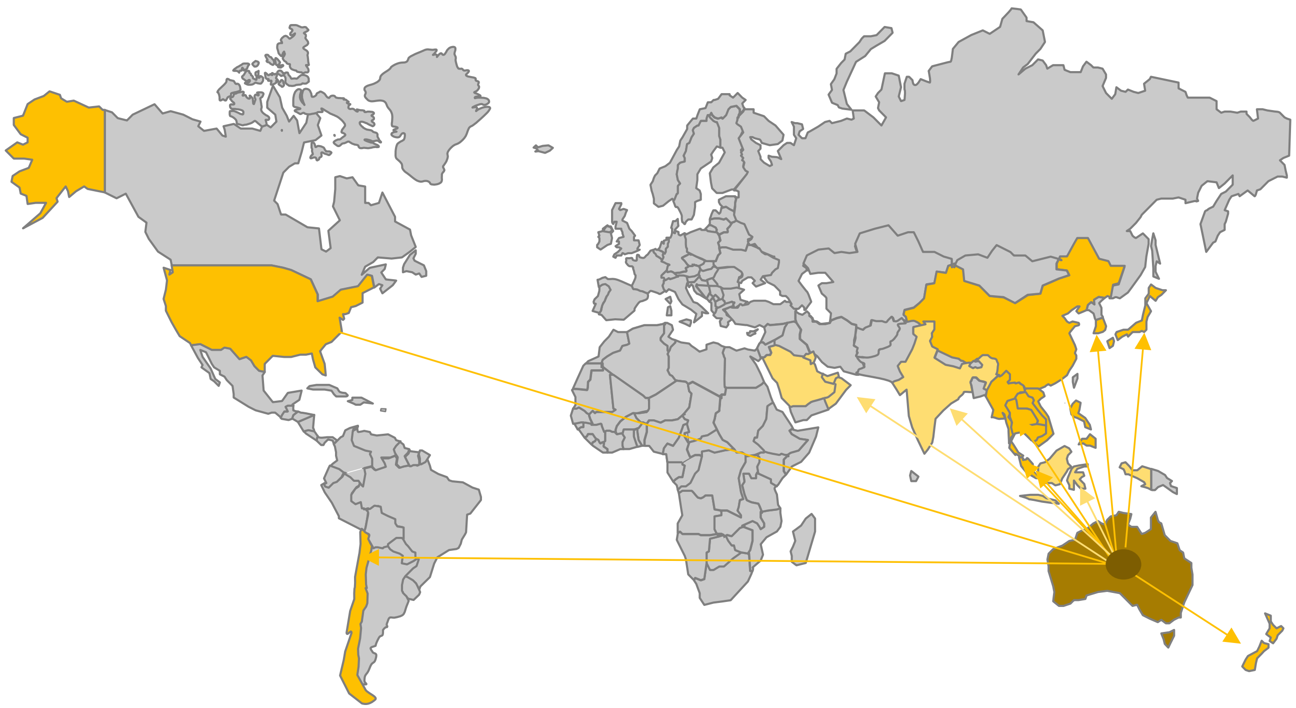


- "The advantage of WA is the close proximity to SE Asia. The geographic location is a windfall. We get a good logistics advantage." Regional Director, multinational agribusiness
- "We have a freight and time advantage into Singapore from Western Australia." Chief Financial Officer, diversified agribusiness, large
- "The geographic location – so close to Asia and our markets in India – is a real advantage." General Manager, grain exporter, medium
- "WA's advantage is access to SE Asia – though shipping costs are so low this isn't so strong at the moment – and access to ports in WA." Chief Executive Officer, industry body
- "[WA has] proximity to our key customers, in particular to Asia, for our export business." Director, grain marketer, large
- "Logistics are quite good. One of the AU advantages." Managing Director, grain processor, medium
- "Shipping costs are high for the competition (but declining) and that gives us an advantage into SEA" Manager, grain trader, large
- "Some of SE Asia is easier to service out of WA, freight distances, timeframes. Indonesians work later in the day and are still in office at 9pm, that is 10pm here. East Coast it's midnight no one is answering the phone there." Director, value added processor, medium

Source: SeaRates.com; Coriolis interviews and analysis

Excellent trade access

Western Australia has excellent trade access into many of the key markets through Australia's Free Trade Agreements



Current FTAs:

- NZ (ANZCERTA)
- Singapore (SAFTA)
- US (AUSFTA)
- Thailand (TAFTA)
- Chile (ACIFTA)
- ASEAN-NZ (AANZFTA)
- Malaysia (MAFTA)
- Korea (KAFTA)
- Japan (JAEPA)
- China (ChAFTA)

FTAs under negotiation:

- Gulf Cooperation Council FTA
- Australia-India Comprehensive Economic Cooperation Agreement
- Environmental Goods Negotiations
- Indonesia-Australia Comprehensive Economic Partnership Agreement
- Pacific Agreement on Closer Economic Relations (PACER)
- Regional Comprehensive Economic Partnership (RCEP)
- Trade in Services Agreement
- Trans-Pacific Partnership (TPP) *Concluded but not yet in force

- "Some very good market opportunities are evolving with the Free Trade Agreements with Japan and Korea." Director, value added processor, medium
- "Biggest opportunity for oats in the next few years is the reduction of tariffs in particular in China and India. Raw has no tariffs but processed oats does. China tariffs are starting to reduce." Managing Director, grain processor, medium
- "India is a major importer of oats but there is a significant tariff on processed oats. Ultimately if that tariff comes off then we will see more demand at a competitive price." Managing Director, grain processor, medium

Note: Current as of May 2017; Source: Department of Foreign Affairs and Trade; Coriolis analysis

Offering three major arable crops for export

Western Australia has three major export focused arable crops – grains (wheat, barley and oats), oilseeds (canola) and animal feeds

ARABLE GRAINS

WHEAT | BARLEY | OATS

- Growing middle class across Asia demanding more grain based foods as their income increases
- Western Australia achieves low yields across large amounts of land and highly automated production systems
- Low domestic consumption relative to production ; large surplus available for export
- Consistently Australia's largest exporting state for arable grains
- 100+ years of experience exporting
- All major global traders present in Western Australia

OILSEEDS

CANOLA

- Cooking oil is a grocery staple across Asian, African and Middle Eastern markets
- Key customers are in-market oilseed mills which import canola and process it into consumer products and biofuel
- Product success driven by affordability and healthy properties (e.g. low in saturated fat)
- Western Australia has rapidly growing canola production

ANIMAL FEEDS

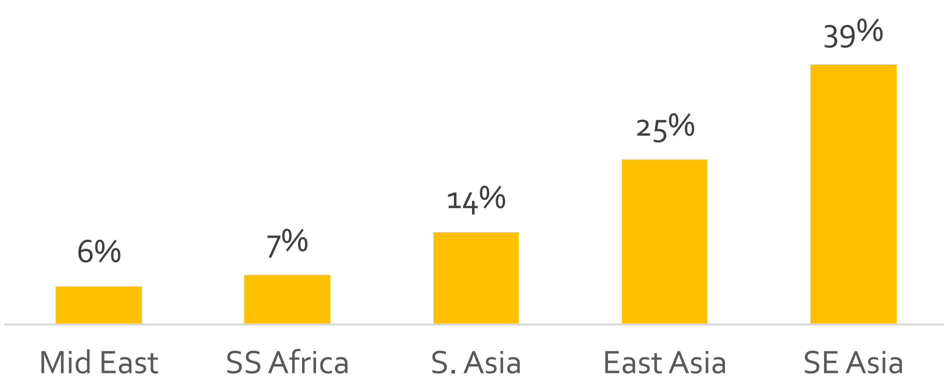
- Consumers in highly populated market across E/SE Asia are demanding more meat and dairy; much produced domestically
- Key customers are major feedlot operators across cattle, dairy cows, sheep and pigs
- Products vary from relatively simple compressed oaten hay to complex pelletised feeds for specific uses

Strong share of major arable crops in key markets

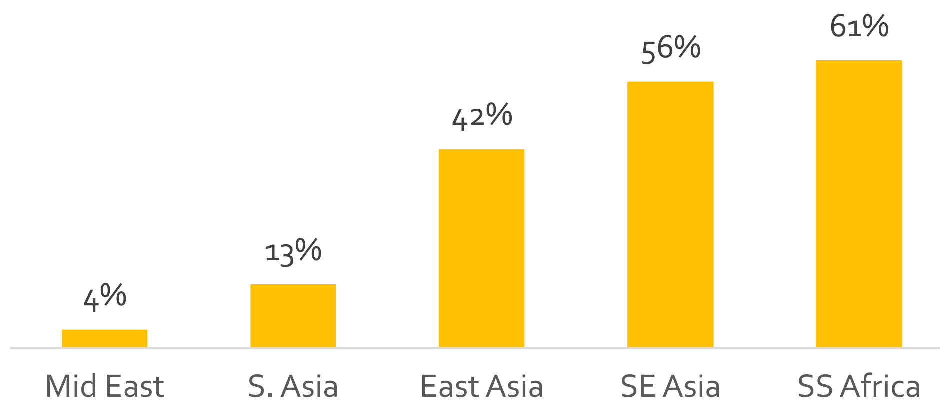
Australian export focused arable crops have a strong position in high growth markets

Australia market share (% of value; 2015)

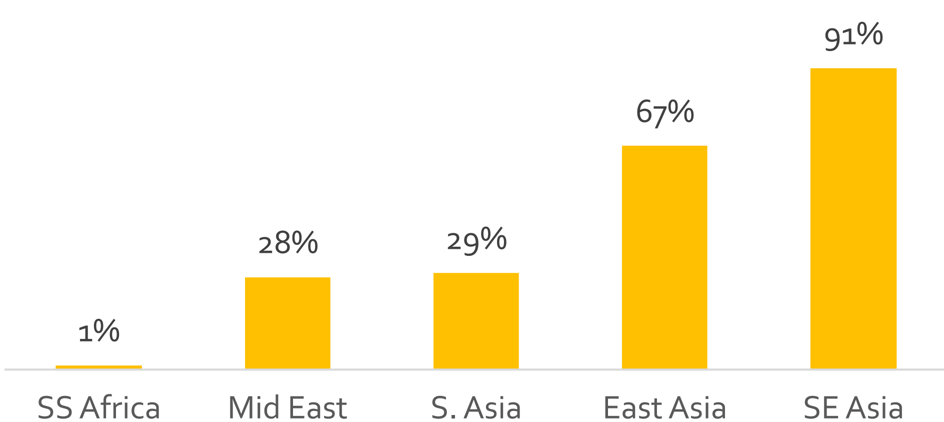
Wheat (HS1001)



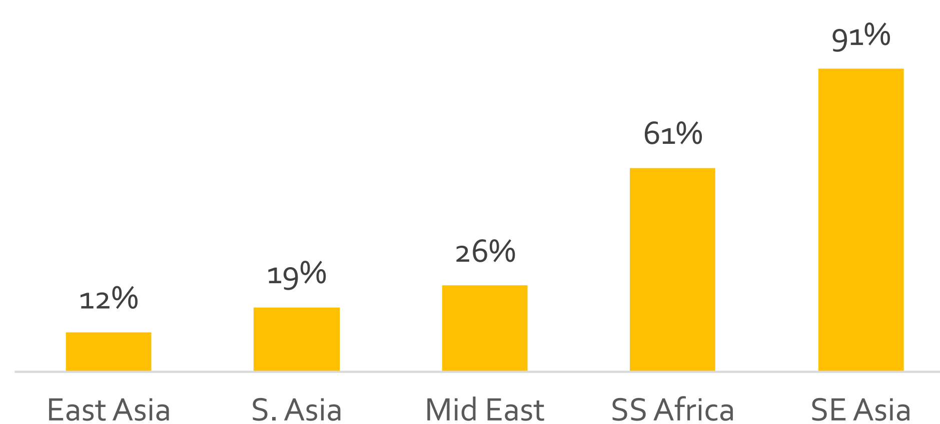
Barley (HS1003)



Oats (HS1004)



Canola/Rape seed (HS1205)

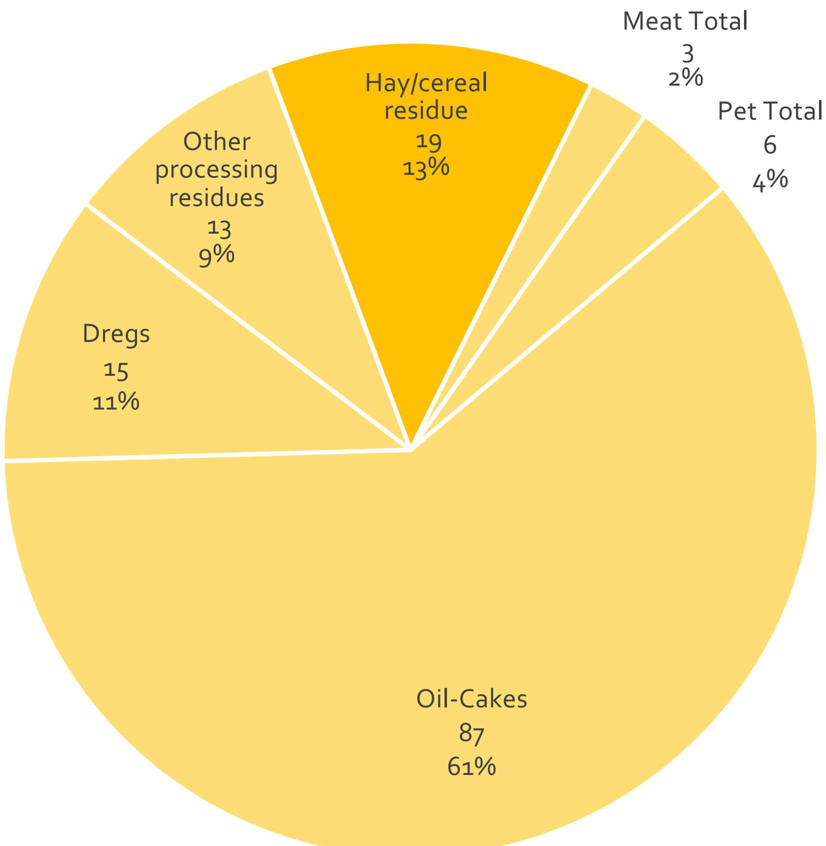


Source: Comtrade; Coriolis analysis

Strong share of canola & feeds in key markets

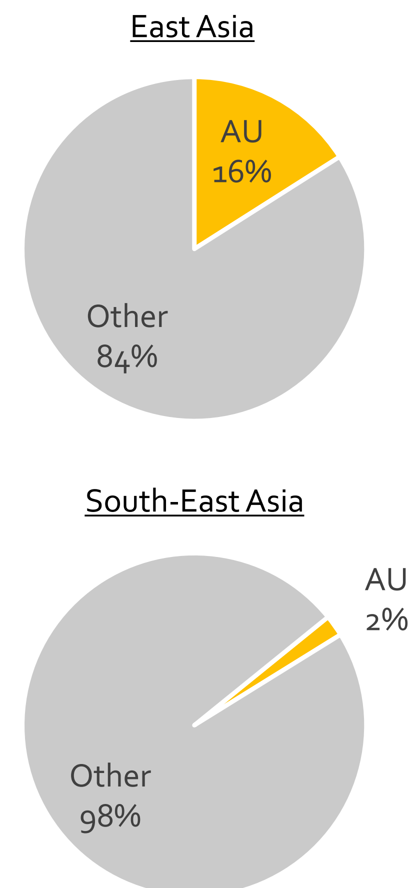
Australia has a strong position in hay and cereal residue animal feeds in East Asia

Global animal feeds trade volume (t; b; 2015)



Total = 143b tonnes

Australian share of hay/cereal residue animal feeds (HS1213/1214)



Source: Comtrade; Coriolis analysis

Macro drivers support growth

Evaluation of the macro drivers supports continued arable crop export value & volume growth from WA

SIGNIFICANT ASSUMPTIONS

- Production Growth 3-6%
  - Area Growth 2-4%
  - Real-World Yield Growth 1-2%
- Export Value Growth 5-7%
  - Export Price Real Growth 1-2%
  - Export Volume Growth 4-6%
- Asian Import Value Growth 8-9%

2. Current Industry Situation

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Situation – key takeaways

Western Australia has real strengths in five key products into East & South East Asia and the Middle East

IDEAL FOR ARABLE

Large area of land well suited to high quality arable crop production

- Size of Western Europe with the population of Jamaica
- Rain-fed areas that do not require irrigation
- Grain produced in one of the cleanest environments making WA a leader in delivering clean, bright, dry and food-safe products

Experienced and efficient arable farmers

- Large farming units by global scale
- Large production per farming unit
- Modern, automated production systems
- Deep pool of experienced farm operators
- No agricultural subsidies

"Efficient supply chains with quality control and assurance systems at all stages

- Wheat Variety Master List
- Barley Australia accreditation process
- Grower stewardship program
- Grain Trade Australia trading standards and Codes of Practice
- Bulk handling companies' quality control programmes"*

Large scale, high throughput collection and storage infrastructure concentrated in a grower-owned cooperative.

Strong presence of all major global agribusiness traders and exporters; recognised as a "must have" part of the global portfolio.

STRONG BIOSECURITY

Western Australia can demonstrate it is free from certain exotic pests and has nil tolerance of live insects in export, enabling strong market access for grains.

CLOSE TO KEY MARKETS

Mid-sized producer but major exporter

- Small local population with flat consumption
- Industry focused on exports for 100+ years

Rapid economic and population growth of parts of Asia - and "Westernisation" of the diet has increased their demand for "Western" grains (e.g. barley). Growing regional production of intensively produced meat, eggs and dairy have also increased demand for all forms of animal feed.

Western Australia is the natural and logical supplier of dry climate grains to the tropical climate countries of South-East Asia and well positioned to supply East Asia and the Middle East.

FOCUSED ON SELECT PRODUCTS

The Western Australian (WA) 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.

WHEAT Western Australia is the second largest wheat producing region in the Southern Hemisphere. Macro drivers for the WA wheat industry present a solid growth environment going forward, with area, yields and production all growing long term. Western Australia exported A$2.4b in wheat (YE Mar-17), representing 45% of total Australian wheat exports; the state has maintained this strong position through time.

BARLEY Western Australia is the largest barley producer in the Southern Hemisphere. Macro drivers for the WA barley industry present a solid growth environment going forward, with with area, yields and production all growing long term. The bulk of barley exports go to China (83%); other significant markets are Japan and the Gulf States.

OATS Western Australia is the second largest oat producer in the Southern Hemisphere and the largest on a per capita basis. Macro drivers for WA oats industry present a solid, though relatively low growth, environment going forward, with flat area, growing yields and growing production.

CANOLA Western Australia is the largest canola producer in the Southern Hemisphere, both in total and per capita. Macro drivers for the WA canola industry support a robust growth environment going forward, with growing area, growing yields and growing production. Western Australia exported A$1.3b worth of canola (YE Mar 17), representing more than two-thirds of the Australian total and showing strong growth. Because of their high quality, canola exports go predominantly to Europe.

ANIMAL FEEDS Western Australia has growing production and exports of hay and prepared animal feeds. The state exported A$220m worth of animal feeds (YE Mar 17), representing 20% of the Australian total, and exports are growing. Western Australian animal feeds exports go predominantly to Japan (40%), South Korea (18%), China (15%) and other Asian countries. A large, but unmeasurable, amount of its grains and oilseeds flow into animal feed.

* AEGIC

Opportunities & challenges

Western Australia is in a strong position overall, and has opportunities going forward, but the region is not without its challenges

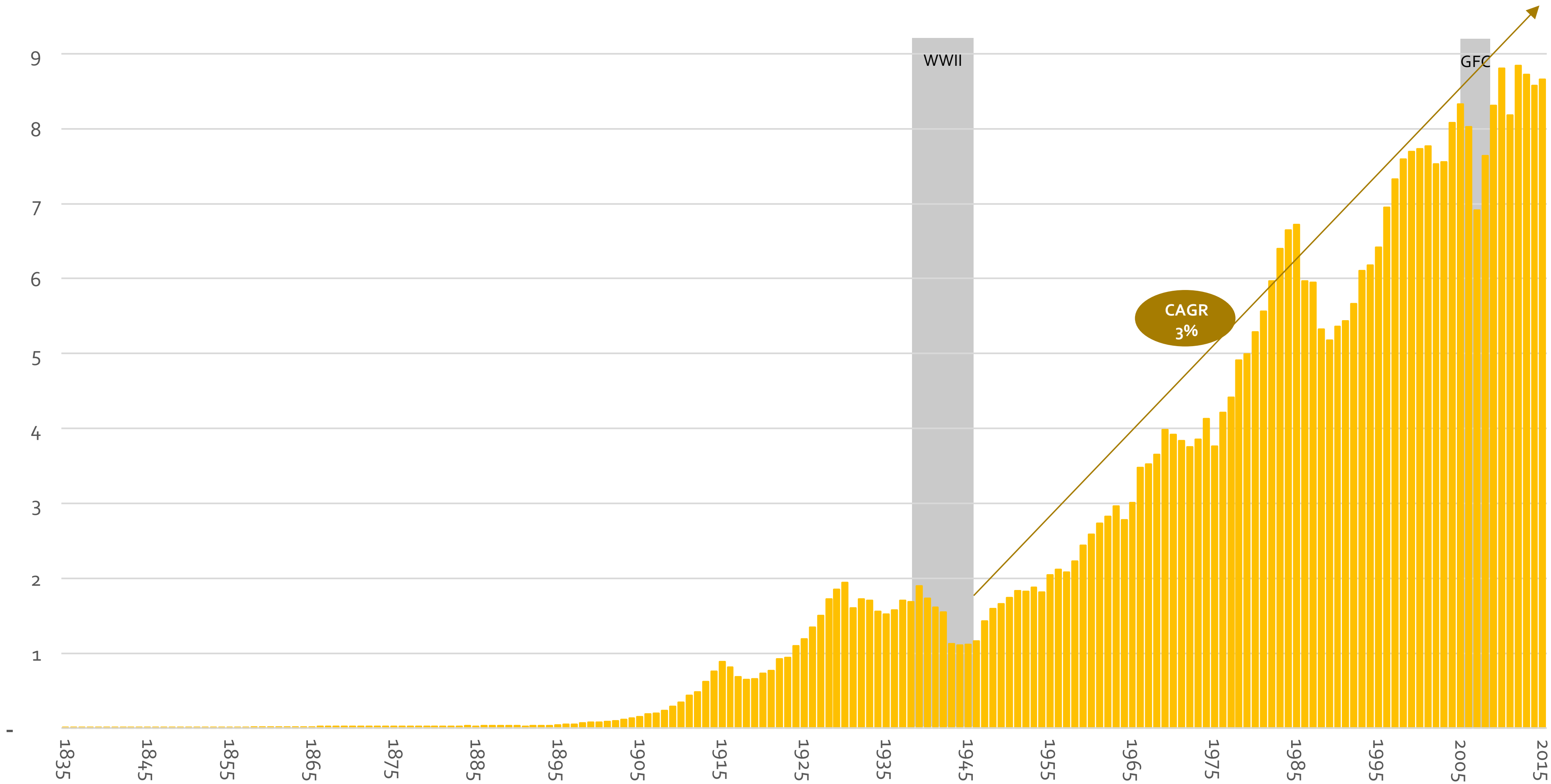
SWOT analysis (Strengths/Weaknesses/Opportunities/Threats)

Strengths	Weaknesses
- Very large land mass with very low population - Isolated Mediterranean climate relatively free of pests & disease - Demonstrated grains pest status, nil tolerance of live insects enables strong market access - Demonstrated success producing clean, bright, dry, food-safe grains - Close to Asia, particularly East & South East Asia (large and growing markets) - 100+ years of history as the leading supplier to many Asian countries - Highly efficient growers with large operations and high volume per operation - Well organised industry with strong cohesion and coordination - Grower pool is dominated by experienced operators - Major exporter of grains, well positioned for growth - Demonstrated ability to deliver on-going real-world yield improvements - Efficient supply chains with quality control and assurance systems at all stages - Demonstrated track record of adoption of new technology - Efficient storage and handling systems - Presence of all major global marketers and traders - Strong voice of rural communities in politics ensuring agenda is heard	- Relatively small grain producer on a global scale - Climatic variability results in fluctuating production - High tariff barriers for processed grain-based products into some markets - Lack of data at key times to assist with decision-making (e.g. agronomic, market, quality) - Oats currently a shallow market unable to cope with swings in production - Low yields relative to global peers (soil, climate, low intensity systems) - Limited container flow and container port access - Rail system unable to handle loads and speeds in key locations causing bottlenecks and reducing efficiency - Science not always aligned with key business drivers and requirements
Opportunities	**Challenges or Threats**
- Emergence of a monied consumer class across key markets - Growing demand for a range of arable crops from Asia - Strong customer relationships and superior service levels - Better management of inter-year production variability risk (also a challenge) - On-going research into health benefits of grains and pulses (opportunities for value add) - Develop IP-controlled varieties using a closed loop model - Development of new varieties focused on differentiated offer to the end user (e.g. beta-glucan oats) - Improving the technical complexity and product quality of WA produced animal feeds - New technology to improve processing plant efficiencies, scale and quality - Improve genetics to minimise impact of weather variability (e.g. frost tolerance) and to improve overall quality and grades of crop (e.g. oats and barley) - Changing market access, new technology and increased scale enabling value added processing	- Increased competition from the Black Sea region (quality and quantity increasing) into traditional markets - Declining cost of global freight (e.g. through larger, more fuel efficient ships) leading to break-down of traditional marketing zones and increased competition from the US, Canada and the EU in key markets - Rising input costs, particularly fuel, fertilisers and labour - State is the size of Western Europe with the population of a small city - Complex, multilayered systems of government with numerous agencies - Need to maintain very high productivity to counteract high Australian costs - Industry is highly cyclical and regularly suffers from all types of shocks - Industry is low-intensity and non-irrigated making it highly weather dependent; apparent increasing seasonal variability - Long term climate change, including the potential to move grain production areas - Changing market access rules and barriers, particularly by Indonesia and China

Achieving long-term area growth

The total area in arable crops has showed gradual, long term growth, with a 70 year CAGR of 3%

WA land use in crops and horticulture (ha; m; 1835-2015)

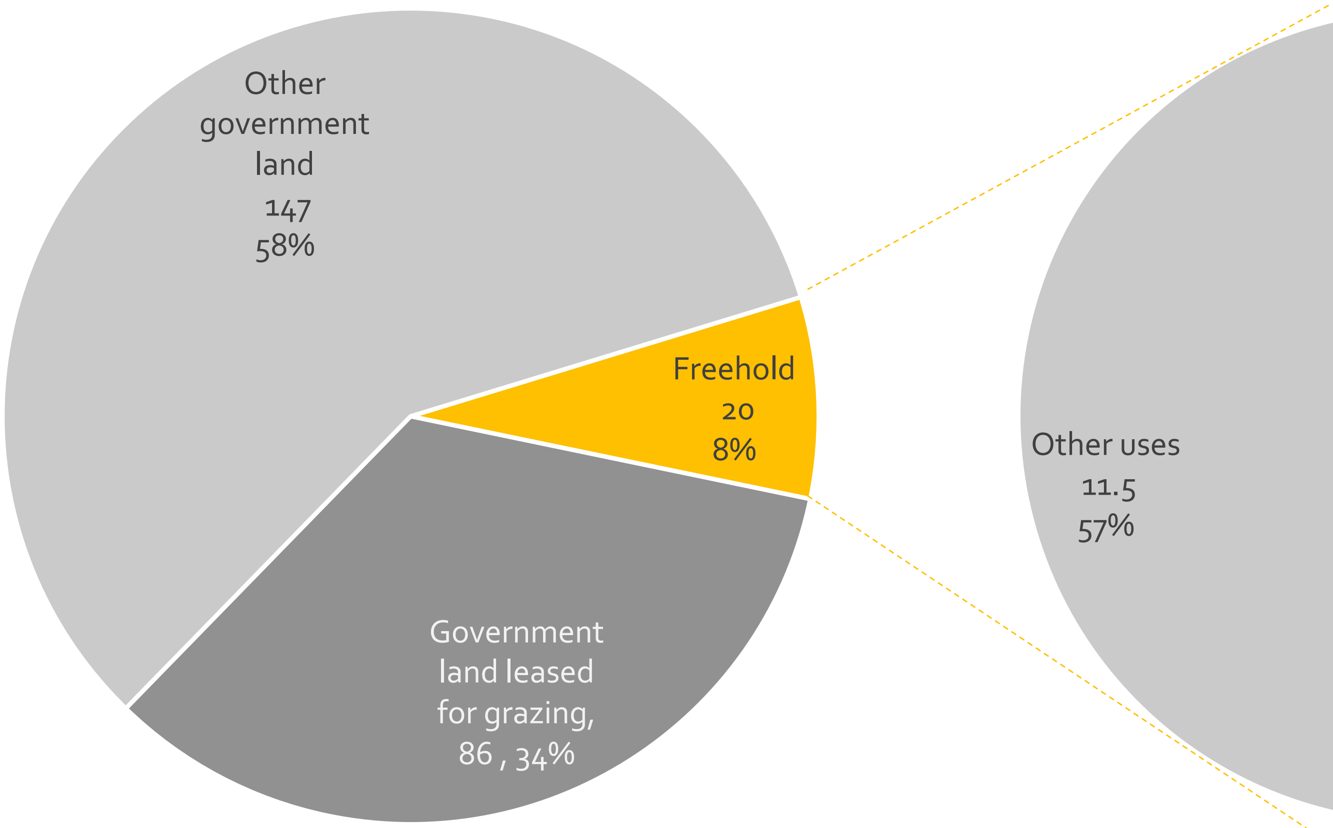


Source: various ABS publications and reports; Coriolis analysis

Arable currently uses 3.4% of total land

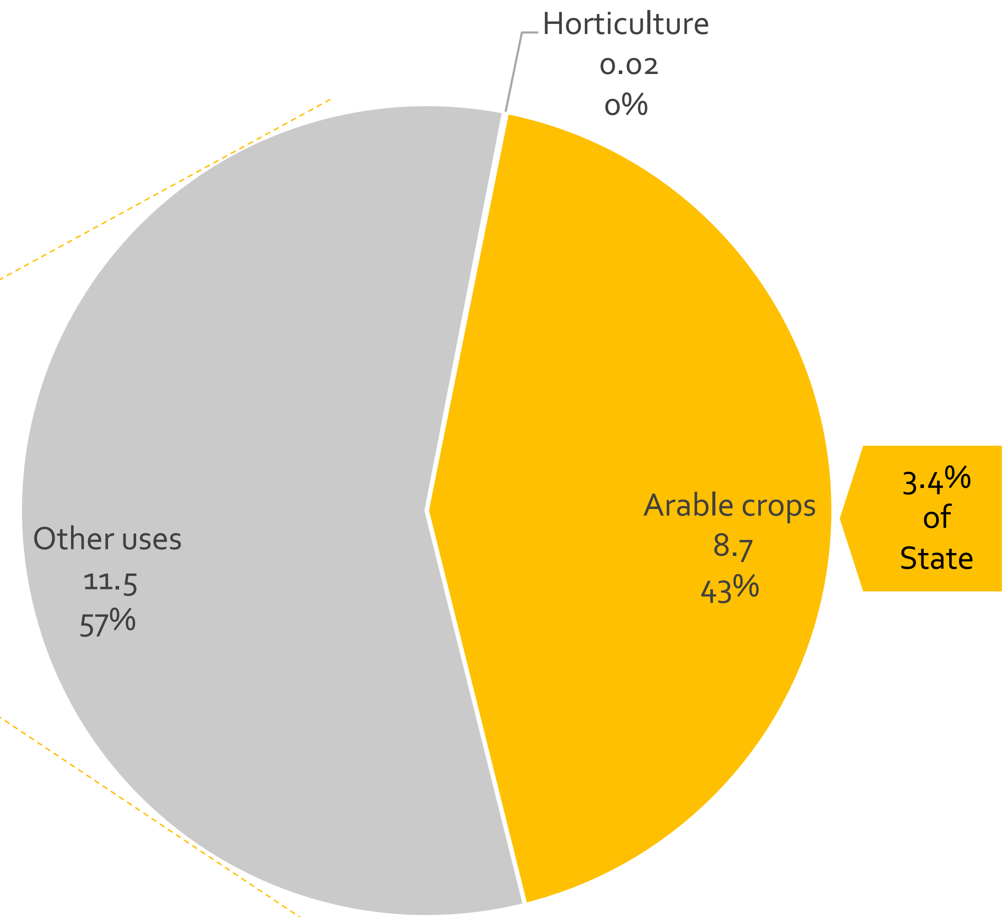
Arable crops are farmed on about 3.4% of Western Australia's land area, representing about 43% of private freehold land

Western Australian land ownership (ha; m; 2015)



TOTAL = 252.8m hectares

Use of Western Australian freehold land (ha; m; 2015)



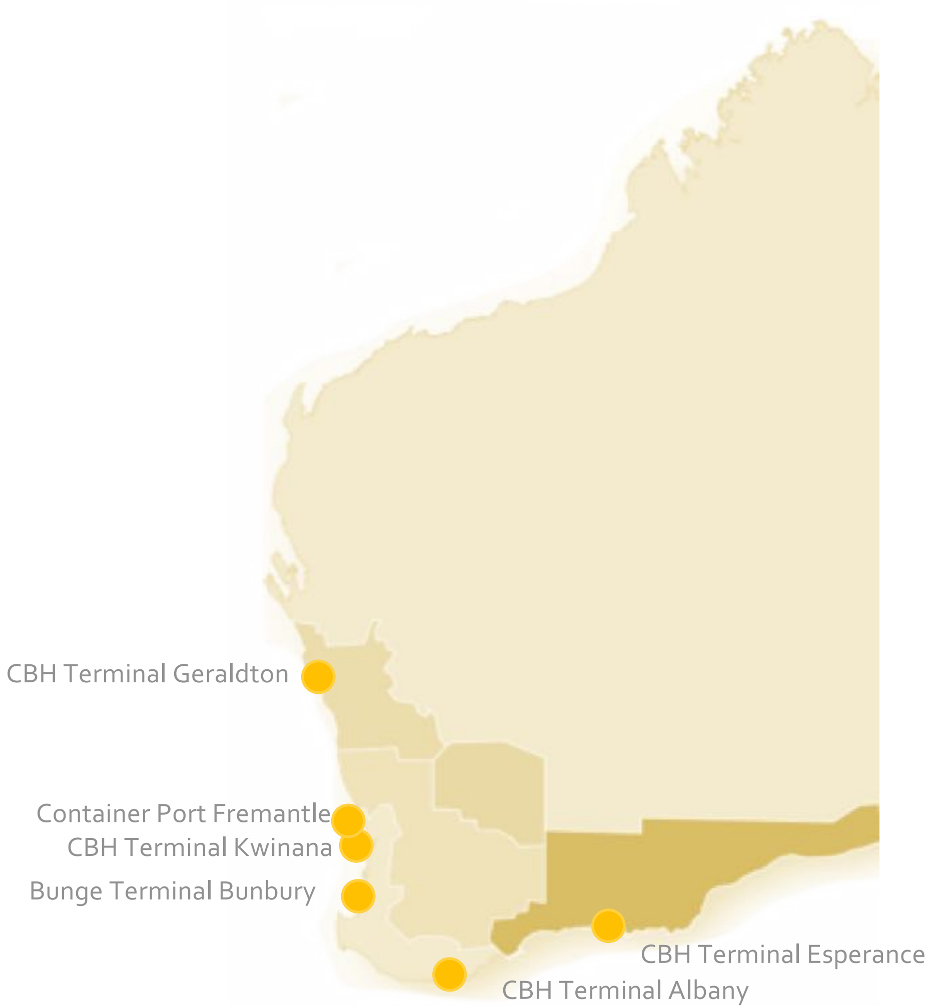
TOTAL = 20.2m hectares

Source: Department of Lands; ABS (7121.0; 4627.0); Coriolis analysis

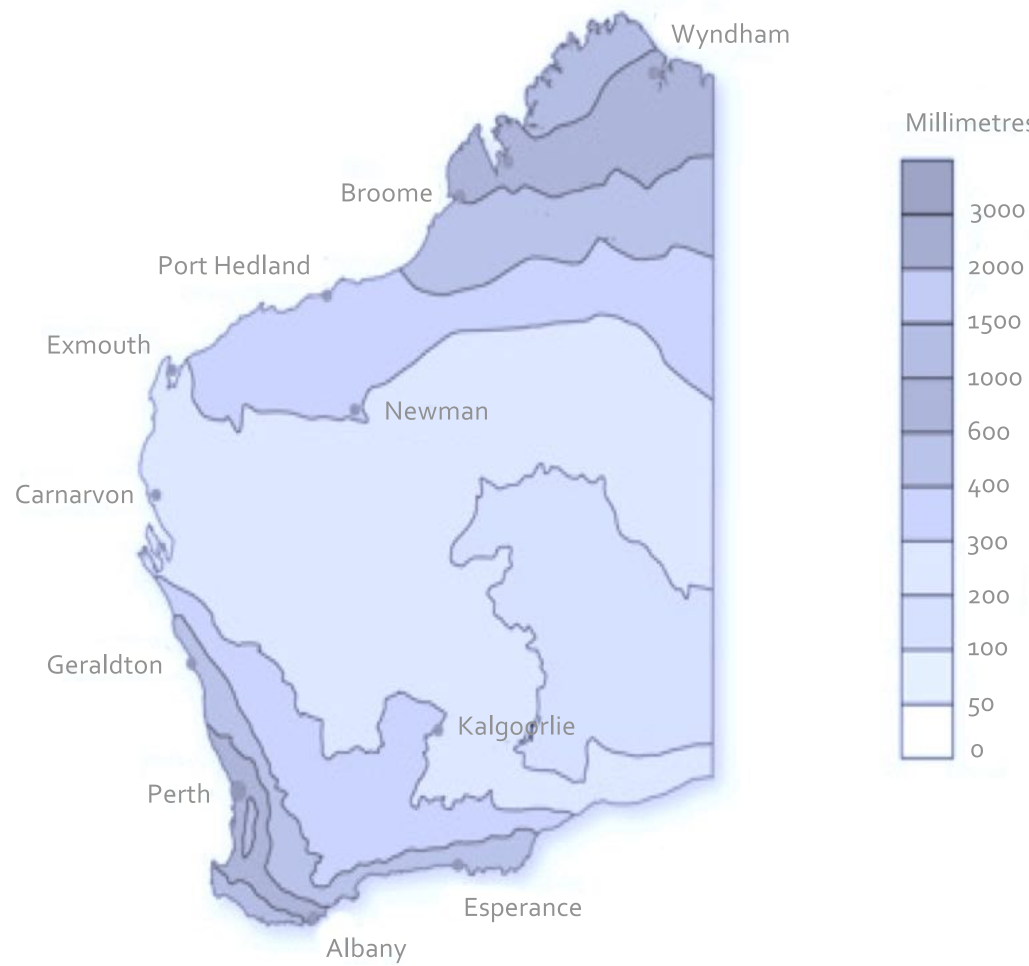
Arable zones reflect rainfall and land ownership

Arable crops are grown in the higher rainfall South West of the State which was settled before the government ended land sales

Agronomic zones of Western Region



Average annual rainfall (2015)

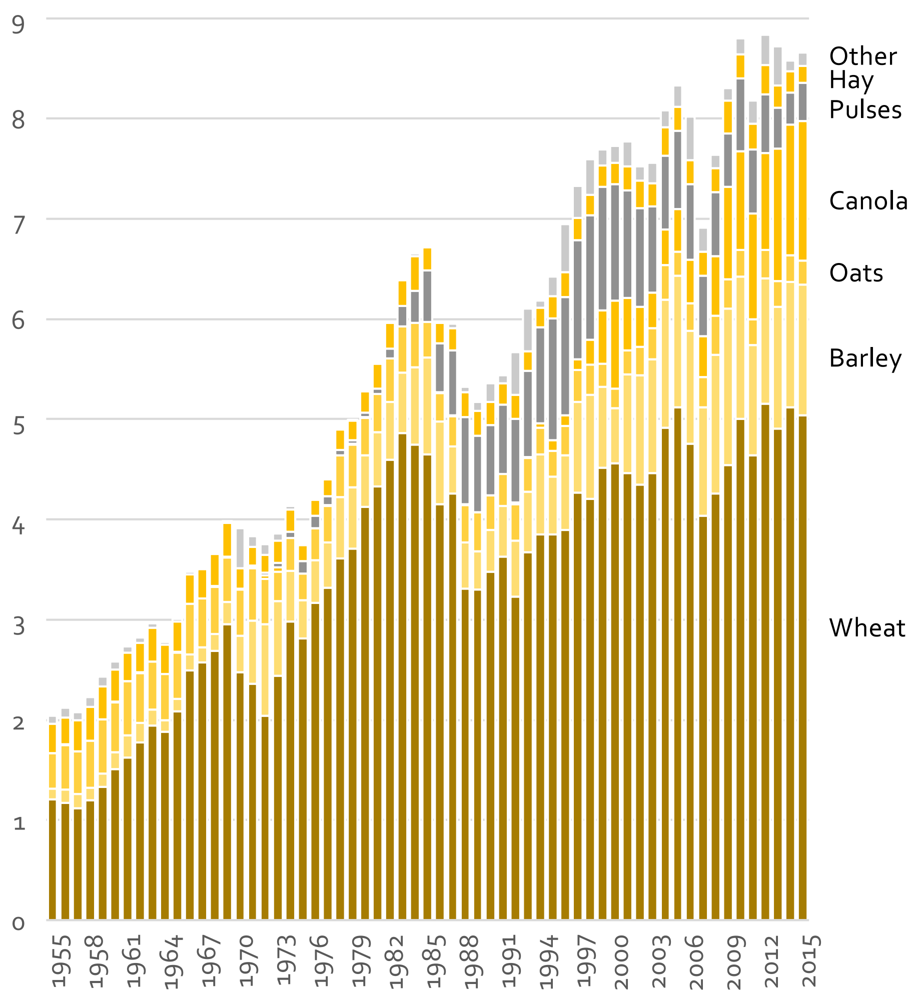


Source: modified from AEGIC; Bureau of Meteorology; DAFWA; Coriolis analysis

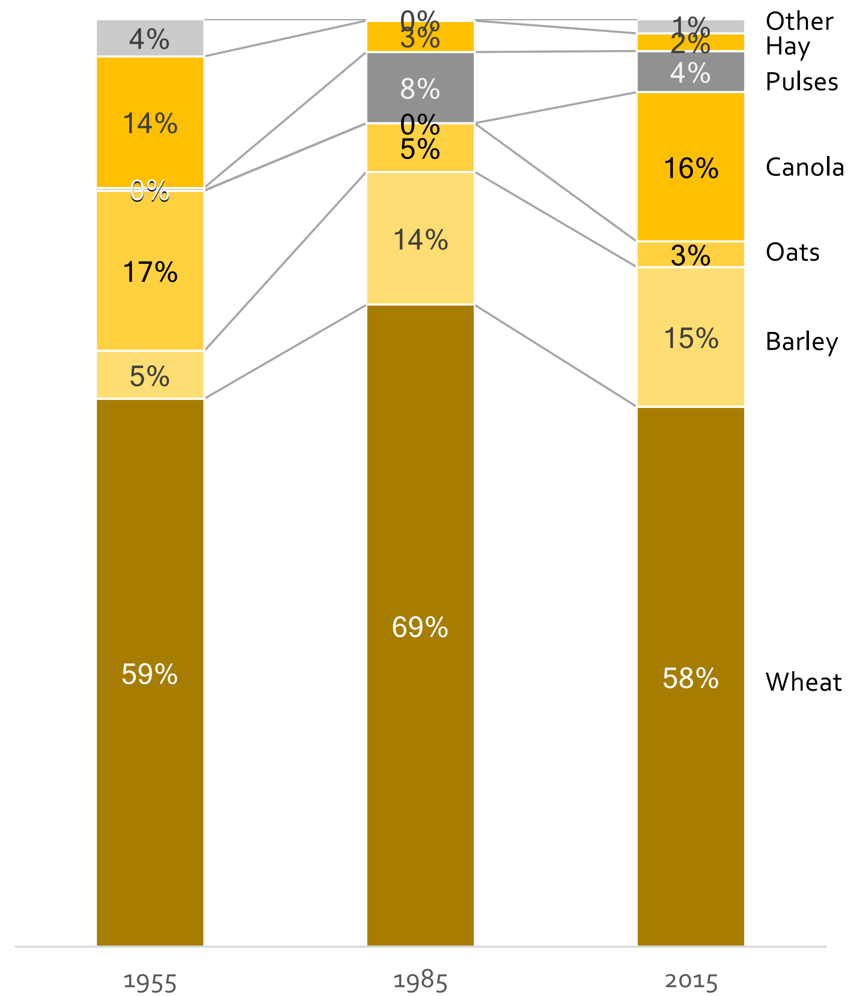
Area growing for most crops

Wheat and most other major crops have increasing area; canola and barley rising share of area

WA arable crops & fodder area (ha; m; 1955-2015)



% of area by crop (1955-2015)

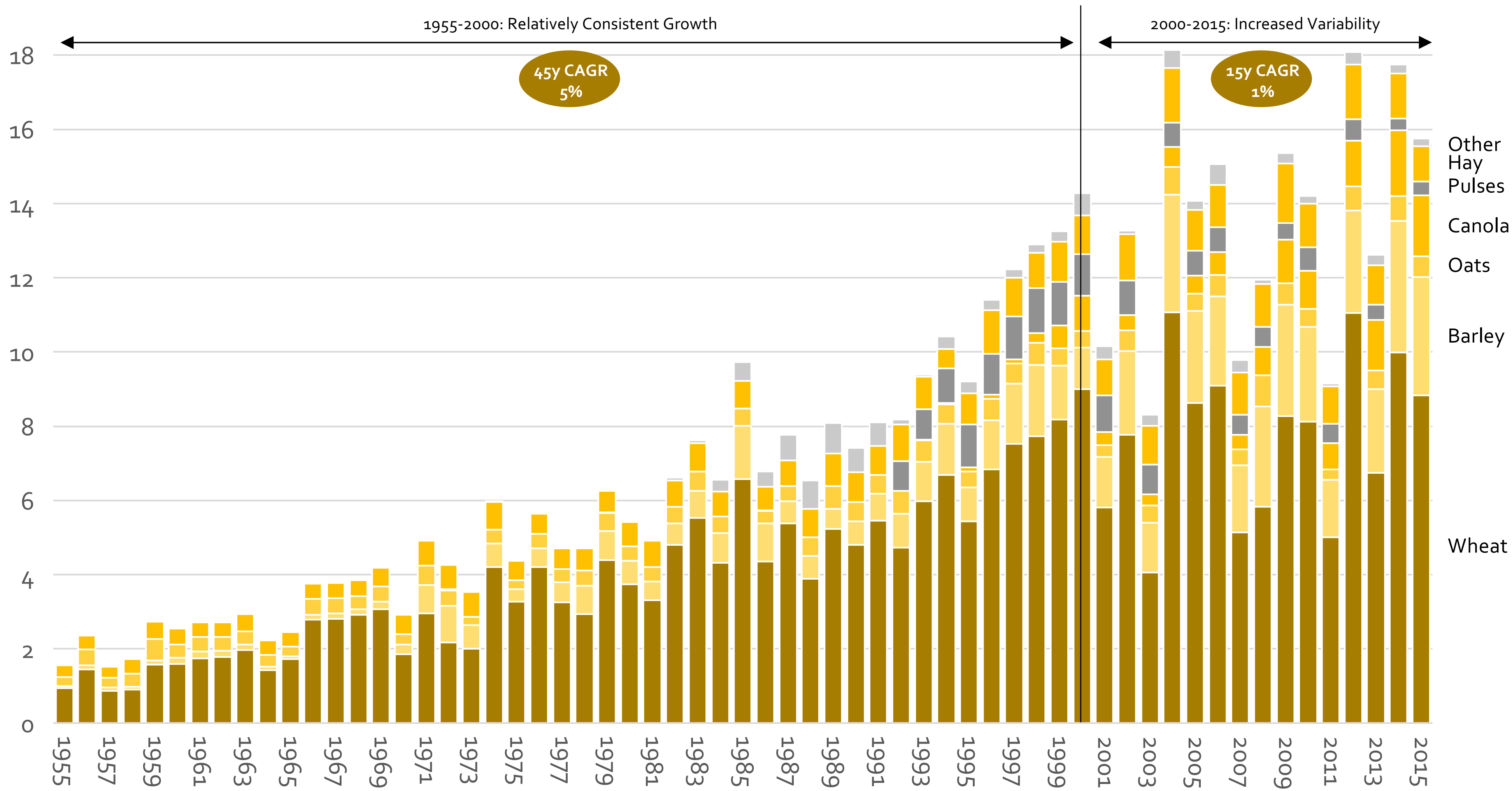


Source: various ABS publications and reports; Coriolis analysis

Growing arable crop production

WA arable crop production is growing long term, driven by increased area and yields; however, since 2000 total arable crop production has become more variable

Arable crop production (t; m; 1955-2015)



Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis estimates and analysis

Quality products

Western Australia has a reputation as a quality supplier

- "Western Australia grain has a good reputation as a reliable supplier, with **good product** performance and a stable supply." General Manager, grain exporter, medium

- "Western Australia is a **reliable** supplier when compared to the rest of Australia. We produce a more consistent volume from year to year and focus more on exports." Executive, industry body

- "Quality is difficult to quantify (it depends on the end use), but WA has **premium products**, with good colour. We have to maintain that quality." Manager, grain trader, large

- "Each year we are buying more Western Australia grains… We like the **quality**." Director, grain marketer, large

- "The industry in SE Asia has developed around the Australian supply and WA wheat in particular in many cases. It is difficult for many companies to change to other grains as the quality isn't there. They will mix in other grains, but WA grain is the **quality** grain." General Manager, grain exporter, medium

- "Western Australia has good **reputation**. What we say we are selling is what you get. There is integrity of product." Executive, industry body

- "The EU will pay for **quality** oil products. Farmers are paid a premium for quality. If the base price is $550/tonne they are paid 1% of the base price for every 1% of oil over 42% oil. This adds up to a good bonus. The industry would have seen a real rise in value back to the farm due to this payment." General Manager, grain exporter, medium

- "The shining light is canola. The yield and **quality** improvements have been impressive. We have really been able to capture the EU oil content demands for quality." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Efficient growers

Western Australian grain growers are efficient

- "I think we have the world's most **efficient** growers given the conditions." Crop scientist

- "WA's competitive advantage comes from being **efficient** across the board, which they have to be due to our unproductive soils." Agriculture consultant

- "We really like dealing with Western Australia." Director, grain marketer, large

- "Our growers are **efficient** and better innovators. For instance: we use low inputs, we are large scale, we have efficient use of moisture, and we display tactical decision making." Professor, research institution

- "The grains industry is **competitive** because it grew up without any support, and without expecting it. The cold, hard winds of competition." Industry expert

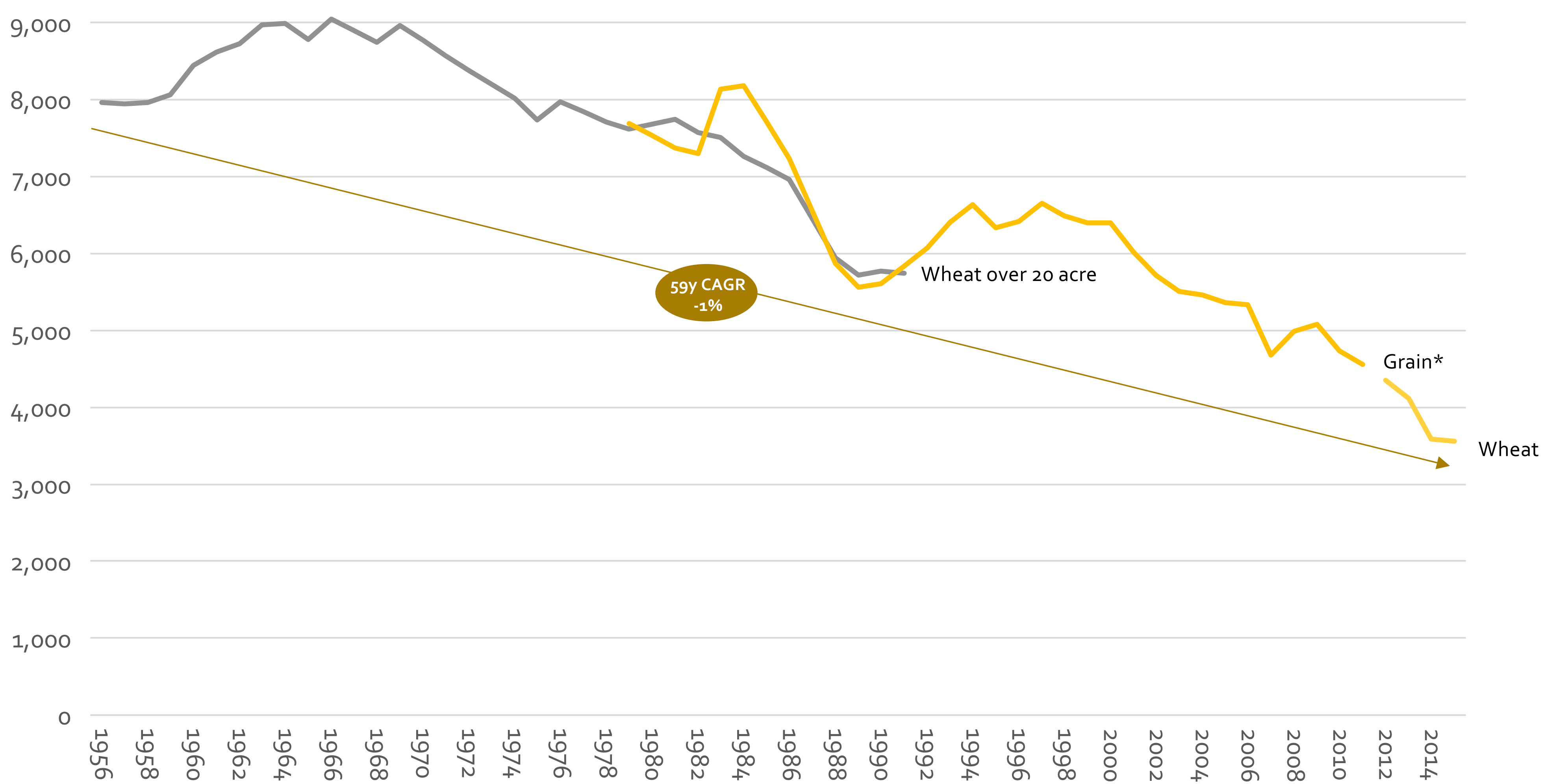
- "The on-farm technology is impressive, it's really moved in leaps and bounds over the years. This keeps the farms **efficient**." Industry advisor

Source: Coriolis interviews and analysis

Fewer producers

The number of producers is decreasing as the industry transitions from a larger number of smaller farmers to a smaller number of larger farmers

Number of wheat growers in Western Australia (agricultural operations or units; actual; 1956-2015)

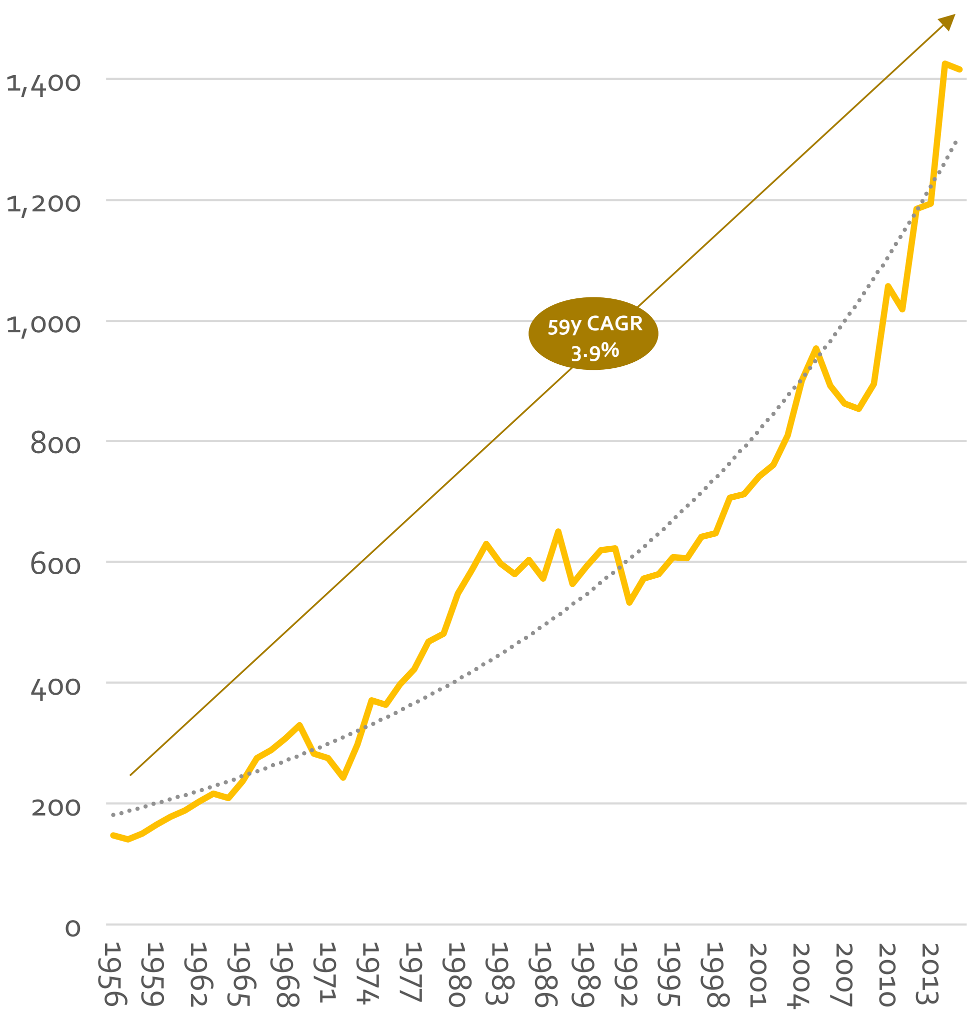


* sum of those classified as "grain growers" and "sheep-grain" and "beef-grain"; Source: ABS (various)

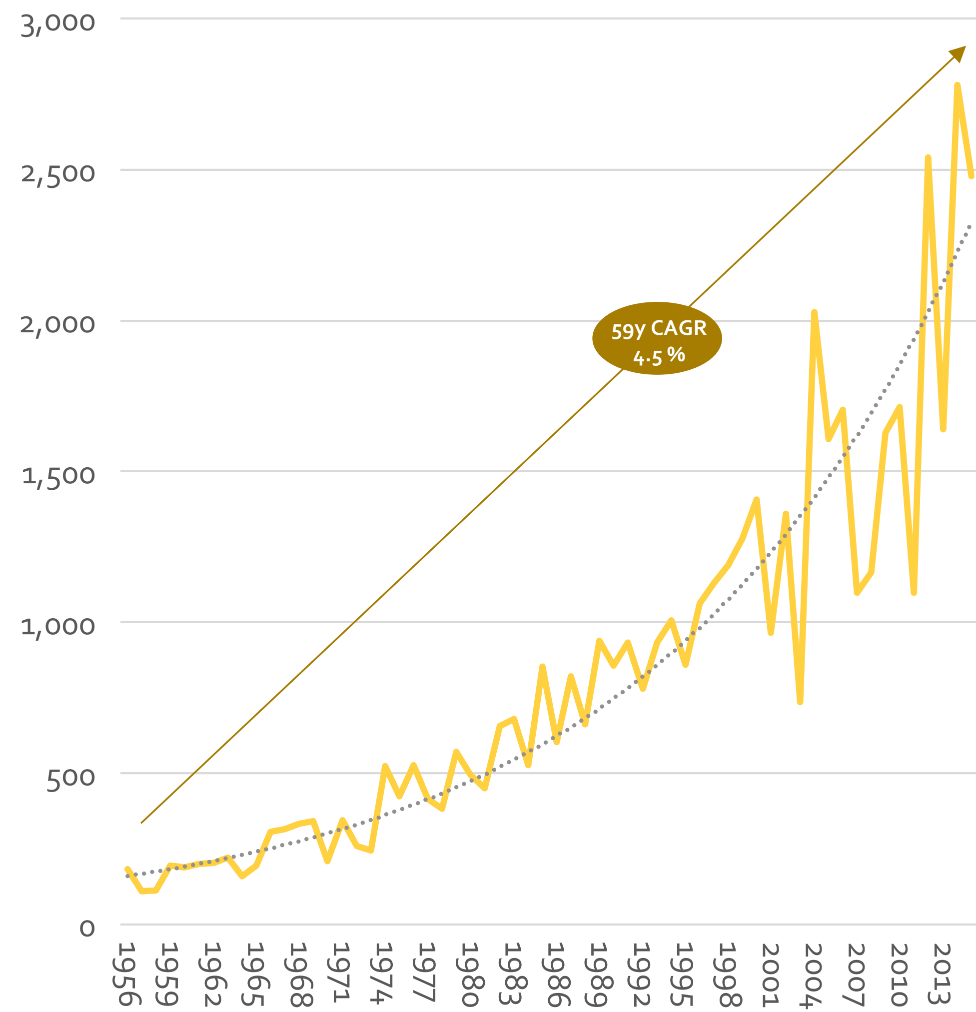
Greater productivity

Both average size of production unit and output per unit are increasing as the industry seeks greater productivity and more efficiencies (lower overheads/fixed costs per unit)

Average hectares of wheat per grower (1956-2015)



Average tonnes of wheat produced per grower (1956-2015)

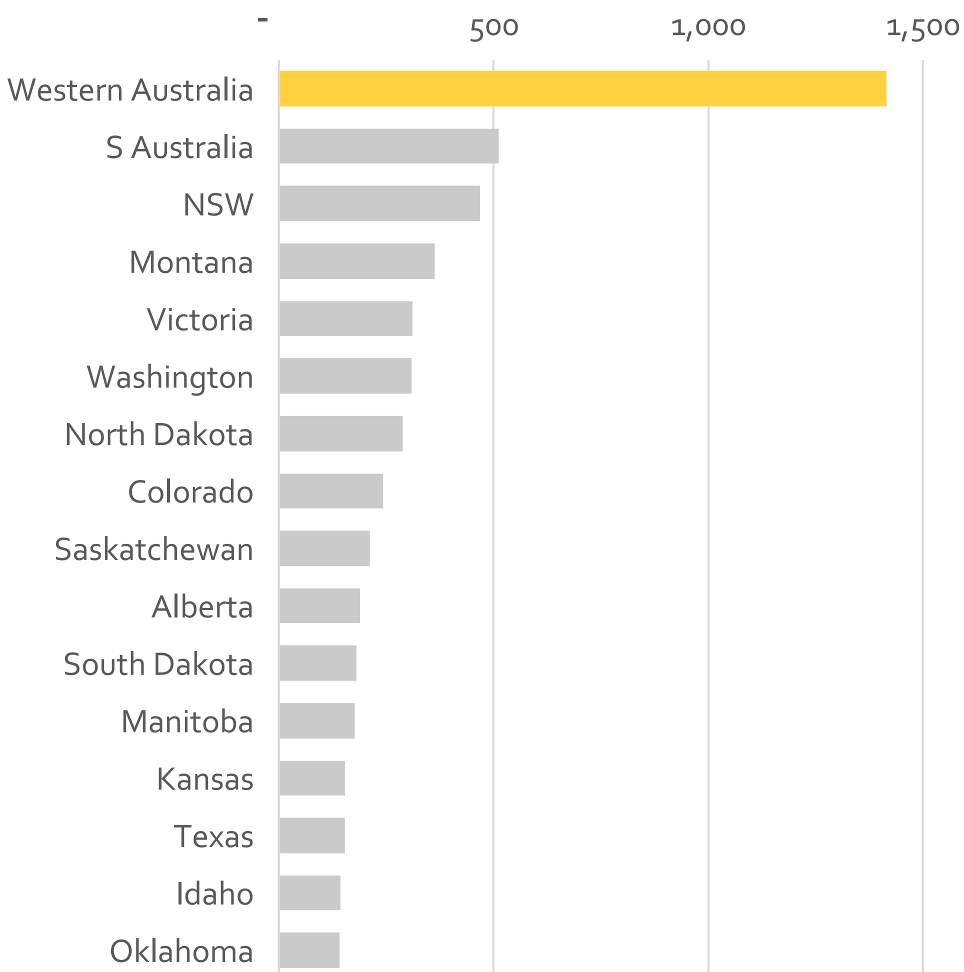


Note: caution should be used due to differing data sets and definitions; treat as directional; Source: ABS (various); Coriolis analysis

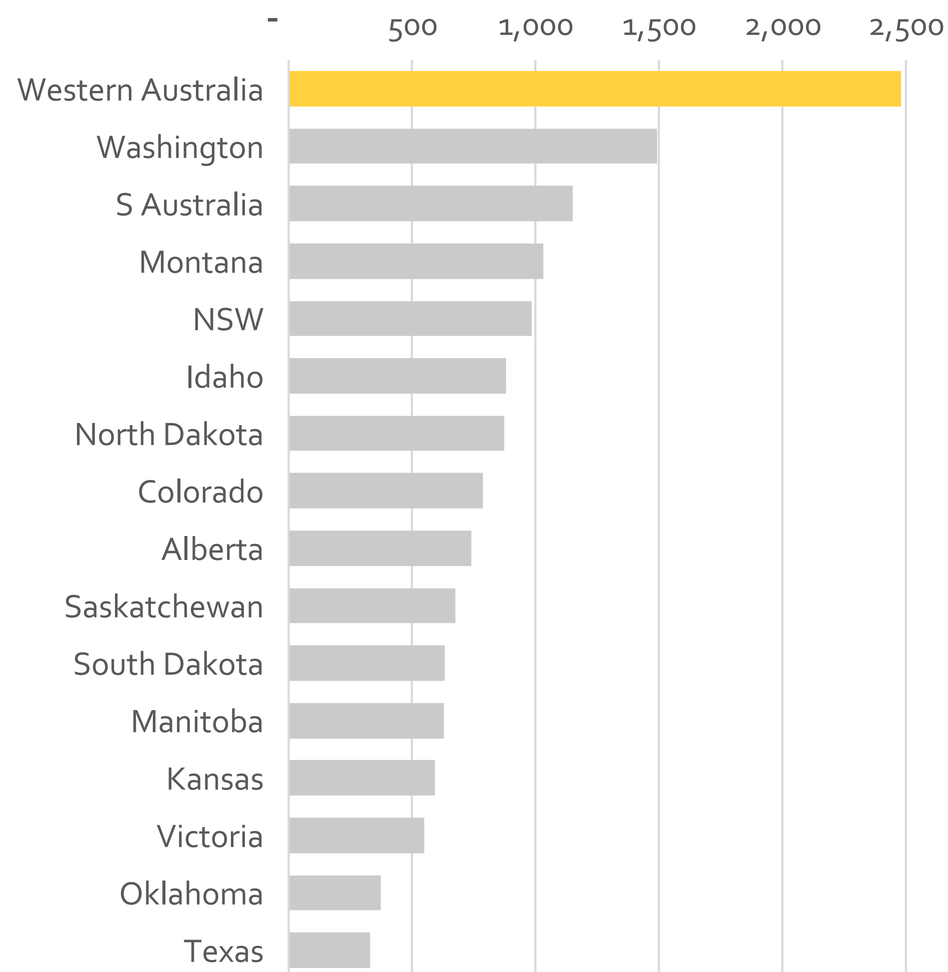
Larger farms than competitors

Western Australia has larger production units and produce more per unit than global competitors

Average hectares of wheat per grower (2015*)



Average tonnes of wheat produced per grower (2015*)

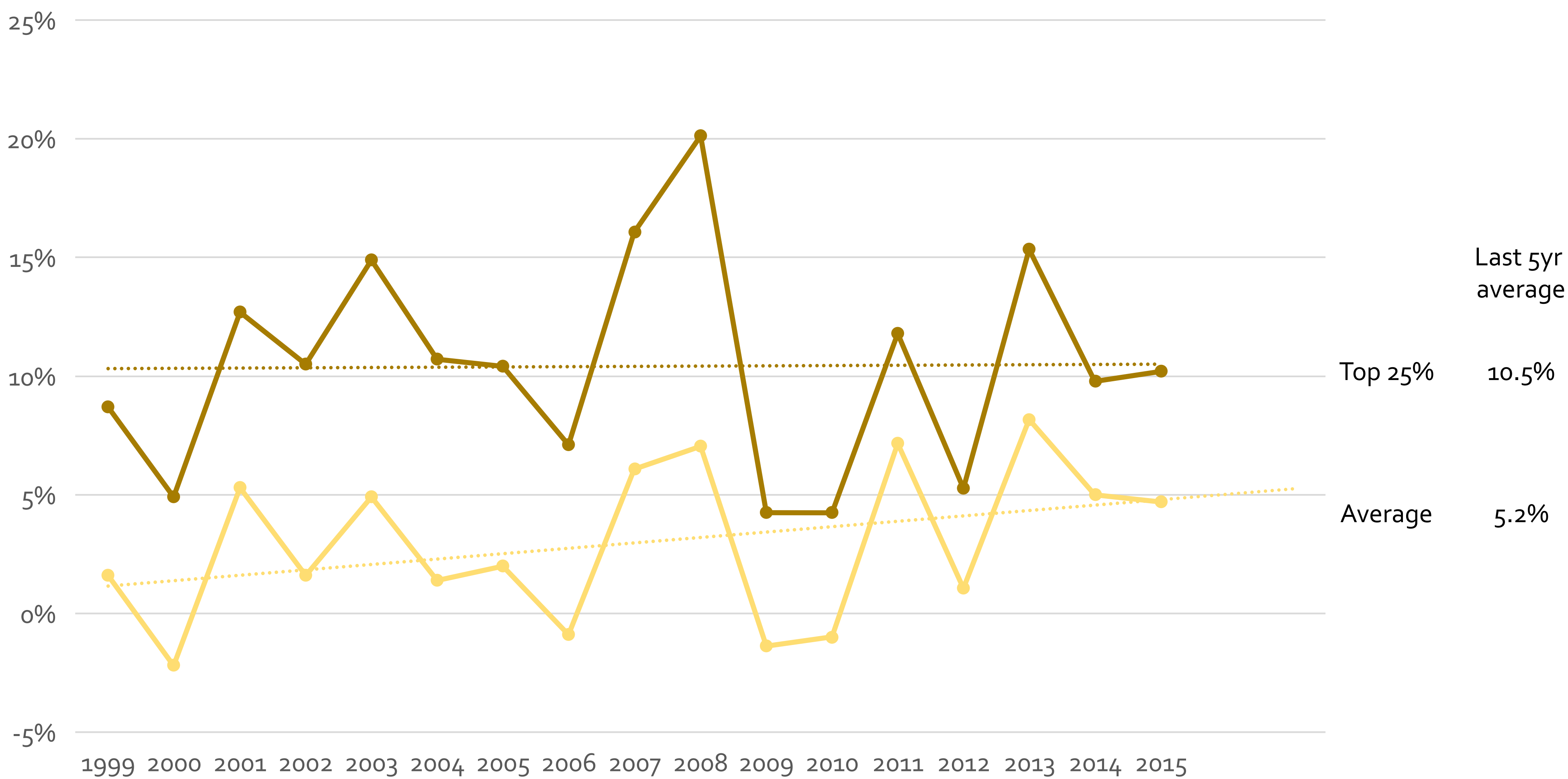


* or most recent available; Note: caution should be used due to differing data sets and definitions; treat as directional; Source: ABS; Statistics Canada; USDA; Coriolis analysis

Return on Capital

The top 25% of Western Australian broad acre businesses are showing annual variability but a steady return on capital trend line; the average performance is increasing over time

Western Australian total broad acre farm businesses returns on capital (%; 1999-2015)

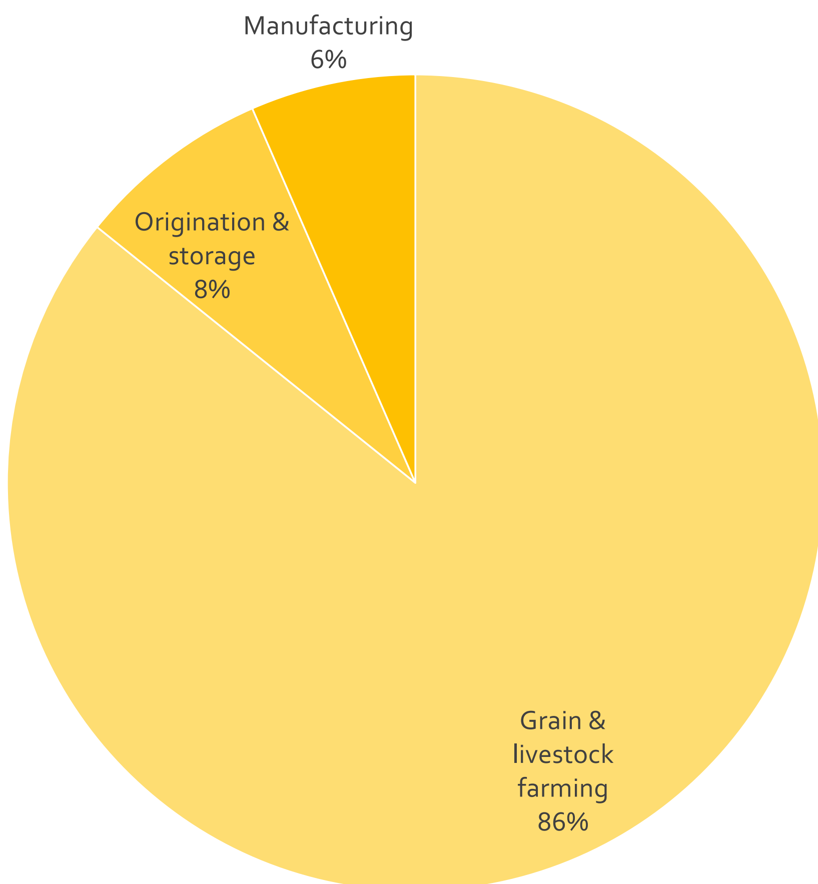


Source: Planfarm Bankwest Benchmarks; Coriolis analysis

Declining employment across total industry

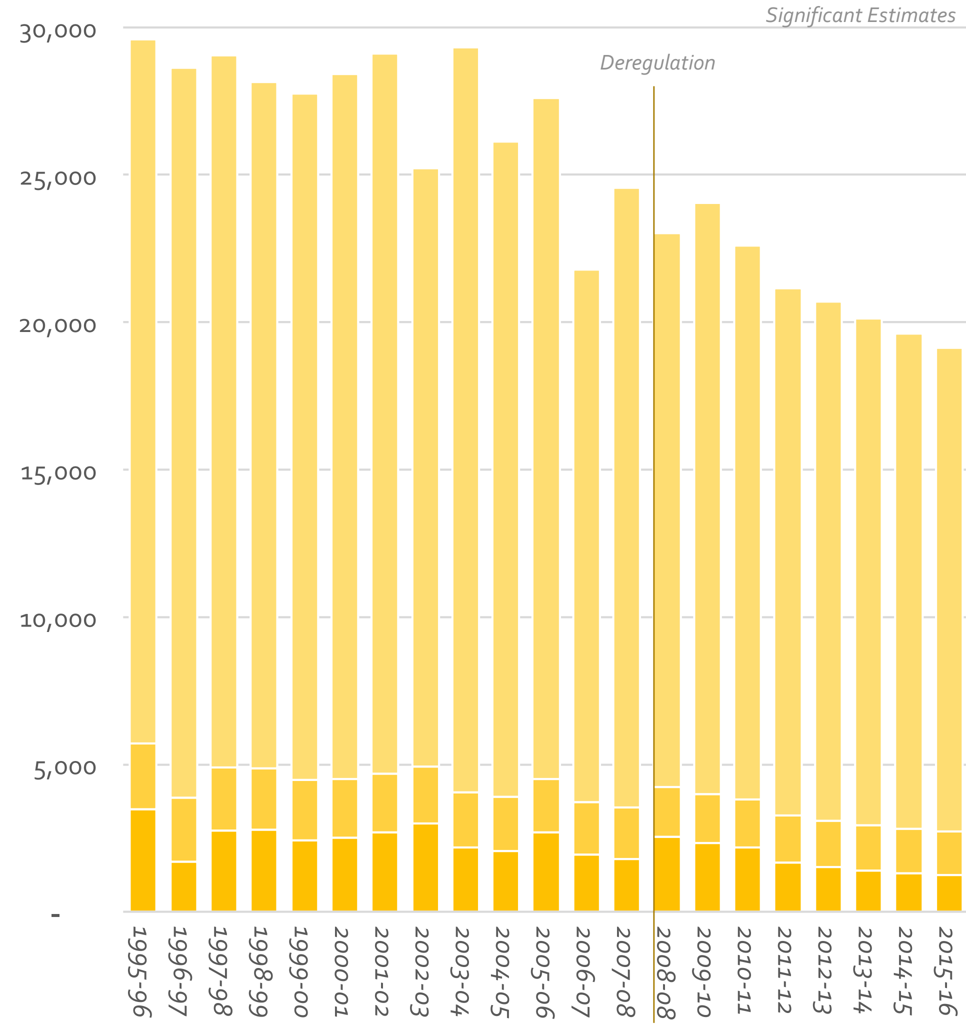
Employment in the total grain industry is declining driven by ongoing productivity gains

Western Australian grain industry employment (#; 2016)



TOTAL = 19,100

Western Australian grain industry employment (#; 96-16)

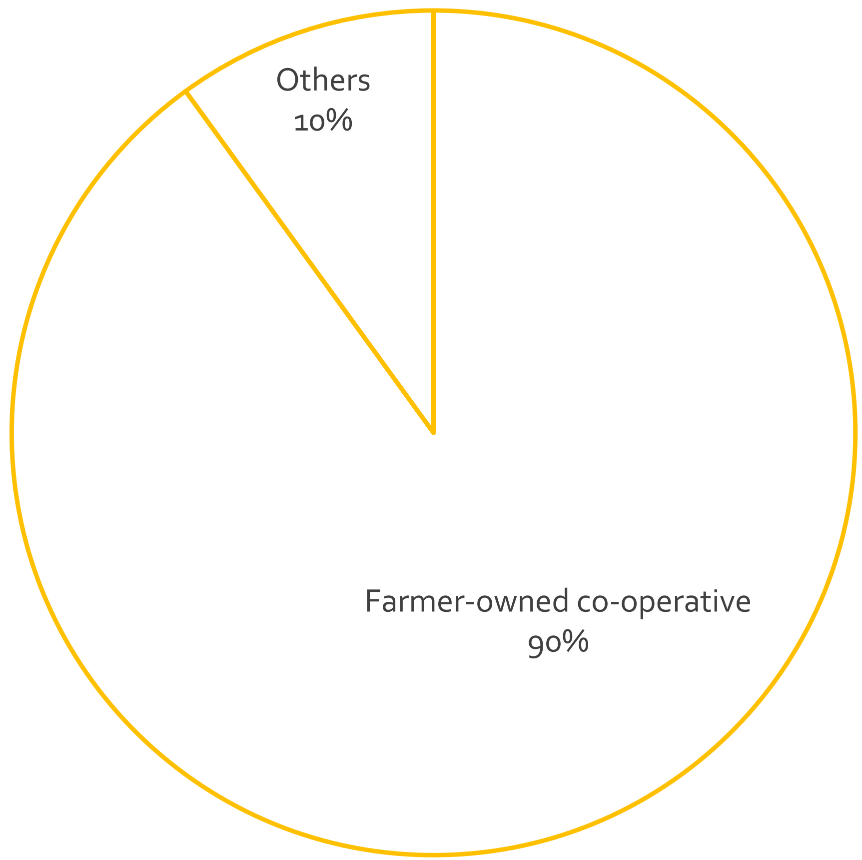


Note: grain farming includes beef/sheep livestock inseparable at source; significant extrapolation of missing data; treat as directional; Source: DAFF; ABS; various company reports and websites; Coriolis estimates

Bulk handling primarily through farmer cooperative

The collection, distribution and storage of arable crops is primarily conducted by Western Australia's farmer-owned cooperative

Western Australian arable crop collection and storage volume share (2016)



Source: company annual reports; Coriolis analysis

Recognised as efficient

Western Australian grain collection and storage is recognised as efficient by industry participants

- "The Western Australian grain industry has a really efficient network." Director, grain marketer, large
- "CBH has a great system. It's a great business. We would like to do more business with them." Director, grain marketer, large
- "Western Australia is fortunate that the co-op has done a good job. It is pretty efficient. There is always going to be debate around the full success or otherwise of their role, but generally they do a good job." Director, grain marketer, large
- "We love CBH and their system." Director, grain marketer, large
- "CBH do a great job for their members." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Opportunities for improvement exist

However, there are opportunities for improvement and more competition in collection and storage

- "CBH are over-capitalised. The CBH network is gold-plated and that makes for a few inefficiencies." Director, grain marketer, large
- "You have to keep assessing the system and thinking hard about efficiencies. Its more difficult when you are a Co-op [CBH]. They have assessed their receivals infrastructure, but they need to keep going." General Manager, grain exporter, medium
- "It's clear that more efficiencies are available in storage and handling – Canada has done it." Agriculture consultant

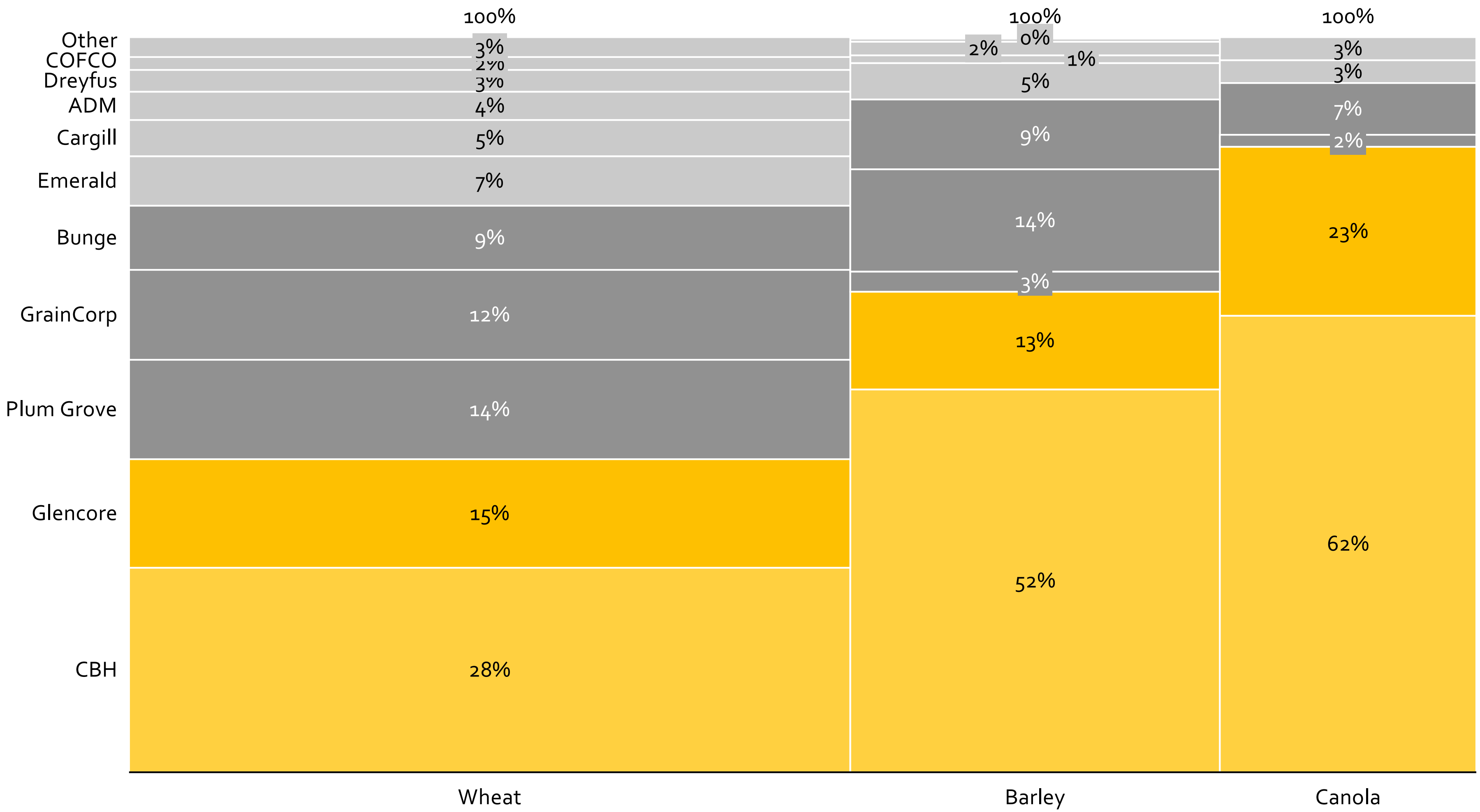
- "Some people would debate that its hard to compete with them [CBH]. But competition will make them stronger." General Manager, grain exporter, medium
- "As global markets get more competitive, CBH will have to focus on getting their core sites really efficient and pumping, while letting the marginal ones go." Director, grain marketer, large
- "The farmer wants competition, it keeps everyone more efficient. Competition is good. Business models always evolve, its how improvements are made." Industry expert

Source: Coriolis interviews and analysis

Wide range of exporters

Bulk export volumes are spread across a range of exporters, particularly in wheat

Share of Western Australian bulk export by select crop by exporter (% of volume; YTD May 2017)



Note: width is proportional to tonnage; Source: reporting by various Australian ports; ABS; Australian Crop Forecasters; interviews; Coriolis analysis

All key grain traders are here

All of the major global agrifood traders are present in Western Australia

	DESCRIPTION	PRODUCTS	OPERATIONS	REVENUE	OWNERSHIP	WA OPERATIONS
ADM	Premier global agribusiness, leading food ingredient provider	Oils and meal, corn germ, corn gluten, feed pellets, syrup, starch, glucose, dextrose, crystalline dextrose, high fructose corn syrup sweeteners, cocoa liquor, cocoa powder, cocoa butter, chocolate, ethanol, wheat flour	250 ingredient plants and 500 crop procurement facilities worldwide; 32,300 employees	US$62.3b [FY16]	Public: USA	Trades in WA
BUNGE	Leading global agribusiness and food company	Commodities (grains, oilseeds, sugar), protein meal, oil, ethanol, wheat, corn and rice milled food ingredients	Operates ~400 facilitates in over 40 countries with ~35,000 employees	US$42.7b [FY16]	Public: USA	Terminal at Bunbury port – capacity 100,000t 2 recieval points; Kukerin and Arthur River – capacity 280,000t
Cargill	Responsible for 25% of all USA grain exports	Commodities (cotton, grain, oilseeds, sugar, palm), food ingredients and applications (cocoa, corn, oils, malt, starches, sweeteners, etc.), meat, poultry and eggs, farmer services, animal feed, energy and industrial, financial	Operations in 67 countries; 153,000 employees	US$120.4b [FY15]	Private: USA	Recently sold share in Allied Mills – flour mill in North Fremantle
GLENCORE	One of the world's largest commodity producers, processors and traders	Commodities (grain, oilseeds, sugar, cotton), metals and minerals mining and trading, crude oil, coal, steel	200 storages facilitates, 23 ports and 31 processing facilities globally for grain; trades in over 90 commodities; 181,000 employees	US$221.1b [FY14]	Public: UK/Swiss	Trades in WA
GrainCorp	Australia's largest agribusiness	Grain storage, handling, processing and logistic services; malting operations, flour milling, edible oils, liquid feeds, canola meal	Operates 180 grain storage sites throughout AU ; 1,400 employees	A$4.1b [FY15]	Public: AU	Barnett Burston Malting facility – 50,000t annual capacity Oilseed crushing – 60,000t capacity Liquid terminal at Fremantle port Recently sold share in Allied Mills – flour mill in North Fremantle
LDC. Louis Dreyfus Company	Leading merchant and processor of agricultural goods	Coffee, cotton, dairy, fertilizers, finance, freight, juice, metals, oilseeds, rice, sugar	Operates in over 100 countries; 22,000 employees	US$64.7b [FY14]	Private: Netherlands	Trades in WA
Sumitomo Corporation	One of the largest worldwide Sogo Shosha general trading companies	Metal products, transport, construction, environmental and industrial infrastructure, media, ICT, retail, food, real estate, mineral resources, energy, chemicals, life sciences, electronics	70,000 people at 140 offices in 66 countries	¥3,997b [FY17]	Public: Japan	Emerald Grain subsidiary trading in WA

Source: various published articles; company annual reports; Coriolis analysis

Leaders need a position in Western Australia

Global traders need a position in Western Australia to help manage risk and secure supply

- "You need to spread your risk. Western Australia is an important part in that." General Manager, grain exporter, medium

- "We are actively seeking to diversify our footprint and looking at new places to originate our grain. That's why we are in Western Australia." Director, grain marketer, large

- "We have a global presence, so we source what our customers want… Western Australia is an important part of our company. You can't get all your grain from one place. Western Australia is competitive with noodle wheat, while USA makes good wheat for soft bread." Regional Director, multinational agribusiness, large

- "It is important to spread risk from a climatic perspective and to service clients from multiple locations. Fluctuations due to climatic conditions are difficult to manage, therefore a mill on the East and West coast of Australia spreads the risk." Managing Director, grain processor, medium

- "Not only do you see investors looking to invest in Western Australia and across East, but companies want a global footprint." General Manager, grain exporter, medium

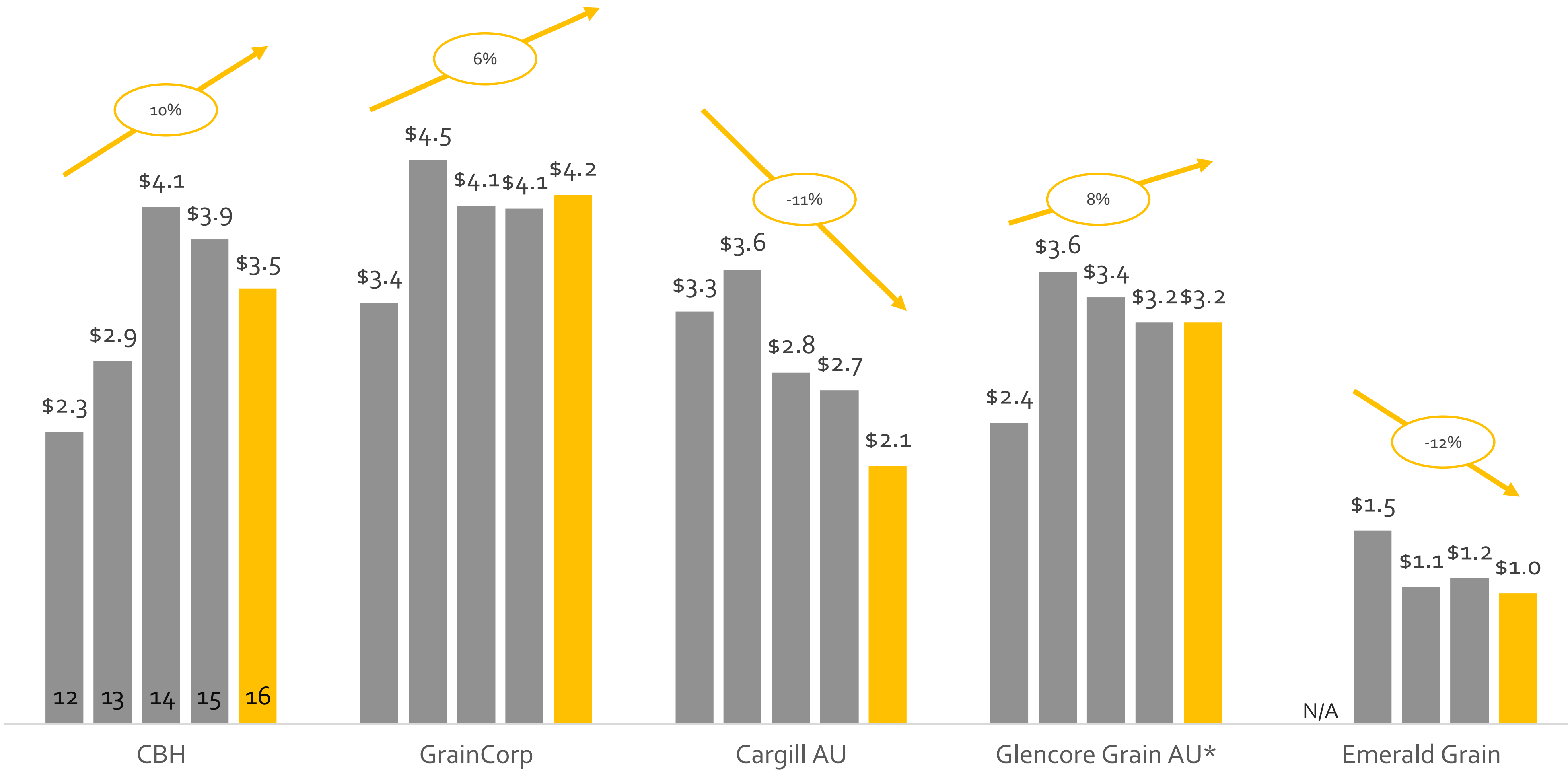
Source: Coriolis interviews and analysis

Mixed revenue growth

Revenue growth of major Australian grain operators is mixed

Five year revenue: select firms with significant WA grain activities (A$; m; 2012-2016)

Note: total Australian operations not just WA



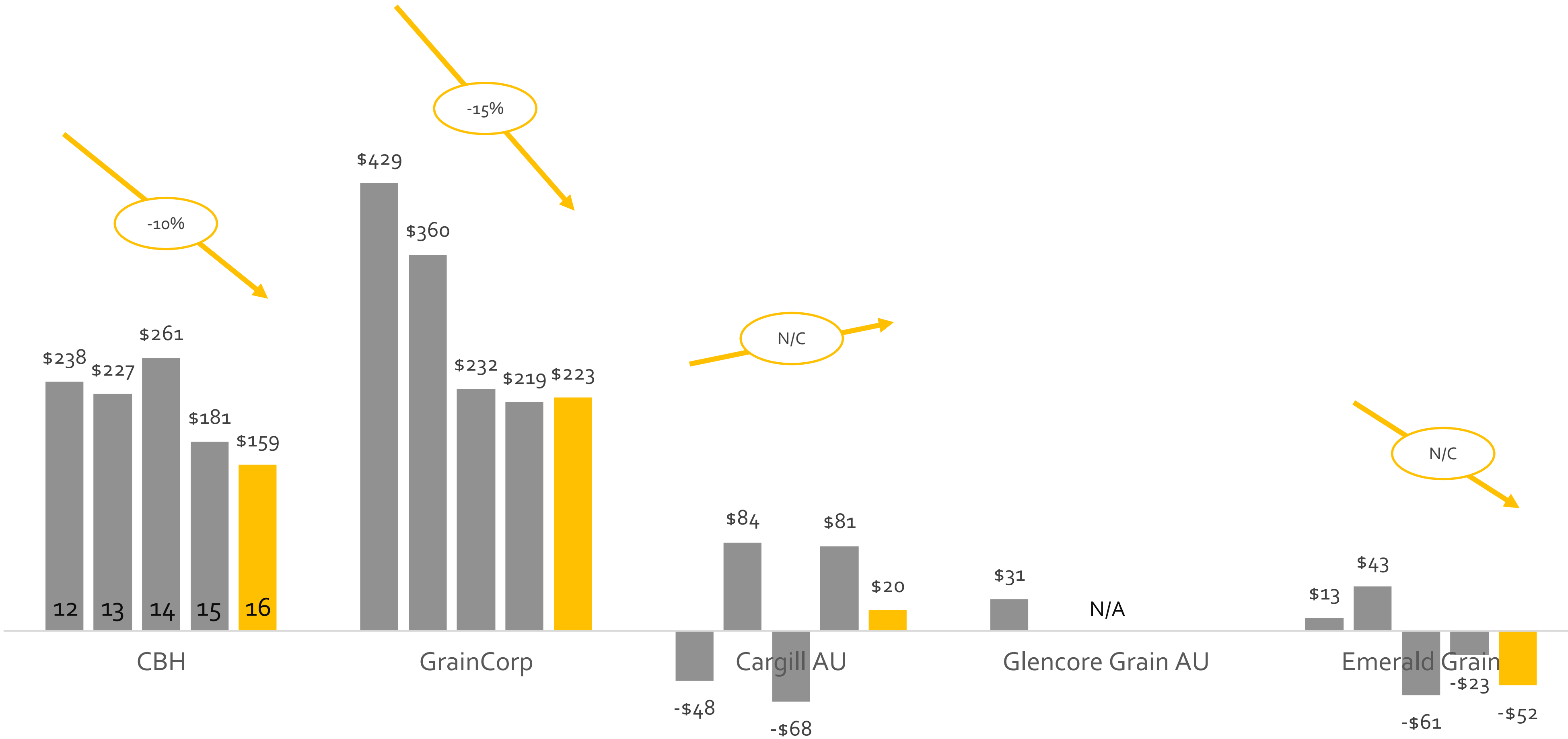
* Uses IBISWorld estimates; Note: all are wide ranging businesses with WA and non-WA activities; many have completed acquisitions; Source: ASIC filings; firm annual reports; IBISWorld; Coriolis research and estimates

Declining profitability

EBITDA of major Australian grain operators generally declining (at this point in the cycle)

Five year EBITDA: select firms with significant WA grain activities (A$; m; 2012-2016)

Note: total Australian operations not just WA



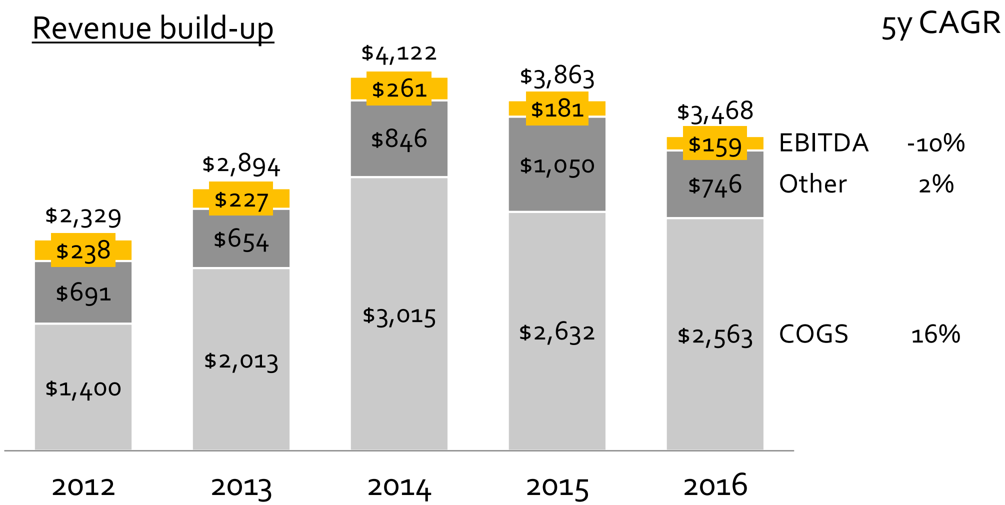
N/C = not-calculable; Note: all are wide ranging businesses with WA and non-WA activities; many have completed acquisitions; Glencore EBITDA is (PBT + interest expense + depreciation);
Source: ASIC filings; firm annual reports; IBISWorld; Coriolis research and estimates

Profitable

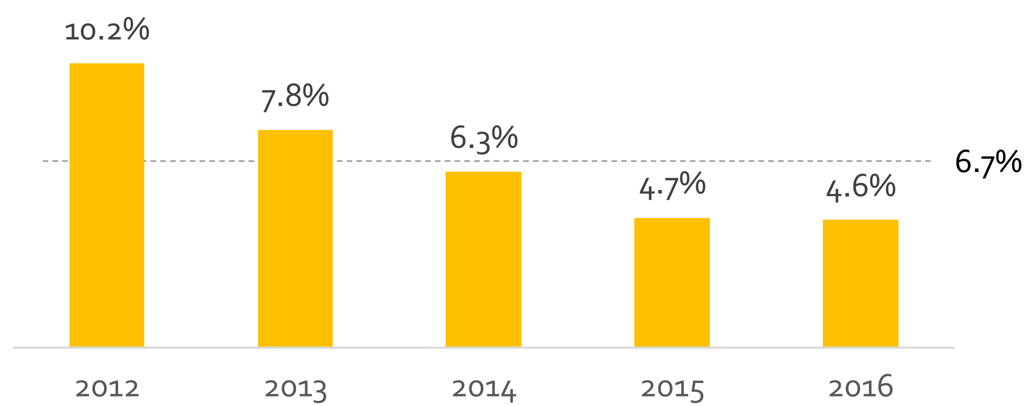
Western Australian grain sourcing, storage and marketing can be profitable

EXAMPLE: Financial performance of Co-operative Bulk Handling Limited (A$; m; 2012-2016)

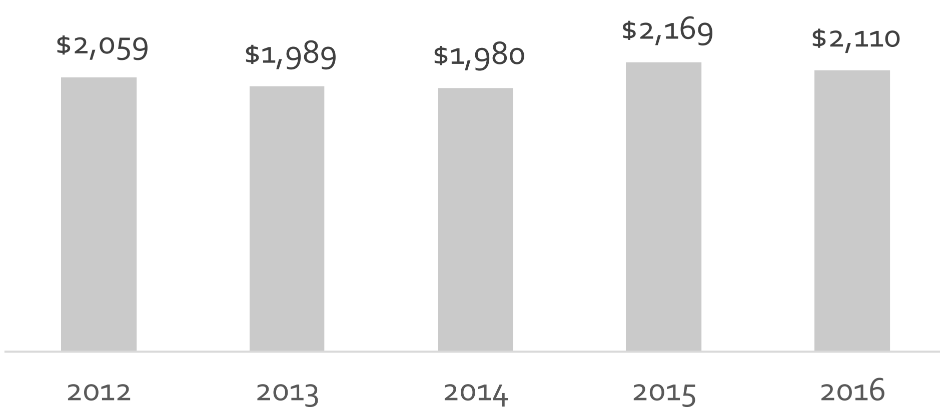
Revenue build-up



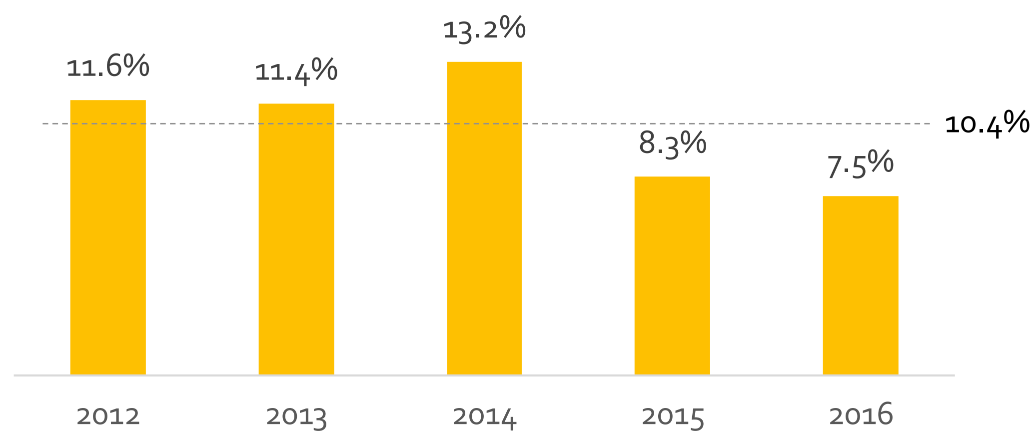
EBITDA/Revenue



Total Assets



EBITDA/Total Assets



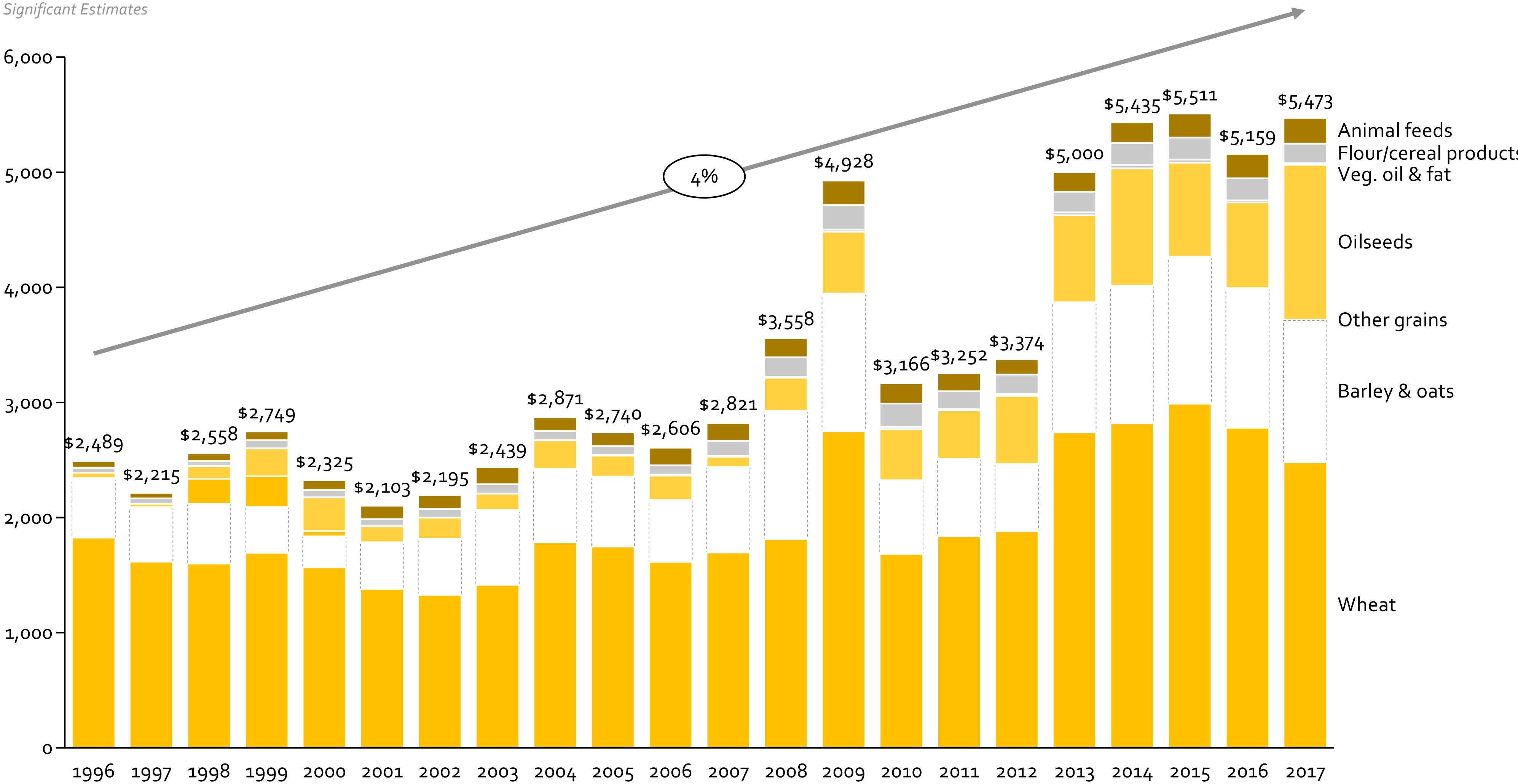
Source: ASIC filings; firm annual reports; IBISWorld; Coriolis research

Growing exports

Western Australia is achieving arable crop export growth

Western Australian grains, arable crops and products export value (A$; m; 1996-2017*)

Significant Estimates



*2017 YE April, all rest YE June; Note: oats and barley are estimates (due to data confidentiality issues); Source: DAFF; ABS; Coriolis analysis and estimates

Black Sea region highlighted

In particular, Western Australia is under increasing pressure in traditional markets from the Black Sea region

- "There are scary volumes coming out of the Ukraine and Russia. It's a worry. It seems the Ukraine is having a race to the bottom." Regional Director, multinational agribusiness

- "Russia and Ukraine are pushing into our traditional markets. Their level of production is a major concern… Every 5 years they are getting bigger. We increase by 2mt and they increase by 30mt. They have to sell it somewhere." General Manager, grain marketer, medium

- "You can't ignore the Black Sea. Its a worry for Australian growers. They are catching up quality wise and they produce a white grain. They are pretty formidable competitors." Director, grain marketer, large

- "The biggest threat is from the Ukraine – they have much cheaper product because of productive soils and cheap labour – and if they sort out their logistics issues, then we are in trouble." Agriculture consultant

- "Globally production is exceeding demand. The Black Sea is the biggest risk." Manager, grain trader, large

- "The Black Sea is improving its quality, they are becoming more of a threat. The closer they get to us, the easier it is for the mills to swap into their product." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Competition is increasing

However, the market is becoming more competitive due to changing market dynamics, decreasing freight costs and low exchange rates

- "Location is a declining advantage, as the freight rates get lower and currencies change. The UK didn't really compete into India, but with the drop in the pound and with Brexit, they can now **compete** strongly." Managing Director, grain processor, medium

- "We **compete** [in canola oil] into Asia with Canada – they are shipping in bulk and packaging in-market." Director, value added processor, medium

- "With the change in freight rates, our geographic advantage has **eroded**." General Manager, grain exporter, medium

- "UK product is now in Asia with the low exchange rate due to Brexit. They are good quality and, gee, their prices are ridiculously cheap. That is having an **impact**." Manager, multinational food company

- "Buyers will always get the bulk as cheap grain and then use only as much Australian wheat as necessary to get the grade up." Agriculture consultant

- "A big **challenge** [in oats] is Chile. They are really increasing production. The quality isn't as good yet but it's improving." Manager, multinational food company

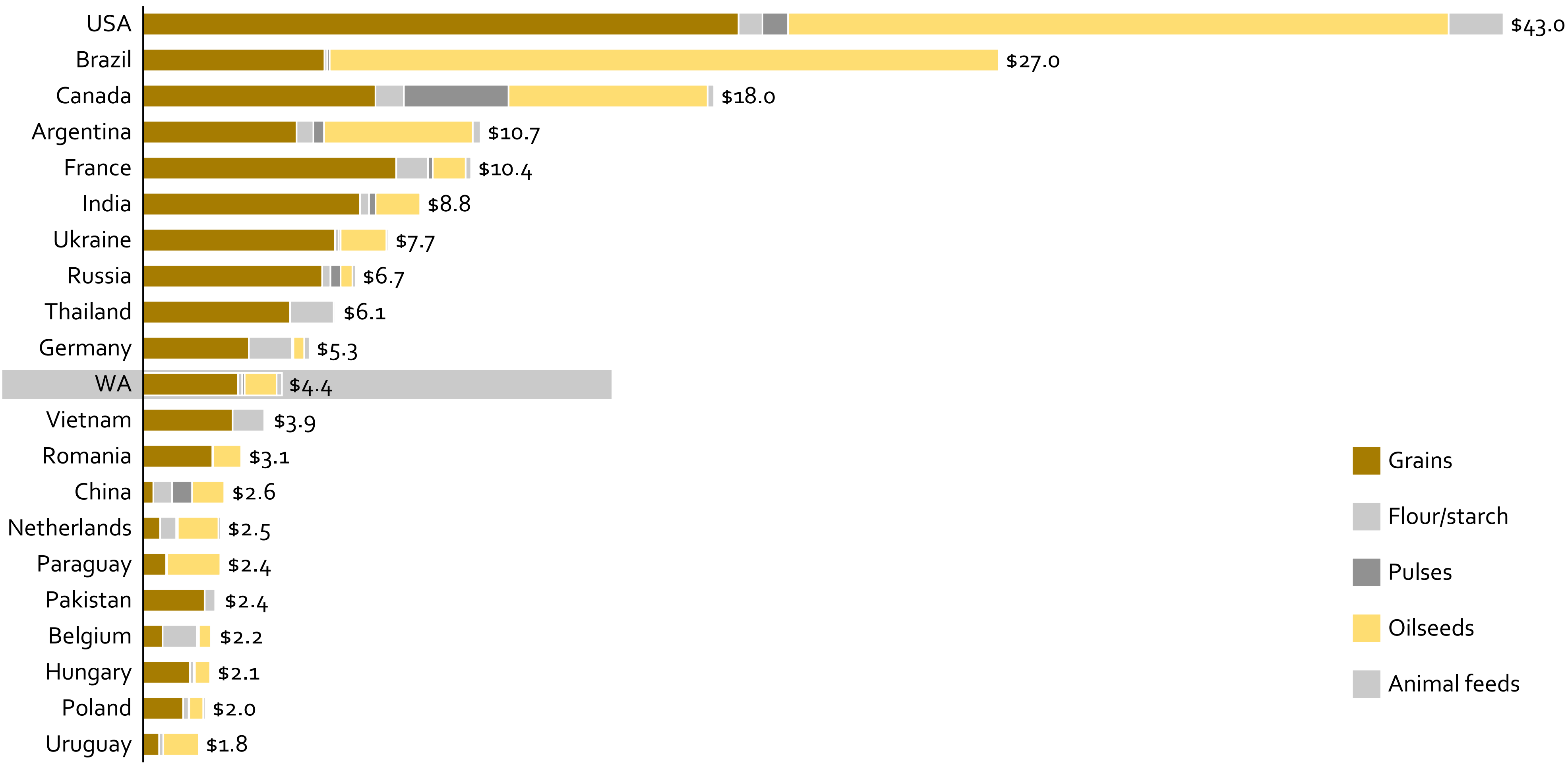
- "Canada has been locked out of China, but with negotiations they will be back soon…That is a significant **threat** to the WA market." Manager, multinational food company

Source: Coriolis interviews and analysis

Further export growth is possible

A wide ranging peer group suggests Western Australia could export more

Arable crops export value (US$; m; 2016*)



* or as available; WA uses A$1=US$0.75; Source: ABS; Comtrade; Oanda; Coriolis analysis

Western Australia can produce more

Western Australia has the resources, skills, systems and reputation needed for further success in arable crops

Resources

Huge land area
(the size of Western Europe)

Only limited amount of land currently farmed to any extent

Only 3% of land area currently farmed in crops

Small local population to feed
(2.6m people)

Readily available farming inputs
(e.g. fertiliser)

Skills & Systems

Educated population

Modern farming systems

High productivity

Deep pool of capacity

Efficient logistics

Well organised industry

Reputation

"Brand Australia" recognised across key markets

Lack of many key plant diseases

Strong biosecurity

High levels of food safety

Modern handling & processing facilities

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Well organised with a strong voice

Western Australian arable crop growers are supported by a well organised and robust industry structure

KEY NATIONAL ORGANISATIONS

KEY STATE ORGANISATIONS

KEY REGIONAL ORGANISATIONS

Source: Coriolis interviews and analysis

3. Emerging Investment Themes

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

page **5** — 1. Core Opportunity

page **15** — 2. Current Industry Situation

page **45** — 3. Emerging Investment Themes

page **75** — 4. Wheat

page **100** — 5. Barley

page **125** — 6. Oats

page **150** — 7. Canola

page **176** — 8. Animal Feeds

page **200** — 9. Pulses & Other Grains

page **210** — 10. Key Firms Profiled

Global leaders are here

Western Australia grains industry has attracted investment from a range of global leaders

Source: various company websites; Coriolis analysis

Arable grains existing firms

Western Australia's arable crops sector has attracted high profile investment along the entire supply chain

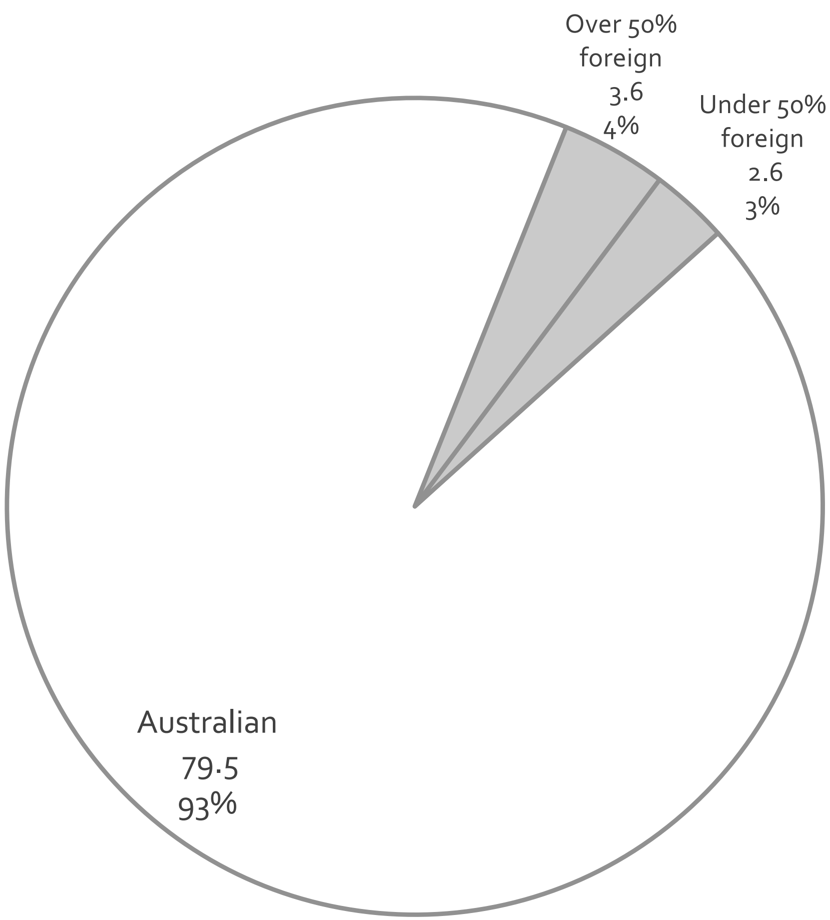
Farming Operations	Collection, Storage & Logistics	Trading & Exporting	Value Added Processing
Hassad Australia	CBH Group	ADM	Quaker
KAI	Bunge	Bunge	GrainCorp
Kuala Lumpur Kepong Berhad		Cargill	UG
CK Life Sciences Group		LDC	Alba
Warakirri Cropping		Glencore Agriculture	Golden West Foods
Lawson Grains		GrainCorp	three farmers
Westchester		COFCO	The Lupin Co.
		Emerald Grain	CBH Group
		Plum Grove	Narrakine
		Premium Grain Handlers	RKD
		CBH Group	
		Agrex	

Note: some firms across multiple stages of supply chain; Source: various company websites; Coriolis analysis

Primarily local ownership

Most Western Australian agricultural land and agricultural businesses are controlled by Australians; limited foreign investment to date accounts for 1% of businesses and 7% of land (both owned and leased)

Total WA agricultural area by control (ha; m; 2013)



TOTAL = 85.8m hectares

Number of WA agricultural businesses by control (2015)

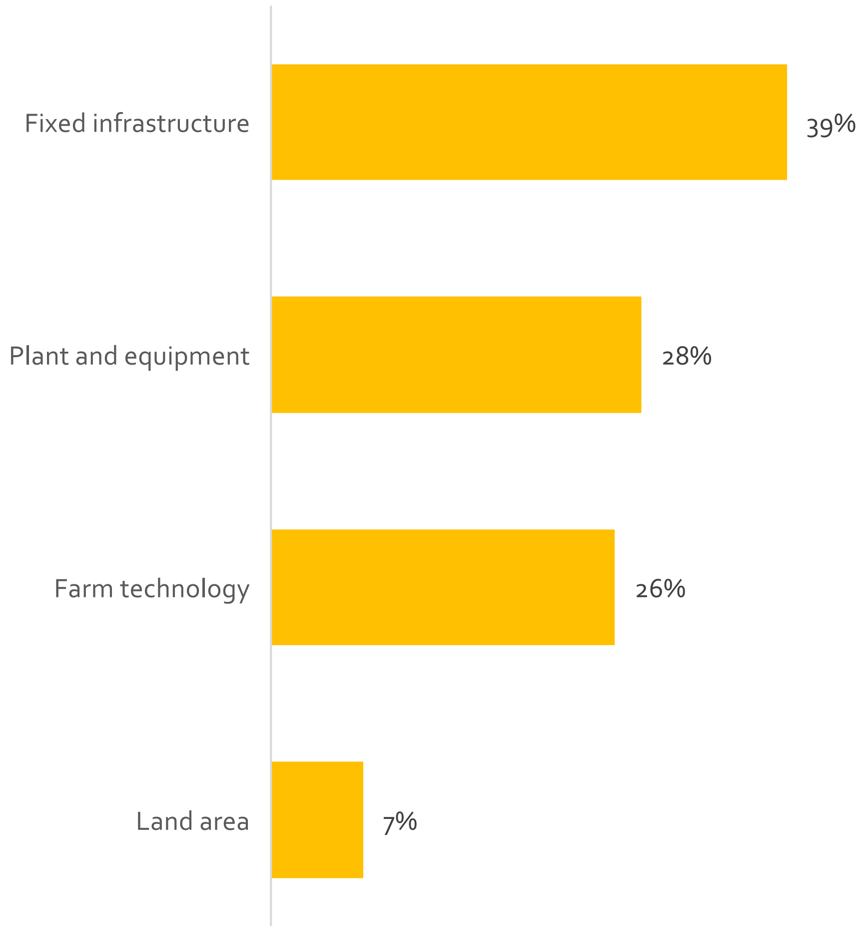
TOTAL = 12,309 agricultural businesses

Note: data is control of land not ownership; land may be long-term lease; 2013 is latest available data; "Australian" includes government; Source: ABS (7127.0); Coriolis analysis

Investment in farm operations

Western Australian farmers are constantly investing in their businesses – expanding production, buying new equipment and undertaking soil improvement

WA farmers' investment intentions (intend to invest; 2017)



"We expanded by buying out the neighbours. Consolidation continues as the drivers of scale are just as strong as ever." Grains producer, large

"Esperance farmers have invested massively – highest new equipment ratio of country." Chief Executive Officer, industry body

"Those farmers that can't expand are investing in soil improvement – tackling non wetting, compacting issues, doing soil renovation." Executive, industry body

Note: survey includes all types of farming; Source: CommBank Agri Insights, May 2017; Coriolis interviews and analysis

Western Australian farming is attractive to institutional investors

Western Australian broad acre farms have attracted institutional interest in recent years; in particular, WA is seen as offering diversification across climate zones

INVESTOR	OWNERSHIP	DESCRIPTION	WA OPERATIONS
حصاد استراليا HASSAD AUSTRALIA	Qatar Investment Authority Established 2010	Diversified portfolio of 12 sheep and grain enterprises across Australia – QLD, NSW, VIC, SA, WA; based in NSW	Three properties in WA: Amarinya – 14,672 ha; grain; acquired 2012 Bindana Downs – 8,483 ha; grain; acquired 2012 Yupiri – 8,340 ha; grain; acquired 2012
LAWSON GRAINS	Macquarie Group via Macquarie Crop Partners Established in 2010	Large scale cropping farms across 5 regions of Australia – Northern, Southern, and Central NSW, Northern and Southern WA; based in NSW; 10 property aggregations, ~88,200 arable hectares; 31 full-time, 50 seasonal casuals	Six properties in WA: Hakea – 12,734 ha; wheat, barley, canola; acquired 2012, $16.7m Gunnadoo – 11,2590 ha; wheat, barley, canola; acquired 2013, $9m Walyoo – 5,620 ha; wheat, barley, canola, lupins; acquired 2014 Wongan – 10,770 ha; wheat, barley, canola; acquired 2014, $36.5m Jerry South – 5,983 ha; wheat, barley, canola; acquired 2016 St Leonards – 5,698 ha; wheat, barley, canola, lupins; acquired 2017
Warakirri Cropping	Australian Superannuation Funds Established in 1996	Broadacre cropping business; 10 property aggregations, across 6 production regions – NSW, QLD, VIC, WA; 80,000 hectares in total; based in VIC; one of largest grain producers in Australia	Two properties in WA: Lobethal – 13,600 ha; wheat, barley, canola Mawarra – 10,950 ha; wheat, barley, canola
WESTCHESTER Agriculture Asset Management	TIAA – USA teacher superannuation Established in 1986	$1b worth of farms in QLD, NSW, VIC, WA; model of leasing back properties to owners or local farmers; wheat and other grains focus	$120m invested in WA properties since 2008 Borden, Quairading, Chapman Valley, Mingenew, Corrigin, Esperance Grass Patch – 8,000 ha; acquired 2014; $9m Watheroo – 13,350 ha; grains; acquired 2017, $15m

Source: various published articles; company annual reports; Coriolis analysis

Western Australian farming is attractive to foreign corporate investment

Western Australia broad acre farms have proved attractive to foreign corporate investors

INVESTOR	OWNERSHIP	DESCRIPTION	WA OPERATIONS
CK Life Sciences Group	Cheung Kong Holding Hong Kong Listed Li Ka-Shing	Largest supplier of turf management products and services; second largest supplier in home garden products industry; owns one of WA's biggest grain growers; second largest vineyard owner (Belvino, 3 Margaret River vineyards, 3 ex McWilliam Wine vineyards); largest producer of salt for domestic market (Cheetham)	Nicoletti Farms; 68,000 ha; grain; acquired 2016, $35m; lease back arrangement for 10 years Five geographical parcels and Merredin silo cell – 2 ha; 11,600 t capacity Daisy Downs – 27,538 ha; grazing and arable Walgoolan – 21,948 ha Bullfinch – 7,305 ha Moorine Rock – 6,523 ha Lakeview – 4,534 ha
Heilongjiang Feng Agricultural	Heilongjiang Beidahuang Rice Industry Group	Own around 36,500 hectares in Wheatbelt; leased 50,000 ha in 2014-15 then stopped; managed by Vicstock Grain; Vicstock has proposed grain terminal facilities in Albany	Joyce Farms – 23,336 ha; acquired 2012; $29m Ongerup – 6,500 ha; acquired 2012; $23.2m Lake King – acquired 2014; $8m; court case in 2016 Nyabing and Mindarabin – acquired in 2013; $18m
KAI	Shanghai Zhongfu Chinese property and trading conglomerate	Selected as preferred proponent for Ord Stage 2; proposed sugar plantation and processing plant; currently planting chia, quinoa, maize	Ord Stage 2 Coriolis – 15,200 ha; chia, corn, quinoa over 1,630 ha in 2016 Carlton Hill Station – 475,745 ha; grains planned; acquired 2016 from CPC, $100m; leaseback of 90% of property to CPC for 10 years to run 50,000 cattle
Kuala Lumpur Kepong Berhad	Public Malaysian multinational	Core business is oil palm and rubber plantations, resource based manufacturing (chemicals); property development, retailing (personal care products, toiletries and fine foods); KLK Farms is Australian subsidiary	6 farming properties in WA; 49,349ha Northampton – 16,189 ha; grains; acquired 2012 Mingenew – 5,290 ha; grains and sheep; acquired ~40 years ago Dandaragan – 14,418 ha; grains and cattle; acquired 2013 York – 4,927 ha; grains and sheep; acquired 2013 Williams – 5,119 ha; grains and sheep; acquired ~30 years ago Arthur River – 3,406 ha; grains and sheep; acquired 2015 $7.1m loss FY16 on revenue of $19.1m

Source: various published articles; company annual reports; Coriolis analysis

Major investments are continuing

Firms are showing confidence in the Western Australian arable crops industry by investing, from bulk handling through to exporting

COMPANY	DATE	VALUE	ACTIVITY	RATIONALE
CBH*	2017	$75m	InterMalt building malt facility in Vietnam (located at Interflour's Cai Mep Port), stage 1 capacity 110,000t/yr, stage 2 220,000t (from 2019); supply Heineken (6 breweries in VN)	Replace the imported malt (total 400-450,000t) from Belgium and France with locally produced malt using WA barley; gateway to Vietnamese growing beer market
CBH – Interflour*	2017	N/A	Interflour invests in is 10th flour mill in the Philippines 500t/day flour, adds to existing 8,000t/day; Interflour upgrading flour mill in Indonesia	Entering a new and attractive market
CBH	2017	$9m	Proposed new receival site at Bunbury port 120,000t storage site	Increased grain volumes in Bunbury catchment; highway upgrades makes it viable
Gilmac Hay	2017	$3.5m N/A	#1 hay exporter in AU; builds a new hay pressing and storage facility on 40ha property in Wagin, WA, creating 15 jobs Plans for canola processing plant (pilot plant commencing Aug '17)	Reduce transport costs for southern WA producers Add value to canola
CBH	2016	$750m	Committed $750m over 5 years to to provide large scale network efficiency improvements, including capacity expansion	Improve efficiencies; increase storage capacity
CBH	2016	$60m	Constructing a new oat processing plant at the Metro Grain Centre in Perth with capacity to process 60,000t of oats; completed Dec 2017	High demand for oats, utilise expertise through Blue Lake Milling acquisition, and double capacity
UniGrain	2016	N/A	Investments in oat milling upgrades at Wagin plant; acquired water desalination system	High demand for oats based products and animal feed; increase plant efficiencies
Quaker	2015	$20-30m	Commissioned upgraded oat mill in Forrestfield, Perth	Gain scale in the market to drive plant efficiencies
Aus Oils	2015	N/A	Invests in cold-pressed canola facility doubling capacity to 20,000 and increasing quality; operates unmanned 24hrs/day	Increase quality of product, increase plant efficiencies
GrainCorp	2015	$10m	Increase capacity at liquid terminal in Fremantle, increased to 18,000m^3	Profitable sector, required additional WA capacity
Bunge Agribusiness	Oct 2015	N/A	Commissioned two new receival sites at Kukerin and Arthur River	Add to Bunge's receival point at the Bunbury port and on-farm storage options; offers WA's first inland supply chain outside of the CBH system
Bunge Agribusiness	Sept 2014	$40m	Commissioned new grain terminal at Bunbury port, 50k upright storage	Alternate avenue to global export markets, and expanded grain marketing and delivery options; utilise two-way freight to reduce overall transport costs

* Interflour JV with CBH and Salim; Source: various annual reports; published articles; Coriolis analysis

Acquisitions continue to occur

Acquisitions are occurring, both from existing operations expanding and from new investors arriving

COUNTRY	ACQUIRER	TARGET	DATE	VALUE	DESCRIPTION	RATIONALE
	Westchester Agriculture Asset Management	Giovi (formerly Wellard Agri Ltd)	2017	$15m	Acquired Watheroo; 13,350 ha mixed cropping operation; 4 farms	Expand WA broadacre holdings; sold to finance debt
	Al Dahra Agriculture	Glenvar Hay	Jan 2017	N/A	Hay processing and export	Geographically diversify, establish presence in Southern Hemisphere
	Private Equity Partners (PEP)	Allied Mills (Cargill 40%, GrainCorp 60%)	2017	A$455m	#1 flour milling in AU, bakery operations AU and NZ	Increased vertical integration across milling and bakery; supports adjacent business Pinnacle
	British Columbia Investment Management Corp.	Glencore Agri (10%)	Jun 2016	US$625m	Global integrated processor and marketer, 35 countries, Viterra in AU	Expansion and diversification of portfolio
	Canada Pension Plan (CPP)	Glencore Agri (40%)	Apr 2016	US$2.5b	Global integrated processor and marketer, 35 countries, Viterra in AU	Diversification to mitigate risk from low resource prices
	Shanghai Yanhua Hi-Tech	Balco Australia	May 2015	$12m ~75%	#1 hay exporter to CN, from SA and WA	Expansion into China
	COFCO International	Nidera/ Noble Agri	2014/ 2015	$US3b+	Grain origination and trading, Netherlands & Singapore based	International expansion
	UniGrain	Morton's Seed & Grain (WA)	Nov 2014	N/A	Oat milling, processing, animal feed pellets & oat further processing facility	Expand presence in fast growing sector, enhanced national delivery
	Plum Grove	AgriGrain	2013	N/A	Grain accumulator, trader and container packer	Entry into NSW grain accumulation market; spread geographical coverage
	Cargill	Viterra/Glencore Malting	Nov 2013	$420m	Malting operations	Expand malting capacity in AU, access WA oats
	Mitsui & Co.	Plum Grove (25%)	2013	N/A	Japanese diversified trading and investment company	Risk mitigation

Source: Wikimedia commons; various annual reports; published articles; Coriolis analysis

Case Study: Quaker continues to invest

Quaker Oats (PepsiCo) the #1 global oats company, continues to invest in the Western Australian oats sector

INVESTMENT OVERVIEW: QUAKER OATS

Date commissioned:	Nov 2015
Value:	A$20m+
Detail:	- New oat flaking mill; 36m high - Existing Forrestfield, Perth site - Ability to double capacity at site - Increase oat requirements 60-70%

RATIONALE

- Quaker require modern plant and equipment to optimise oat quality and plant efficiencies
- Increasing market depth, with higher demand in key markets
- Capture value of high quality milling oats produced in Western Australia
- Key markets will pay a premium for health qualities (e.g. high beta glucan)
- Location close to Asia supports ongoing investment to supply Asian markets (freight advantage)
- Quaker Oats (PepsiCo) is the largest manufacturer of oats for human consumption supplying: baking, biscuit, breakfast cereal, health food, snacking and babyfood sectors; continue to support global distribution

QUAKER REPORTED

- "The investment in the new mill combined with the good demand for export raw grain in Asia, shows there is a lot more market depth than there used to be."
- "We need to be a seen as a reliable supplier of oats and oat products…that really needs to be our focus going forward."
- "We have a freight advantage and Asia likes the quality. They like nice bright white oats compared to the northern hemisphere oat which is greyer and darker."

Source: Chris Maughan, Quaker, articles

Source: interview, articles, reports, Coriolis research and analysis

Potential areas for investment

Opportunities for new and/or external investment especially for those with transferrable skills and networks

FARMLAND

- Two sources of returns: ongoing rent/lease income and capital gains on land
- Solid, stable if low, return investment when undertaken on a long-term time horizon
- Strong rule-of-law, clear system and liquid market create investment security

FARMING OPERATIONS

- Growing demand for key crops from developing countries middle-class
- Undergoing long-term shift to large number of small to small number of large operations
- Highly automated, and becoming more so; may favour those able to implement complex, precision, capital intensive, new technology faster
- Highly competitive; long tail of marginal cost operators
- Supply sector most exposed to the commodity cycle
- Only investors with transferable skills or strong appetite for short-term volatility should participate

SOURCING & STORAGE

- Increasing arable crop production is increasing the need for high service levels
- Industry concentrated around a grower-owned cooperative
- It can be difficult to compete with cooperatives as they often optimise for different outcomes compared with listed corporate firms
- New entry would best suit firms with existing networks, well resourced, requiring vertical integration, with new systems

INFRASTRUCTURE

- Identified need for more port capacity; ports in WA and elsewhere have proven attractive to investors
- Identified need for investment in aging railway system servicing arable crop regions; unclear business case or return

TRADING & EXPORTING

- Wheat exports deregulated in 2008 attracting a range of new entrants; some shakeout and consolidation since
- Key exporters are now the major global grain traders (ADM, Bunge, Cargill, COFCO, Dreyfus, Glencore and GrainCorp) and the local grower owned cooperative
- Sumitomo-owned Emerald Grain was on the market in 2016 and found no buyers
- Plum Grove, owned by local founders, Mitsui & Co. (Japan), Salim (Indonesia) and Seaboard (US) achieving success with interesting model
- Regional and global agribusiness traders should consider a position, particularly if they can bring new channels or new business models

VALUE ADDED PROCESSING

- Western Australia exports massive quantities of raw material ingredients to other countries where they are transformed, ultimately, into consumer ready foods
- Local primary processing growing long term; current successes include rolled oats, malted barley and canola oil
- Further opportunities for investment in primary processing of arable crops where it makes sense
- Widespread opportunities for investment in intensive protein production systems and grain-based processed foods and beverages

Four investment themes

Four broad investment themes exist for creating growth in the Western Australian arable crops industry

1. Improving Real-World Yields

2. New Processes & Systems

3. Further Processing of Ingredients

4. Improving Infrastructure

Investment themes

Multiple potential high-level investment themes exist for investors interested in the arable crop industry

Potential/proposed high-level investment themes for Western Australian arable crop industry

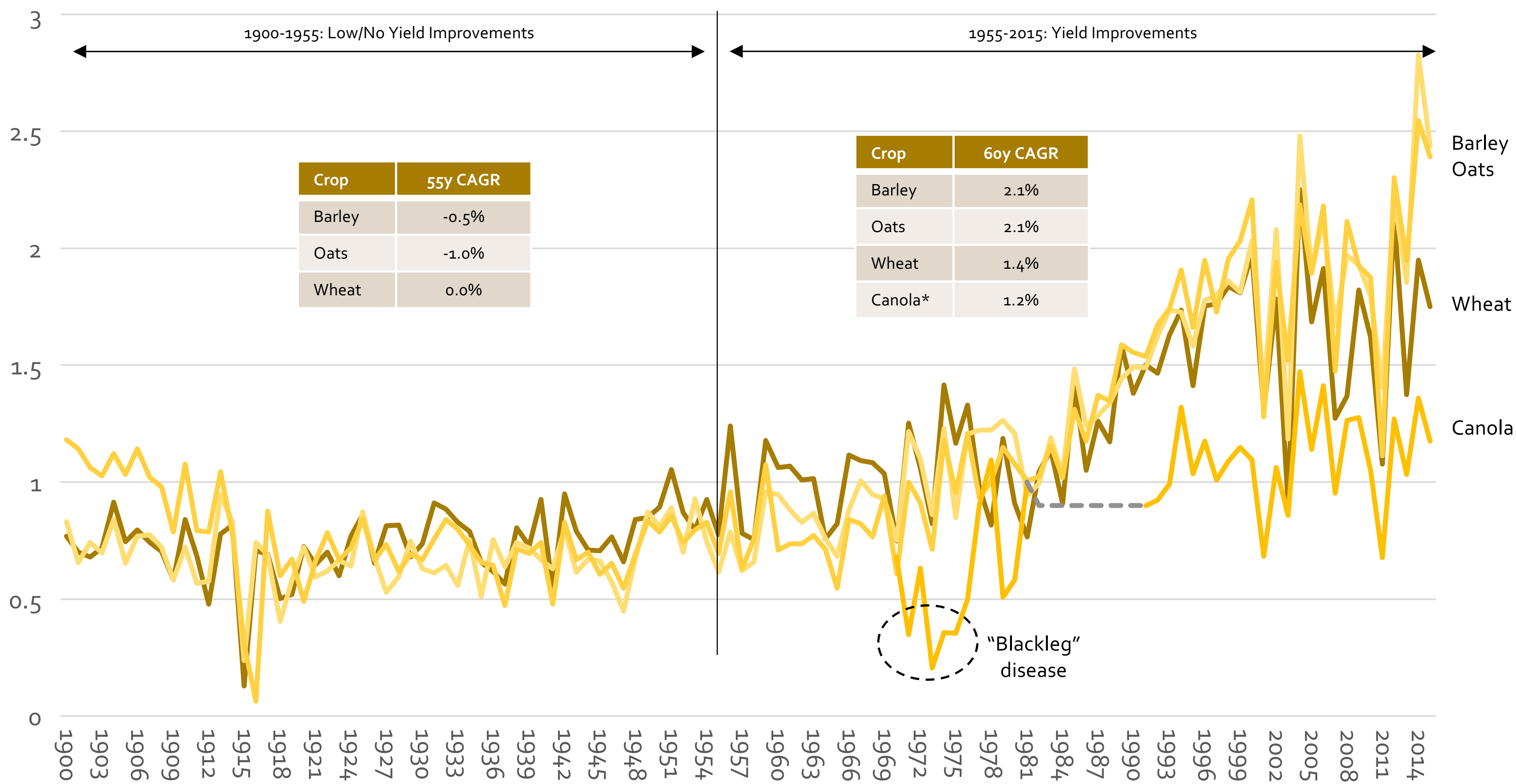
Situation causing opportunity	Potential investment themes	What you would need to believe
• Western Australia achieves low real-world yields relative to almost all competitors • Yields vary significantly across farms and farmers in the same region	1. Improving Real-World Yields	• A significant part of yield variability is due to management and systems
• The Western Australian arable crop system emerged in a highly controlled and regulated environment as a local export monopsony* • The industry was deregulated in 2008	2. New Processes and Systems	• Systems used elsewhere would work in WA • A significant number of growers would be willing to change
• Small population over a huge area led to almost all exports being raw materials • Export market mix is changing • Processing technology is changing • Increased demand for secondary "waste" streams in growing intensive animal systems in WA (e.g. canola meal to feedlots)	3. Further Processing of Ingredients in Western Australia	• Sufficient volume can be sourced to run a large, modern plant at scale • Target market trade and tariff barriers low and reducing so the concept is economically viable

* a "monopsony" is a monopoly on buying rather than a monopoly on selling; monopsonies are almost always created by government action

Real-world yields variable but growing

Real-world yields are showing growth over time since mid-fifties; however yield is highly variable, driven primarily by weather patterns

Real-world yield (realised tonnes/ha)



Crop	55y CAGR
Barley	-0.5%
Oats	-1.0%
Wheat	0.0%

Crop	60y CAGR
Barley	2.1%
Oats	2.1%
Wheat	1.4%
Canola*	1.2%

* CAGR 1970-2015; note: canola yield not available 1982-1991 (dotted line); Source: various ABS publications and reports

Increasing yields important

Western Australia needs to continue to increase yields

- "With limited land area growth in key climatic regions regions, we need to focus on increasing **yields**." Manager, grain marketer, large

- "Canola has seen significant increases in **yield** and quality through new varieties and genetically modified varieties. Canola is a real game changer." General Manager, grain exporter, medium

- "While we need **yield** increases to keep the farmers happy we also need to invest in other qualities and attributes, but they need to all have good yields to make sense." Managing Director, grain processor, medium

- "Pulses are in high demand but the **yields** aren't there. They need more focus." Director, grain marketer, large

- "The latest Scepter variety wheat **yield** increases are impressive. You need to have a ticket to the game and keep out ahead. This research all needs to be maintained. Investment by GRDC and by private firms is necessary." General Manager, grain exporter, medium

- "We have to understand the drivers of **yield** and climatic influences. The more you can get off the same area at the same quality the better." Managing Director, feed processor, large

- "The industry is constantly investing and researching new genetics and varieties. This keeps the **yields** increasing and production growing." General Manager, grain exporter, medium

- "We need to be able to access the latest varieties and genetics. This undoubtedly keeps us out front. Just consistently increasing **yields**." General Manager, grain exporter, medium

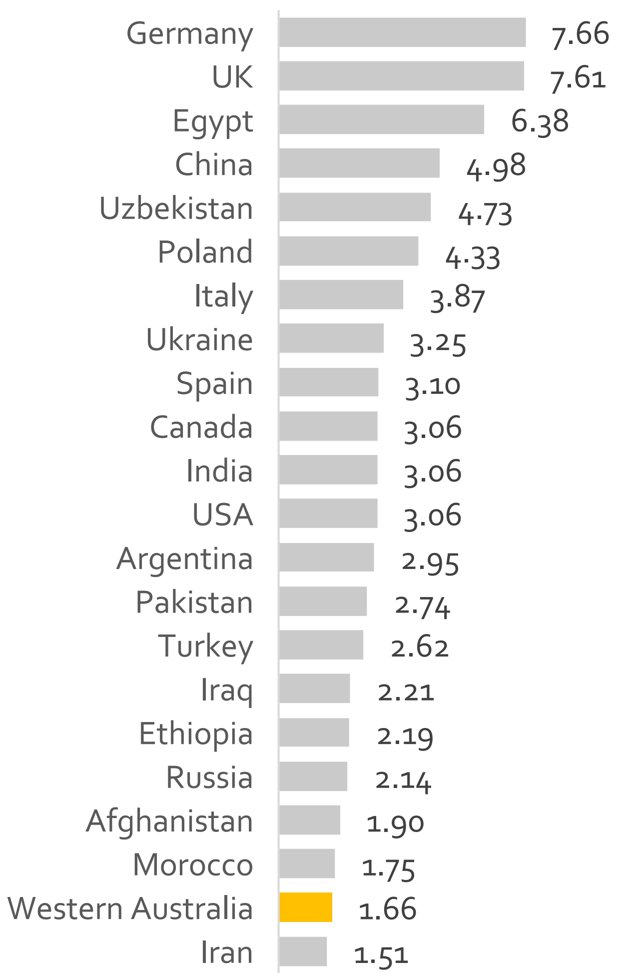
Source: Coriolis interviews and analysis

Higher yields are possible

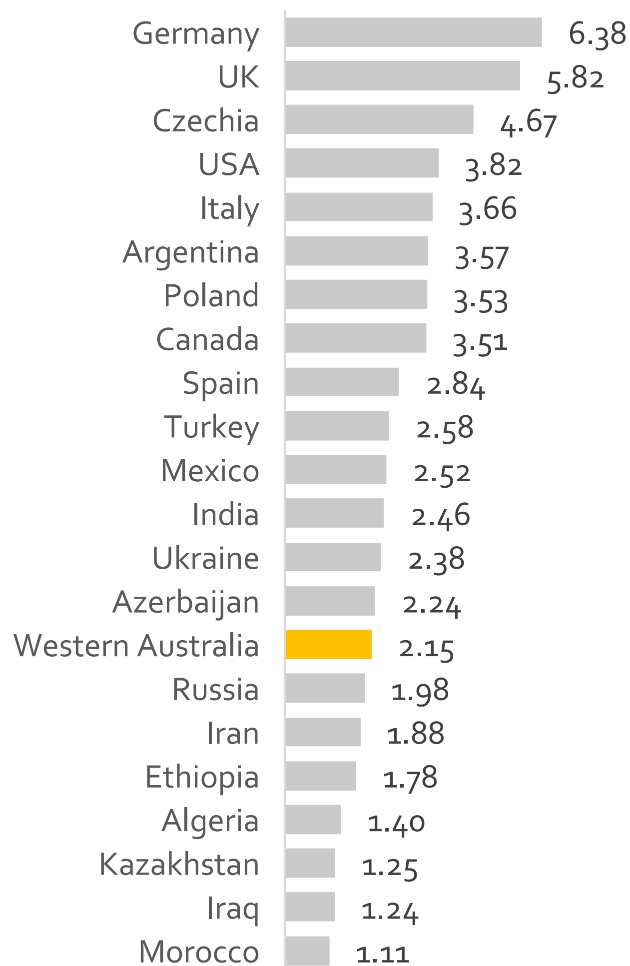
1. Improving Real-World Yield

Most key competitors and climatic peers achieve higher yields, suggesting further growth is possible

Wheat yield (t/ha; 5y avg.; 10-14)



Barley yield (t/ha; 5y avg.; 10-14)



Canola yield (t/ha; 5y avg.; 10-14)

Note: WA uses 11-15 average; Source: United Nations FAO; various ABS publications and reports

Multiple drivers for yield improvement

However, real-world yields achieved on-farm are the result of a wide range of variables working in tandem, beyond plant genetics

Real-World Yield

- **Farm Management**
  - Skills & Training, Intelligence & Experience
  - Soil Management & Improvement Programs
  - Systems/Timing
- **Farm Size**
  - Larger Fields
  - More Automation
  - Better Skills
- **On-Farm Capital**
  - More/Better Equipment
  - More On-Farm Investment (e.g. dams)
  - More On-Farm Storage
- **Agri-Chemicals**
  - Pesticides
  - Herbicides
  - Fertiliser
- **Environment**
  - Soils
  - Rainfall
  - Elevation
- **Plant Genetics**
  - Availability
  - Suitability
  - Improvement
- **Macro-Environment**
  - Labour Laws
  - Regulations
  - Economic & Political Stability
- **Inter-Year Climate Variation**
  - Sun & Rain
  - Temperature
  - Weather Events

Improving skills & management

There are opportunities to build skills and management

- "Climatic swings can't be prevented it's the nature of the industry, but we can help with **improved management**." Managing Director, grain processor, medium

- "The grain industry can still be **more professional** – some growers are still are not treating it as professional business." Agriculture consultant

- "It's an ongoing process to constantly increase farming practices, increase efficiency, and have **better management** in general." Manager, grain trader, large

- "We need scale and sophistication to really compete. **Skills** are required for that to happen. We need to upskill our own staff and throughout the industry. We need industry expertise and professionals." Manager, grain trader, large

- "There is also more requirement for traceability along the supply chain which means, the industry needs to be **more sophisticated**. Animal feed needs to be treated as a quality ingredient. This needs investment." General Manager, grain exporter, medium

- "Farmers need to know exactly when to plant to maximise the crops potential, it all needs **sophisticated management**." Director, grain trader, large

- "There are many drivers of yield, but a lot comes down to farm level decision-making. The better farmers make the right decision at the right time. This makes the difference." Industry expert

- "As the industry rationalises the skill levels overall increase." Industry expert

Source: Coriolis interviews and analysis

Improving systems

There is room for improvement in management of the value chain

- "We need to constantly look at how to do things better, **improve systems** and increase returns back to farmers." Manager, grain trader, large
- "Need to **invest in systems** to ensure deliveries are efficient, just-in-time, and to ensure that product quality is consistent." General Manager, grain exporter, medium
- "How do we manage the **systems** better so we reduce the swings in the market. We are just a small part of the the global market, but we must be able to manage the swings better." Manager, grain marketer, medium
- "Our **system** is about having a transparent relationship with those around us. The partnerships between our shareholders is an alternative model to just trading. It's a transparent transaction between the customers and growers. They wanted to have more control and certainty of supply." General Manager, grain exporter, medium
- "It is important to have a good relationship, and show companies how your product can save them money, and benefit their business." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Improving information flows

Improved flow of information along the chain is required for more strategic decision making

- "Investment is needed in access to **information** – the transfer of data and communications. Need better infrastructure to manage the data that will improve productivity." Crop scientist

- "There is not enough **data** published on acreage, production and demand and as a result people don't get signals and then there is no stable market." Manager, multinational food company

- "It's vital to share **information**. Breed information needs to go to the growers, the marketers and the traders. They often leave us out." Director, grains trader, medium

- "In the future there will be more **information** available, so everyone is able to make decisions and everything is transparent. Service levels will be higher." Regional Director, multinational agribusiness

- "The private sector is doing a better job in extension and communication – growers want **data**, there is money to be made in transferring it." Crop scientist

Source: Coriolis interviews and analysis

On-farm storage opportunity

Farmers are investing in new ideas and new systems for on-farm storage infrastructure; potentially opportunities for further investment

- "By investing in on-farm storage, the farmers get more options, more control of their operation." Regional Director, multinational agribusiness

- "There are some innovative on-farm storage technologies being developed that will be a game-changer." Industry expert

- "Farmers are rational, they will invest in a model if it makes sense and the returns are there." Industry expert

- "I think we will see more investment in this space. The new model could include on-farm storage and capacity options. This is attractive to many farmers. It allows more control. Less hands and stages in the process means more profit. There is a net benefit to the grower, they will see an improvement in returns with the additional competition." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Growing value added

Western Australia has opportunities to invest in adding more value to its arable crops rather than exporting them as raw ingredients

- "WA can't afford to continue to give away all that value by pushing them [grains] out the farm gate and state as commodities." Grains producer, large

- "There are definitely opportunities to process more canola in WA. We have high quality oil and the feed requirements are increasing. Inghams are moving and investing in milling, they will need feed. Pork is growing and the cattle and sheep feedlots need feed." General Manager, grain exporter, medium

- "Investing in value added segments allows us to spread our risk. You need to have scale in these operations, so they are efficient." Director, grain marketer, large

- "The industry needs higher quality feed options. There is so much more research around animal health and feed requirements. Canola crushers would support the livestock and feed industries, every animal needs the appropriate products. Feed is often the lowest sum game, but higher quality is now demanded." General Manager, grain exporter, medium

- "I'm very excited about CBH moving up with value chain with Interflour. They are well positioned to go to the next level with bakeries and branding." Grains producer, large

- "You need a brand in order to get a premium off the Asian consumer." Grains producer, large

- "We are looking to invest down the chain across all our major products." Manager, grain trader, large

Source: Coriolis interviews and analysis

Multiple options for further processing

Western Australia has multiple options for further processing its raw material ingredients into more complex products

INGREDIENT	WHEAT	BARLEY	OATS	CANOLA	HAY
PRIMARY PROCESSING	FLOUR	MALT	BULK ROLLED OATS	BULK CANOLA OIL	PELLETISED HAY
SECONDARY PROCESSING	BAKED GOODS	BEER	RETAIL ROLLED OATS	RETAIL CANOLA OIL	PET FOODS

Growing value added

Firms are investing in further processing in WA when there is a clear case to do so

- "Our strategy is to diversify and try and smooth the peaks and troughs." Director, grain marketer, large
- "We invested in our plant. The technology was getting old and left behind, and we needed to invest to make our plant more efficient and to increase capacity." Manager, multinational food company
- "We have to move beyond commodities and animal feeds into high value branded products for human consumption." Managing Director, grain processor, small

- "We invested tens of thousands updating our facilities so they are now automated. This makes us more efficient." Director, value added processor, medium
- "Value added can work if you are reducing the weight of a product and saving freight, or if its highly automated with low labour." Director, grains trader, medium
- "All of the canola goes out raw, in bulk, we need to add value to it in Australia. There is demand for high quality meal for animal feed." General Manager, feed processor, large

- "Our plant needed the investment to increase the automation. We produce a high quality product where we are able to achieve a premium." Director, value added processor, medium
- "We saw a real demand for a locally grown product, and in a category that wasn't a commodity. We needed to invest to make it viable." Executive, grain processor, small

Source: Coriolis interviews and analysis

Growing value added

Value adding in Western Australia does not make sense for every product in every category

- "Sometimes value adding can lead to a product that is harder to export than raw ingredients." Director, research institution

- "Value adding isn't an option in some products, as the domestic market is too small." Industry expert

- "The cost of labour is high in Australia, so the processing needs to be highly automated. Then it makes sense." General Manager, feed processor, large

- "In the export markets, the further processing to retail ready is done overseas. The cost is so much less on the Indian subcontinent. It's a fraction of the cost of Australia." Managing Director, grain processor, medium

- "But the problem is [retail packs] are bulky products to export, and there are a lot of packaging requirements for different markets." Manager, multinational food company

- "There is more of a domestic market for our product on the East Coast so we invested over there instead." Director, grain marketer, large

- "Our packaging is on the East Coast, there is no gluten free facility available in WA." Executive, grain processor, small

Source: Coriolis interviews and analysis

Growing value added

Beyond raw materials and primary products, Western Australia has growing production of a wide range of grain-based processed food products

Flour

Bread

Pastas & Noodles

Cereal/muesli

Beer

Alcoholic Drinks

Photo credit: (fair use; low resolution; complete product/brand for illustrative purposes)

Investment themes

Multiple potential high-level investment themes also exist for investors interested in the wider infrastructure sectors supporting the arable crop industry

Potential/proposed high-level investment themes for Western Australian arable crop industry

Situation causing opportunity	Potential investment themes	What you would need to believe
• Constraints and challenges with port access (bulk and containers) • Challenges with container numbers and availability	Port infrastructure	• Volumes will continue to increase • Can take volume from existing operators • A significant arable crop volume could flow through containers (containers only; not bulk)
• Parts of the grain-focused rail infrastructure need improvement • In particular, upgrades in some areas for more train weight and higher speed	Rail infrastructure	• Economic gains from faster, larger, higher volume trains can pay for infrastructure • Trains are more economical than trucks under WA conditions
• Very large state with a small rural population • Large crop farms by global standards • Crop farms located in remote areas • Traditional mobile operators do not provide sufficient coverage	Rural mobile phone infrastructure	• Technology exists to provide economic coverage to large remote areas • Profit per km^2 can exceed costs per km^2 to supply

The rail network is showing its age

To remain competitive, the WA arable crops industry needs investment in the rail infrastructure

- "The **rail**? Look, they keep it going, but its half a basket-case. The rails have been neglected for so long… So they are not using big enough trains to be economical." General Manager, grain marketer, medium

- "At the big picture level, infrastructure for getting 'up-country' crops to port needs investment. In particular, the **rail** lines need improvement. They are deteriorating over time. The Albany line doesn't run at optimal speeds or weights. This is a 100 year investment, its been about that time. " Director, value added processor, medium

- "Some of the trains can't get up the hills. They really need to invest in the line, it's neglected." General Manager, grain exporter, medium

- "**Rail** related inefficiencies are apparent. Western Australia achieves a good performance compared to the rest of Australia, but what about the world? We need to be the best. We need the right investment in rail to manage the existing volumes. The access to ports is an issue." Director, grain marketer, large

- "We need continued investment in infrastructure improvements. This is what leads to efficiencies. We need inspiration to think about how we are the most efficient along all parts of the business. We need to ask, how efficient are we at doing it? Investment will ensure that we have efficiencies" General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

More competition needed at the ports

A number of marketers and traders suggest investment is needed to increase competition at the ports, thereby increasing efficiencies

- "There is also the option for companies to share investments in new port facilities. That way you can share the risk… Traders come and go, but when you have skin in the game and integrated partners, its different. Your customers treat you different." General Manager, grain exporter, medium

- "The access to ports is an issue… We need more competition at the ports. Bunge investment is a great example, if that investment wasn't made, the system would all be less efficient." Director, grain marketer, large

- "New port facilities need a new concept to make them work. I think we will see more investment in this space. The new model could include on-farm storage and capacity options." Director, grain marketer, large

- "There is room for more competition at the ports. They need to be more efficient, and competition brings this. A new port facility at Geraldton or Kwinana would improve efficiencies." General Manager, grain exporter, medium

Source: Coriolis interviews and analysis

Improved container access and flow

Investment is needed in port infrastructure to enable growth in the container trade

- "Getting a good containerised port needs work. Fremantle is currently 'band-aided'. The roads are full of trucks and the port is full." Director, value added processor, medium
- "Biggest issue at the port is one [container] port operator (Patrick) is full and the other is almost full. The slots are so tight, its difficult to get bookings. Its a poor service." Director, grains trader, medium
- "We can get containers to EU and Japan at the same price as bulk. The industry, trucks and trains are all unitised to containers." Director, grains trader, medium
- "Access to freight and containers are an issue for value added products." General Manager, grain marketer, medium
- "The potential site at Kwinana would be beneficial… The industry needs clear direction, a workable space, and good access. At the moment there is no security of tenure [at some ports], so it limits investment and growth at the ports." General Manager, grain exporter, medium
- "The way of the future will be containerised shipments to specific customers. The premium gained through product specification will more than offset the loss by division" Executive, industry body
- "Australia lost its ability to differentiate its wheat. We need more container exports to specialised groups." Professor, research institution
- "Getting through Fremantle to the port is a nightmare." Director, grains trader, medium
- "Containers are growing. The world is shifting to containers. They are more convenient. You buy what you require, just in time, variable qualities. Obviously the biggest problem is there aren't the containers available coming in. We don't have the population to support a large number of inbound containers." Director, grains trader, medium
- "Most products have moved to containers. Grain is going through that transition." Director, grains trader, medium
- "Its difficult to grow the business, its constrained… We looked at Kwinana but no options, no berths. We would like to invest more at the port but they want us out, there is nowhere for us to go. It will become a real issue soon." Director, grain marketer, large

Source: Coriolis interviews and analysis

4. Wheat

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

page 5 — *1. Core Opportunity*

page 15 — *2. Current Industry Situation*

page 45 — *3. Emerging Investment Themes*

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page 176 — *8. Animal Feeds*

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page 210 — *10. Key Firms Profiled*

4.1 Global wheat market summary

Wheat has a large and competitive global market, but with solid fundamentals

- High level macro drivers support stable future wheat demand

PRODUCTION

- Wheat is a major global crop accounting for 26% of global grain production
- Global production is growing at 1.8% per year (40y CAGR), driven by moderate growth in total consumption (including via animal feed)

DEMAND

- Wheat is used primarily in foods (65-70%+), animal feeds (20%+) and industrial applications (10-15%)
- Major wheat using sectors are experiencing moderate sales growth
- There are a wide range of customers for wheat across Asia and globally

TRADE

- Global wheat trade is growing, driven by growing volume (10y CAGR 4.0%) and growing average prices (10y CAGR 4.8%) leading to growing trade value (10y CAGR 8.9%)
- Market share in the global wheat trade experiences inter-year variability (driven by weather), but is relatively stable through time

Macro drivers support market growth

High level macro drivers support stable future wheat demand

Global production growth

1.8%pa

Global consumption growth (all forms)

0.3%pa

Global pasta/noodles sales growth

3.7%pa

Global biscuit sales growth

4.0%pa

Global bread/pastries sales growth

2.3%pa

Global trade volume growth

4.0%pa

X

Global trade price growth

4.8%pa

=

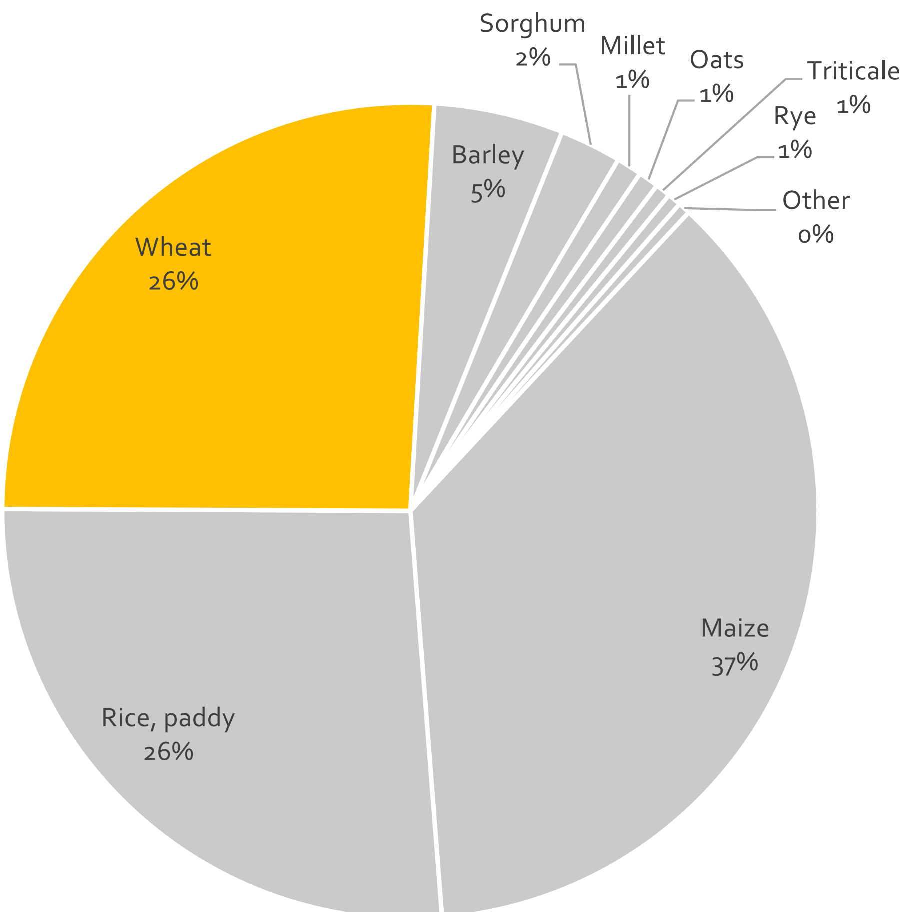
Global trade value growth

8.9%pa

Major global crop

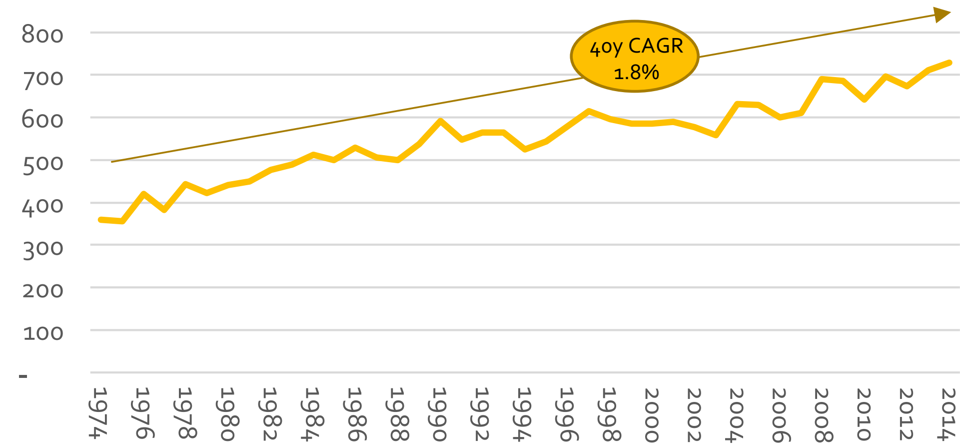
Wheat is a major global crop accounting for 26% of global grain production; global production is growing at 1.8% per year (40y CAGR), driven by moderate growth in total consumption (including via animal feed)

Global grain production by type (t; m; 2014)

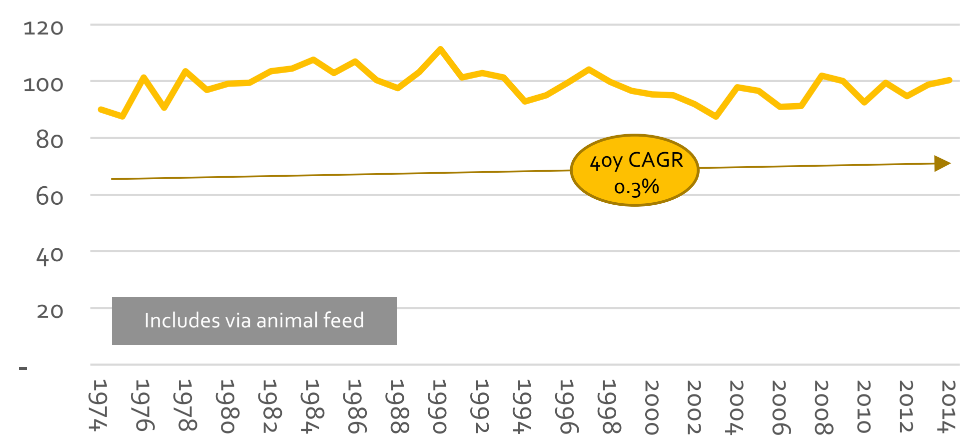


TOTAL = 2,819m tonnes

Global wheat production by type (t; m; 74-14)



Global wheat consumption per capita; all forms (kg; 74-14)



Source: FAO, Coriolis analysis

Three key uses

Wheat is used primarily in foods (65-70%+), animal feeds (20-25%+) and industrial applications (5-10%)

FOOD & SIMILAR

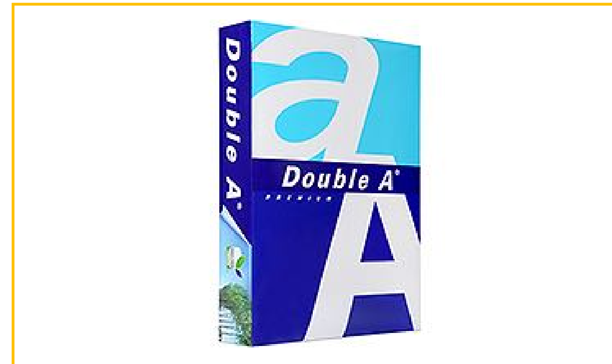
65-70%+

- Staple of the human diet globally; 20% of global food calories
- Processed and used in a huge range of everyday baked goods and other foods
- Uses include bread, cakes, noodles, pasta, crackers and a wide range of other baked goods

ANIMAL FEED

20-25%+

- Widespread use in intensive meat, egg and dairy production systems
- Lower quality grain and processing by-products used
- Used as a grain or in a preformulated, pelletised product along with other grains and supplements



INDUSTRIAL/OTHER

5-10%

- Wheat starch (by-product of wheat flour) used in adhesives, paper production and in biofuels
- Range of other relatively minor uses

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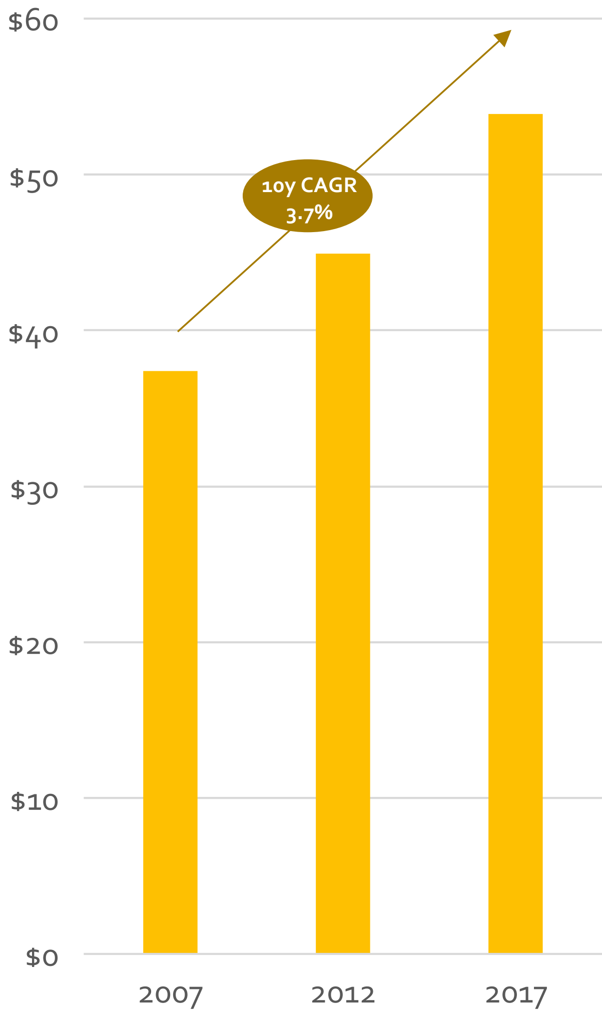
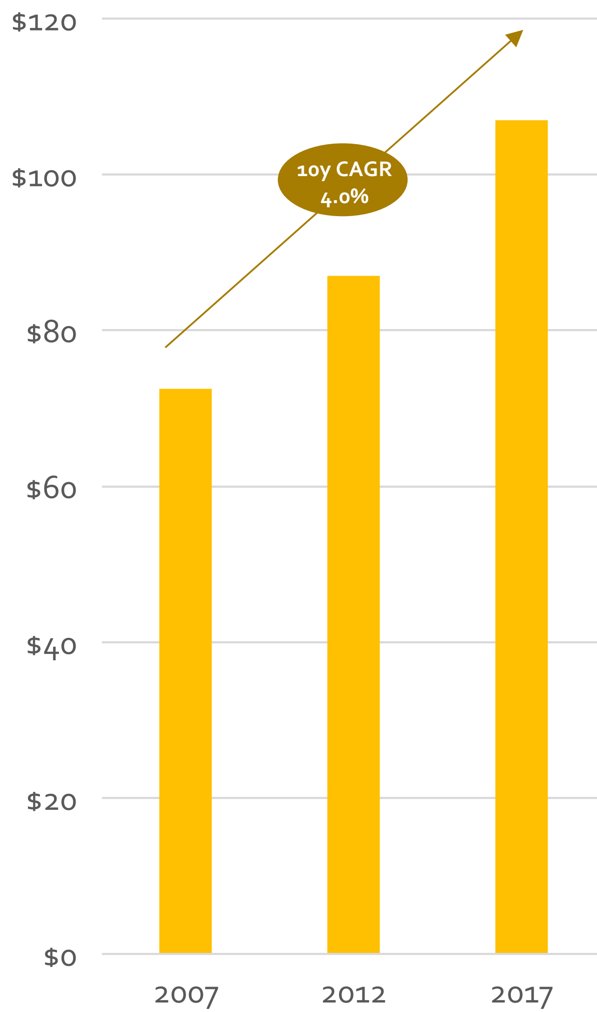
Growing market

Major wheat using sectors are experiencing moderate sales growth

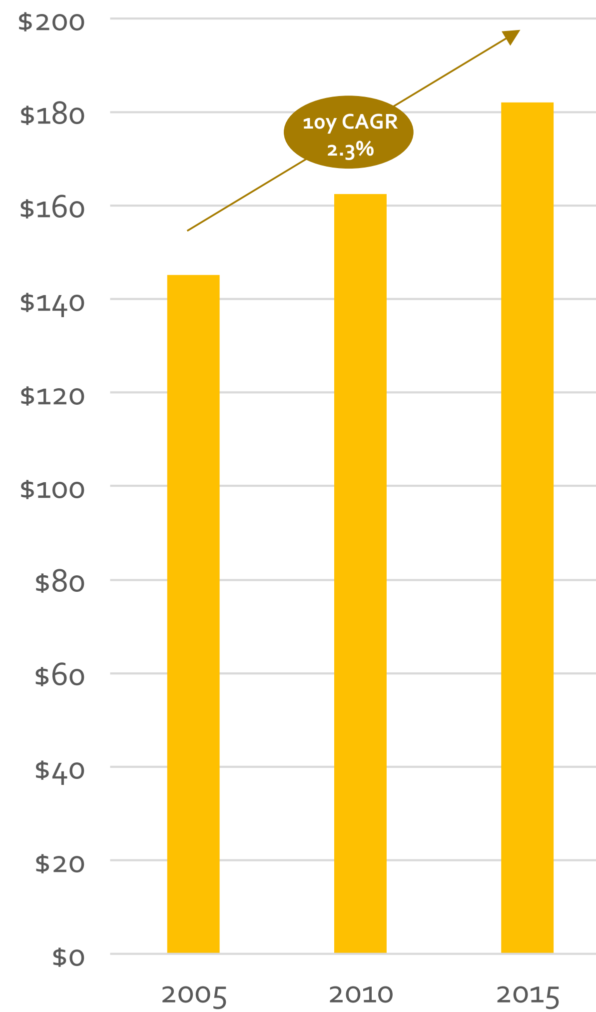
Global pasta/noodles (US$b; 07-17)



Global biscuit (US$b; 07-17)



Global bread/pastries/similar (US$b; 07-17)



Note: excludes made-on-site foodservice; Source: Euromonitor; GIA; FAO; Coriolis analysis

Key global firms

There is a wide range of customers for wheat across East/South East Asia and globally

Examples of major global customers for wheat-based ingredients

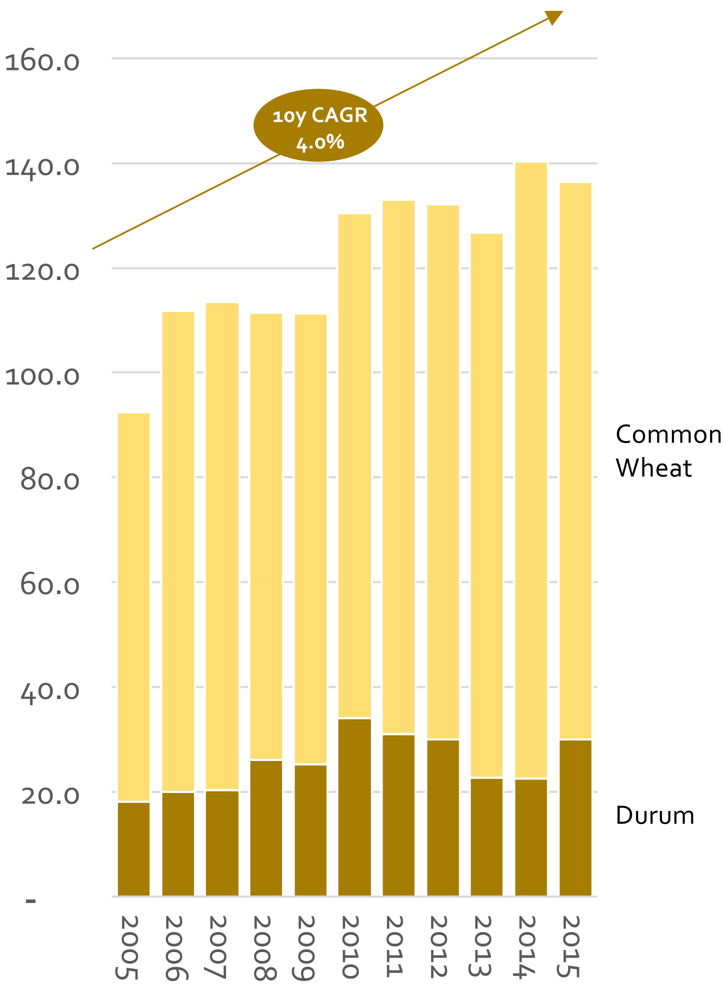
Global firms

East/South-East Asia firms

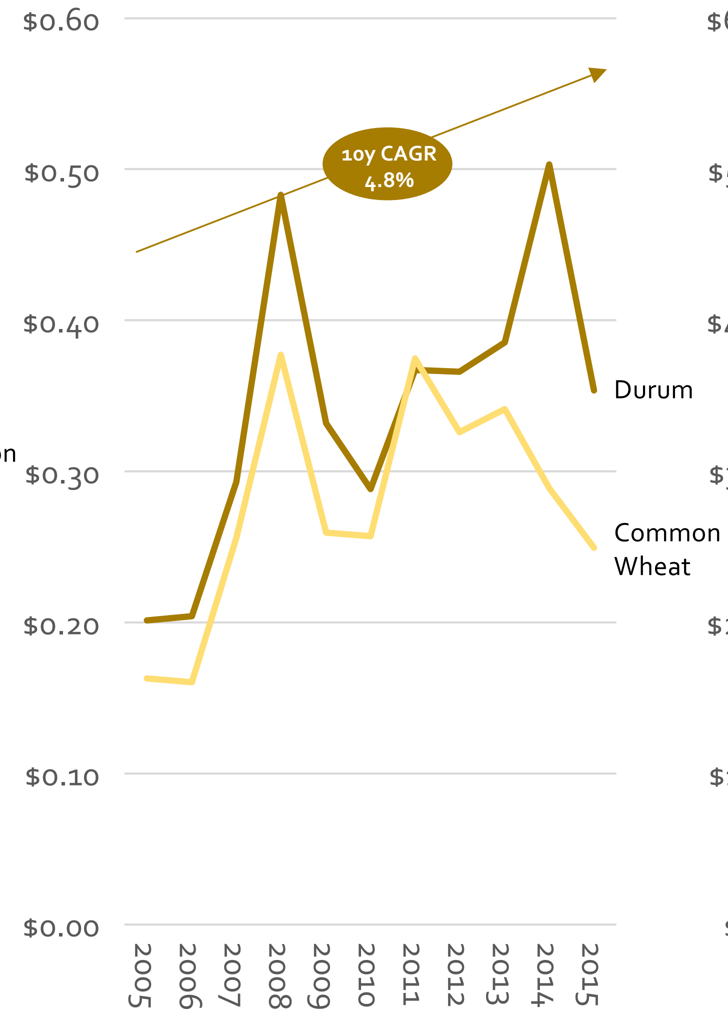
Growing wheat trade

Global wheat trade is growing, driven by growing volume (10y CAGR 4.0%) and growing average prices (10y CAGR 4.8%) leading to growing trade value (10y CAGR 8.9%)

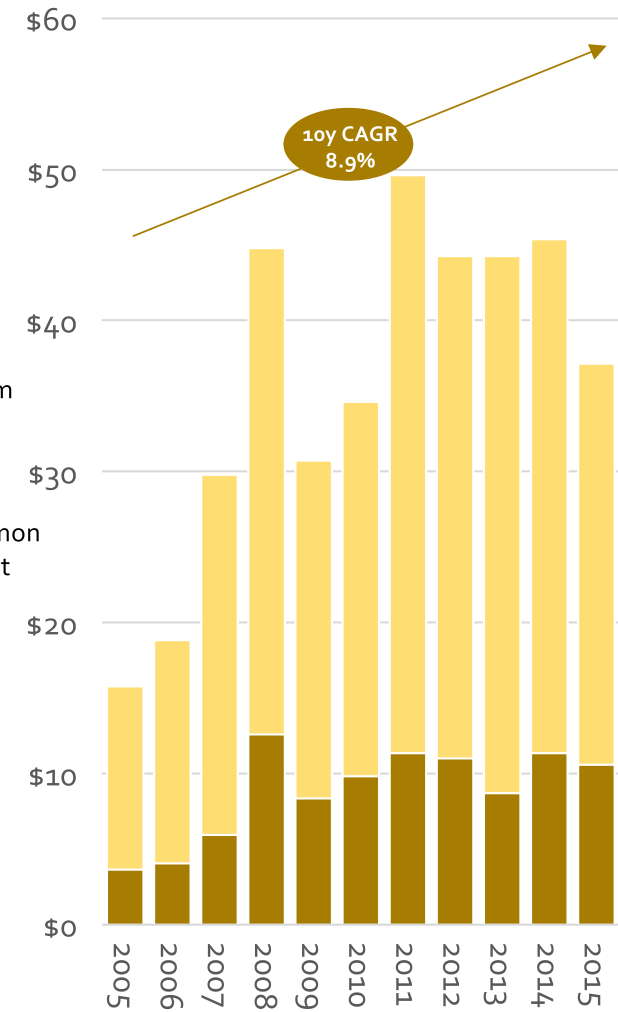
Global export volume (t; m; 05-15)



Average global price (US$/kg; 05-15)



Global export value (US$; b; 05-15)

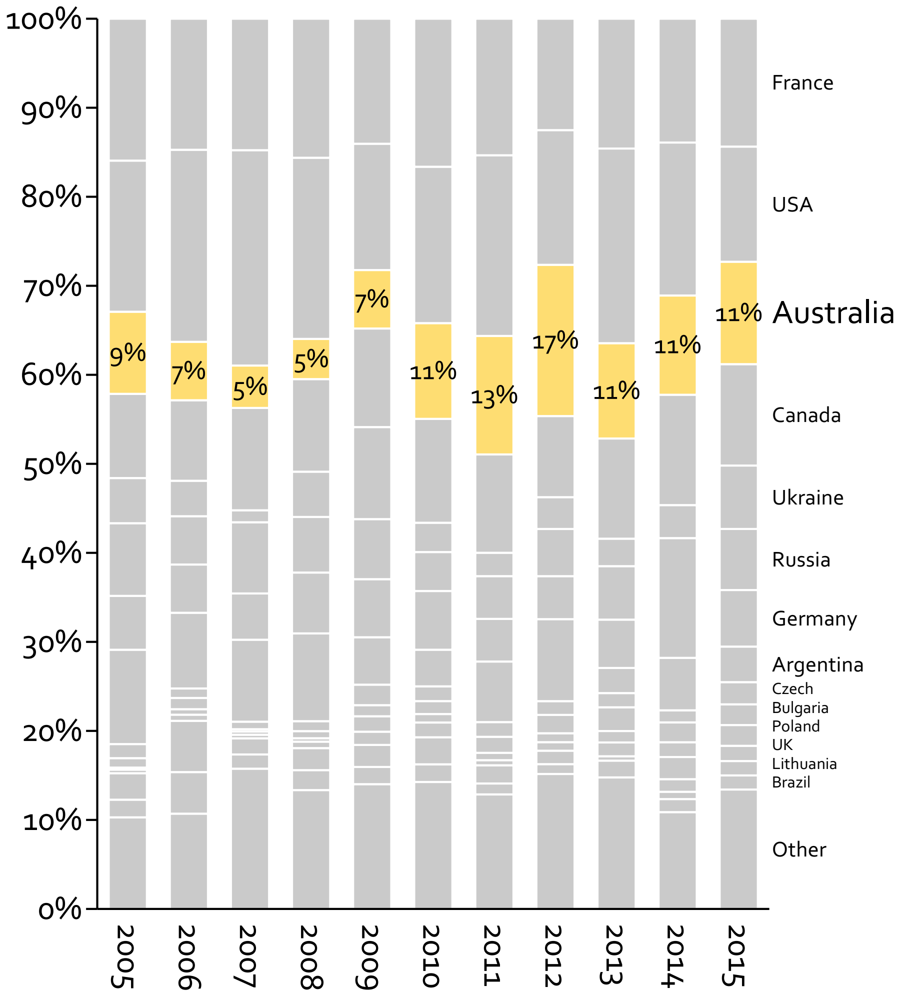


Source: FAO; Coriolis analysis

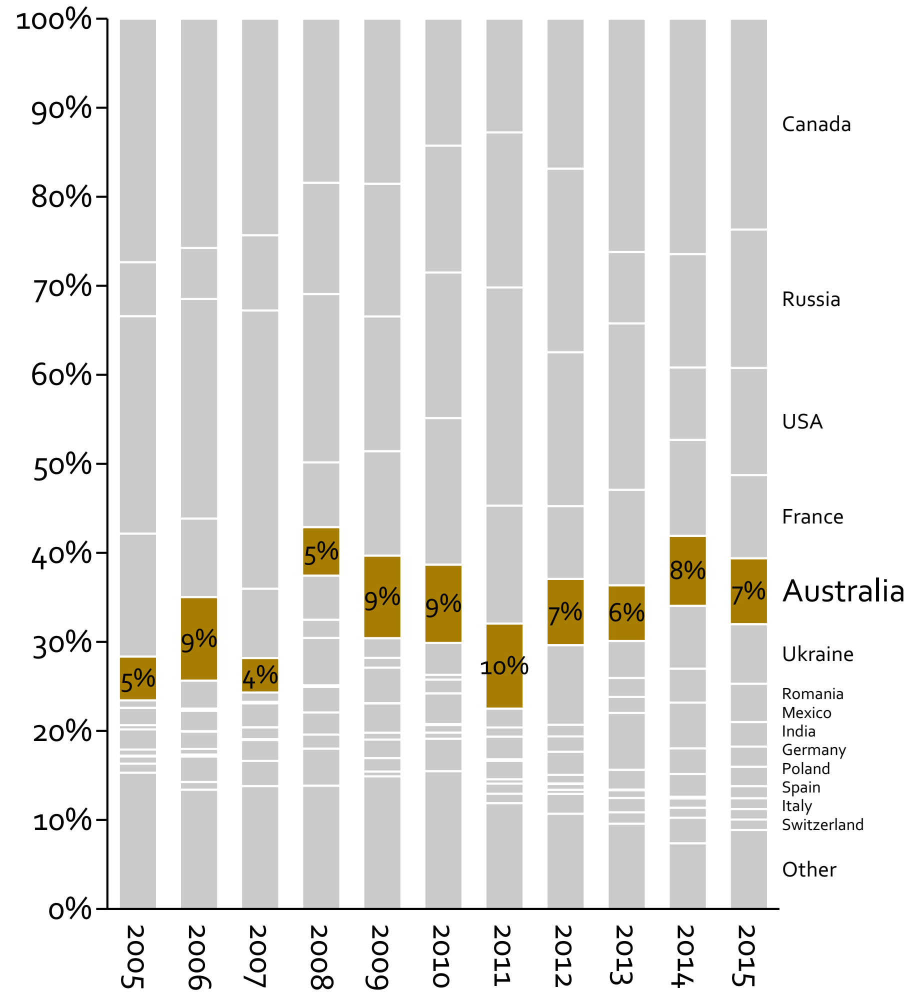
Global shares stable

Market share in the global wheat trade experiences inter-year variability (driven by weather), but is relatively consistent when viewed through time

Share of global common wheat export volume (% of t; 05-15)



Share of global durum wheat export volume (% of t; 05-15)



Source: Comtrade; Coriolis analysis

4.2 Western Australia wheat situation

Western Australia is a major wheat exporter with potential for continued production growth

- Western Australia is the second largest wheat producer in the Southern Hemisphere and the largest on a per capita basis
- Macro drivers for the WA wheat industry present a solid growth environment going forward

PRODUCTION

- Western Australia can continue to increase wheat area going forward
- Western Australia has achieved long-term wheat yield improvement of 1.1%pa (66y CAGR) since the 1950's
- A wide ranging group of climatic and competitive peers indicates further yield improvements should be possible
- Western Australia can continue to increase wheat production in the future

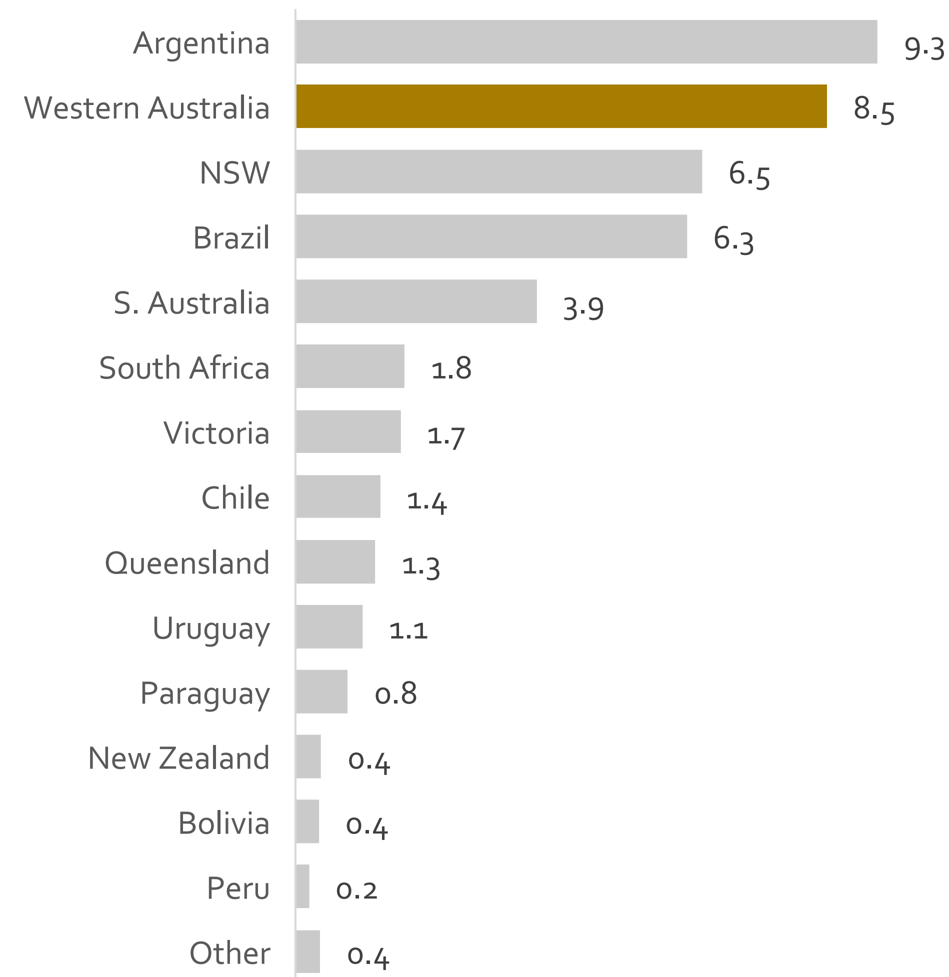
EXPORTS & MARKETS

- Western Australia exported A$2.4b in wheat (YE Mar 17), representing 45% of total Australian wheat exports; the state has maintained this leading position through time
- Western Australian wheat exports go to East and South East Asia predominantly

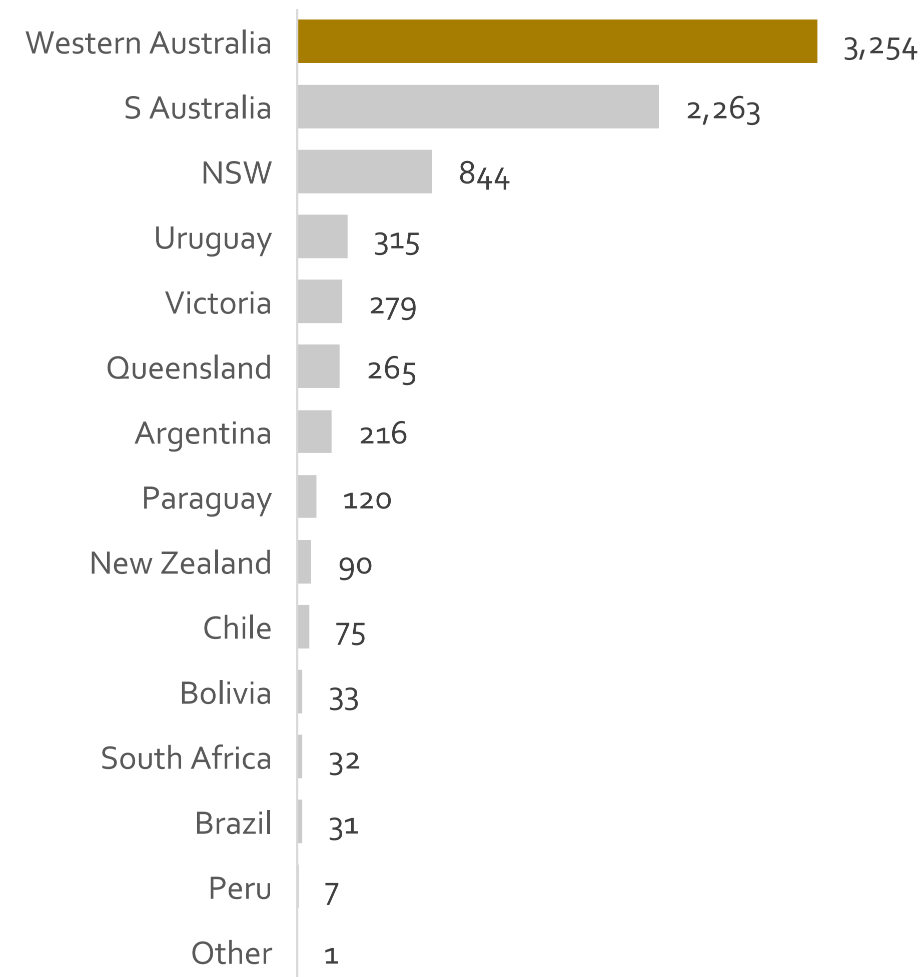
Major Southern Hemisphere producer

Western Australia is the second largest wheat producer in the Southern Hemisphere and the largest on a per capita basis

Southern Hemisphere wheat production (t; m; 2014 or 15)



S.H. wheat production per person (kg/head; 2014 or 15)



Source: FAO; ABS; UN

Macro drivers support moderate growth

Macro drivers for the WA wheat industry present a solid growth environment going forward

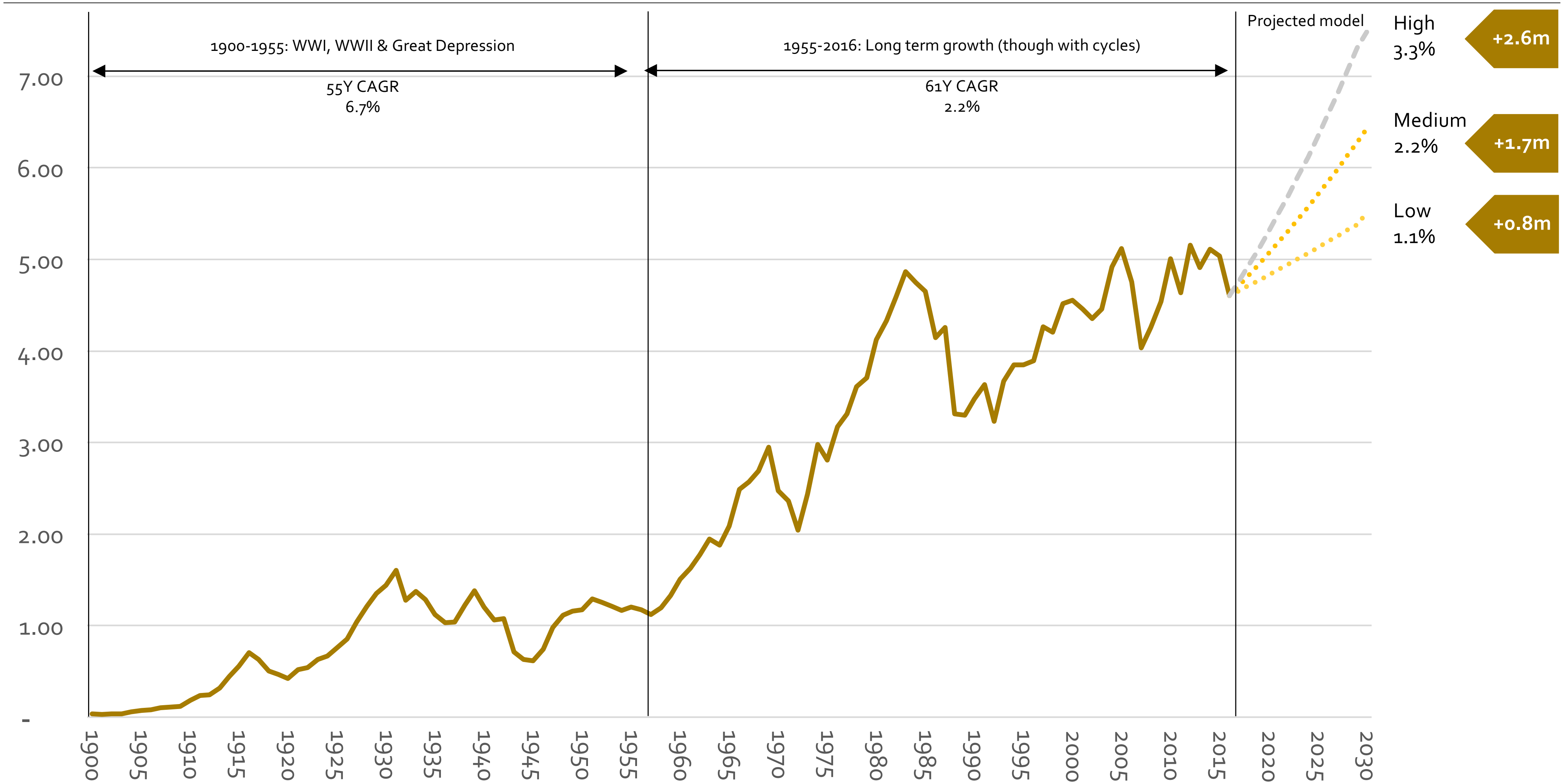
Area Growth		Yield Growth		Production Growth
2.2% (1.1% to 3.3%pa)	X	1.1%pa	=	3.3% (2.2% to 4.4%pa)

* at some level; not in all locations

Continued area growth

Western Australia can continue to increase wheat area going forward

Wheat area in Western Australia (ha; m; 1900-2015a; 2016p; 2017-2030p)

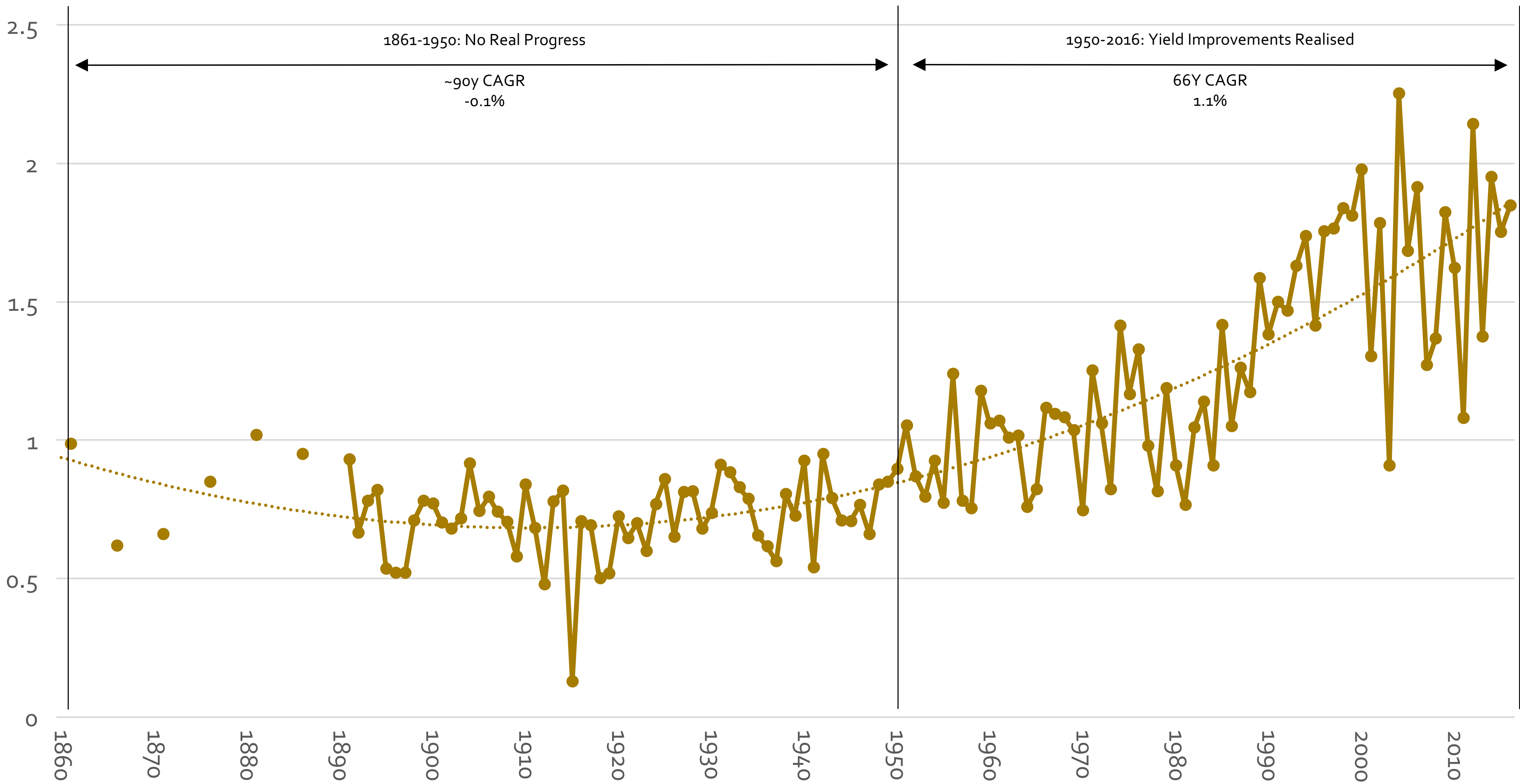


Source: various ABS publications and reports; Coriolis analysis and modelling

Achieved yield growth

Western Australia has achieved long-term wheat yield improvement of 1.1%pa (66y CAGR) since the 1950's

Wheat yield in Western Australia (t/ha; 1861-2015a; 2016p)

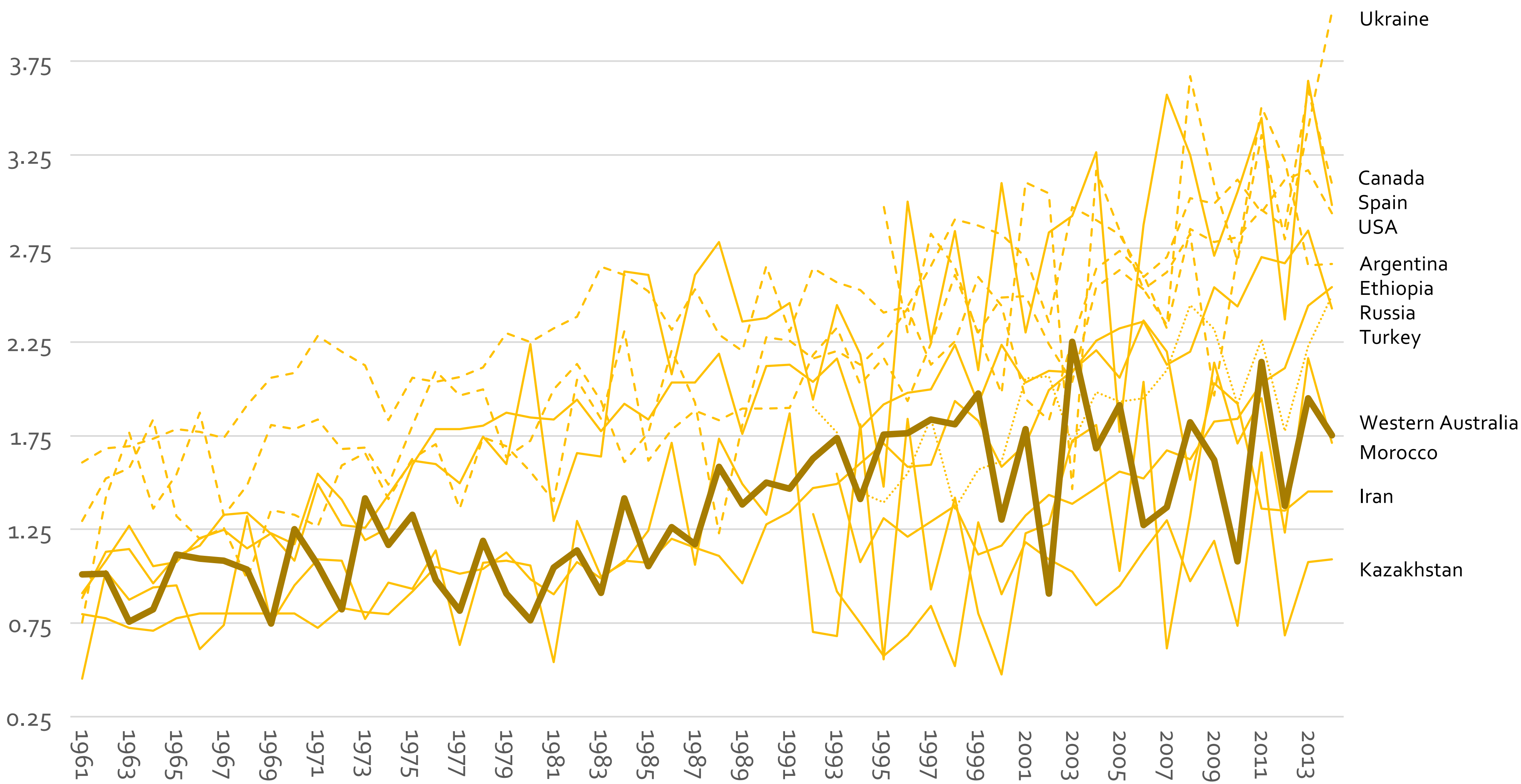


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Further yield improvements possible

A wide ranging group of climatic and competitive peers indicates further yield improvements should be possible

Average wheat yield (t/ha; 61-14)

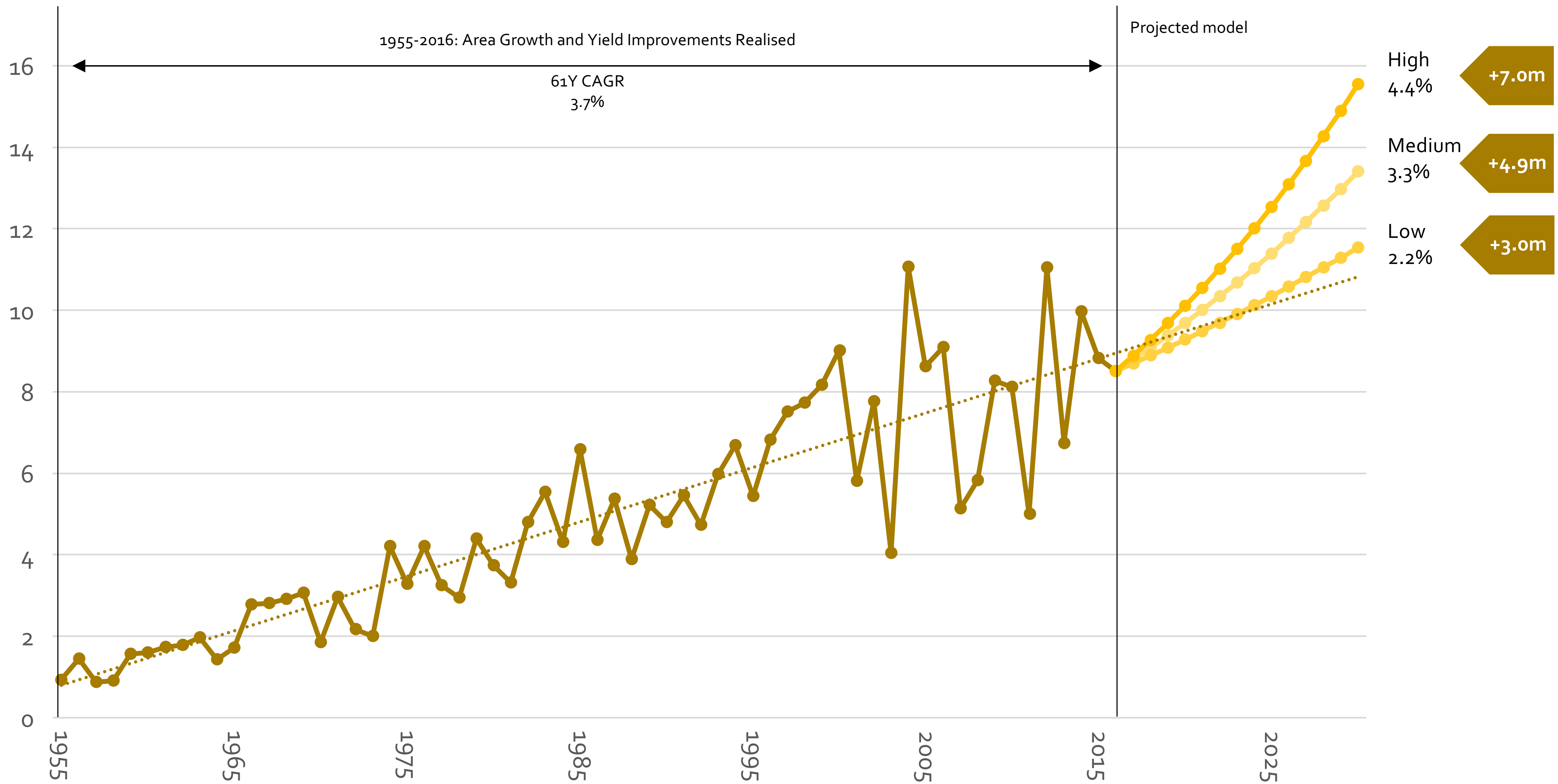


Note: 2014 is the latest available globally; WA uses 62-15; Source: United Nations FAO; various ABS publications and reports; Coriolis analysis

Production growing

Western Australia can continue to increase wheat production in the future

Wheat production in Western Australia (t; m; 1955-2015a; 2016p; 2017-2030p)

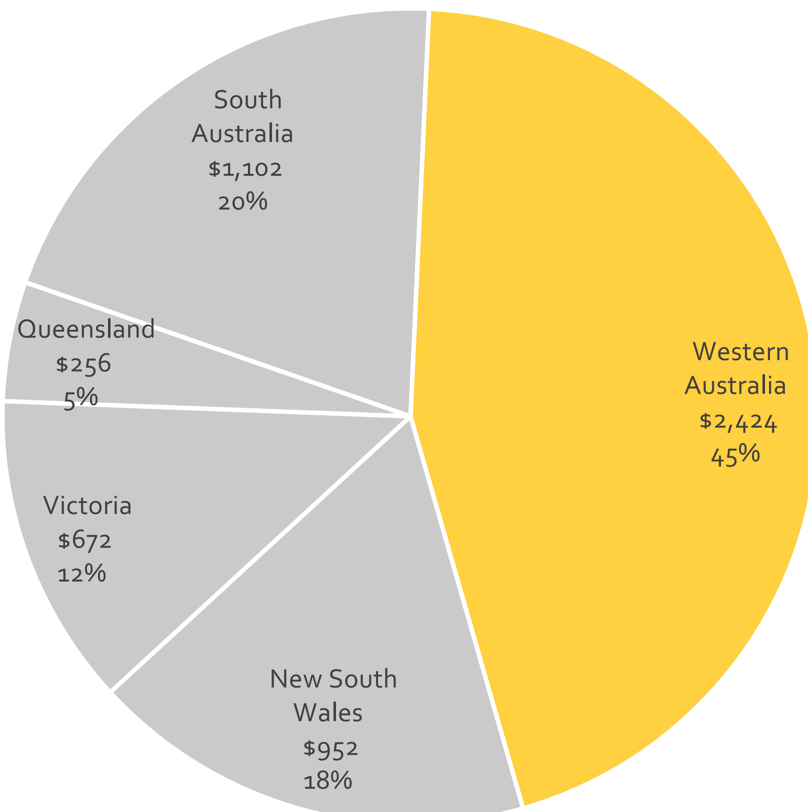


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis and modelling

Leading Australian exporter

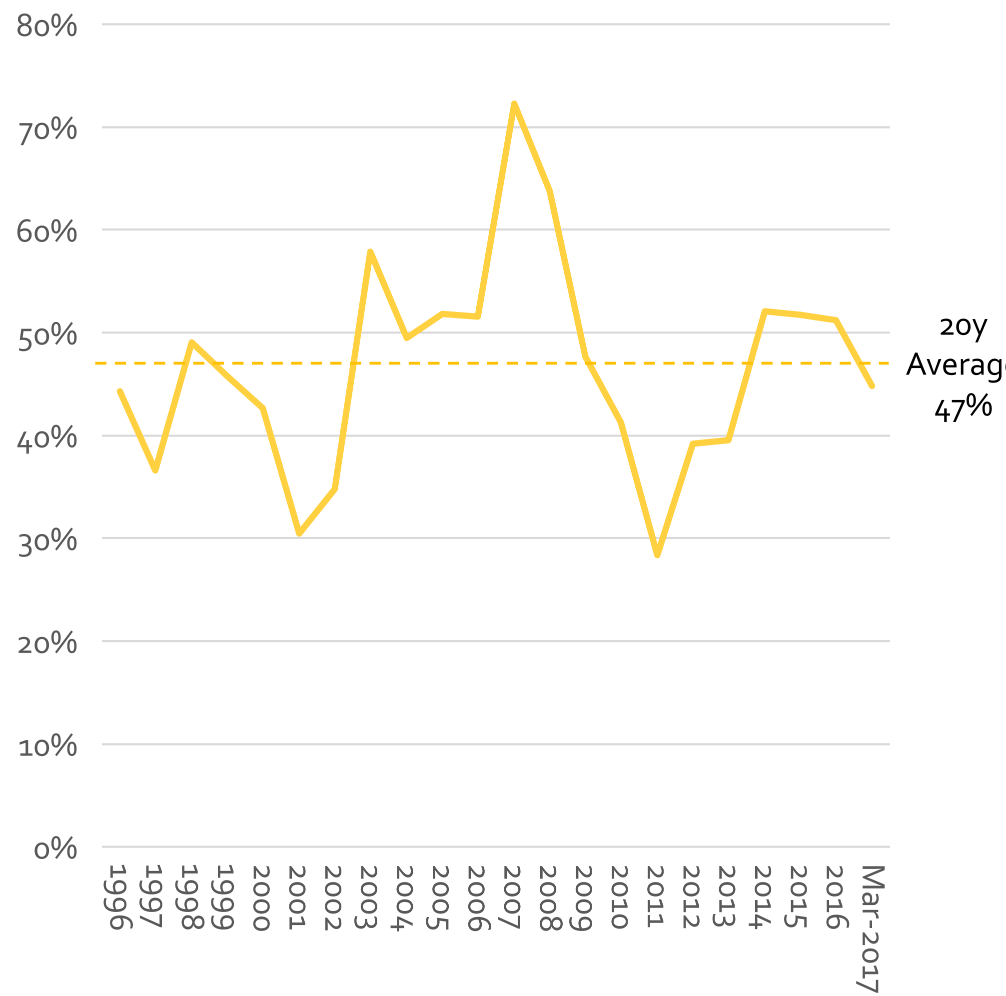
Western Australia exported A$2.4b in wheat (YE Mar 17), representing 45% of total Australian wheat exports; the state has maintained this leading position through time

Australian wheat export value by state (A$m; YE Mar 17)



Total = A$5,407m

WA as a % of Australian wheat exports (% of $; 96-17*)

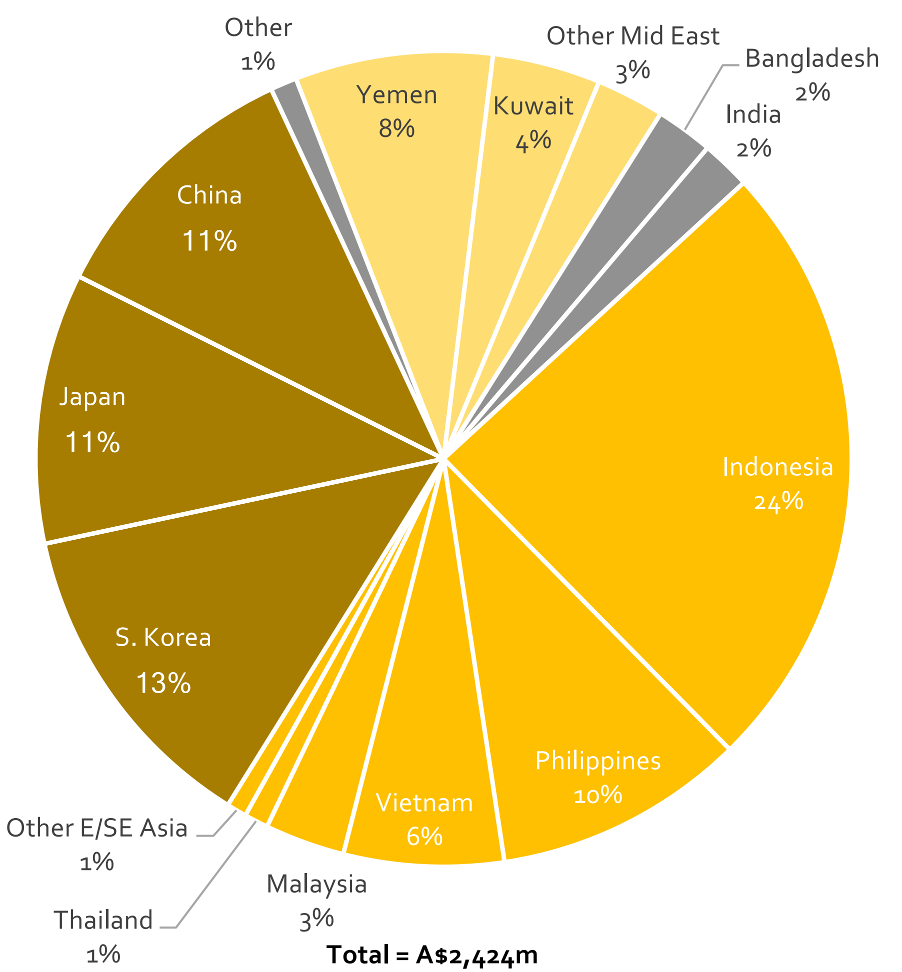


* YE March 2017; Source: ABS; Coriolis analysis

East & South East Asian markets

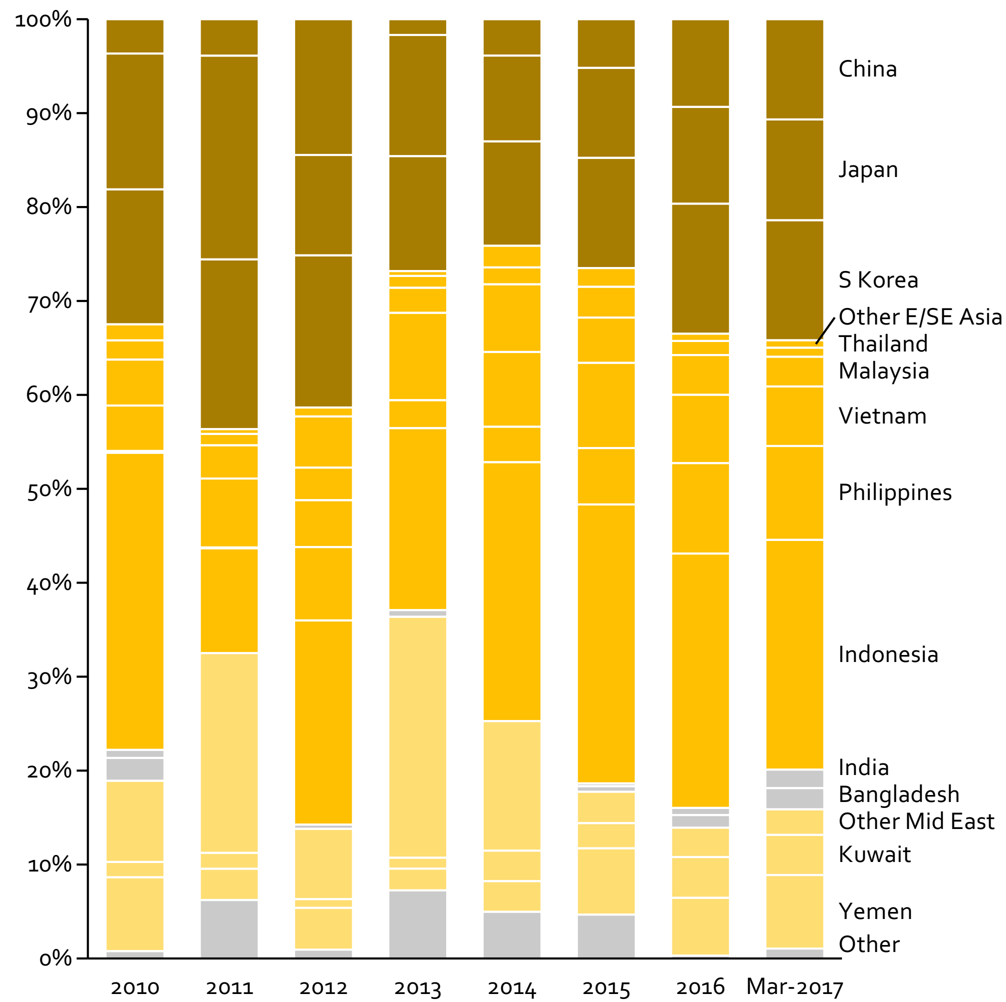
Western Australian wheat exports go to East and South East Asia predominantly

WA wheat exports by destination (A$; m; YE Mar 17)



Total = A$2,424m

% of WA wheat exports by destination (% of $; 10-17*)



* YE Mar 2017; Source: ABS; Coriolis analysis

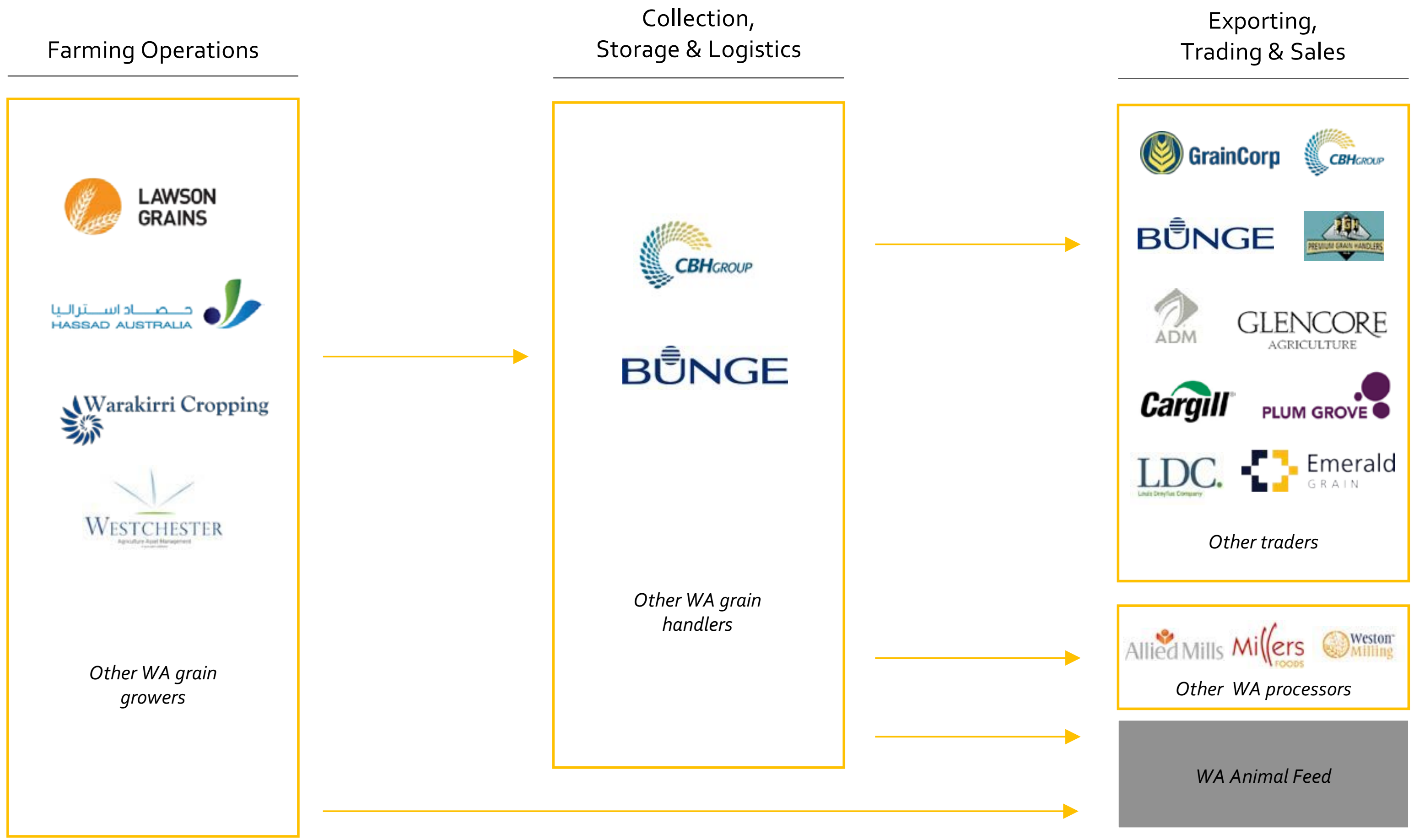
4.3 Western Australia wheat firm activity

Western Australia has a robust wheat industry

- The supply chain for Western Australian wheat is streamlined; highly consolidated at the handling and storage stage and majority exported
- Wheat is the key grain for the major grain firms operating in Western Australia
- Western Australia has three flour mills; majority of wheat is bulk shipped from its port terminals
- The collection, distribution and storage of wheat is primarily conducted by CBH, a grower-owned cooperative; a number of firms export wheat from WA, with most key global traders present
- Investment is occurring across the wheat supply chain, on-shore and off-shore
- There are a number of potential acquisition targets in the Western Australian wheat industry

Wheat – a multistage supply chain

The supply chain for Western Australian wheat is streamlined; highly consolidated at the handling and storage stage and majority exported



Source: industry interviews, Coriolis analysis

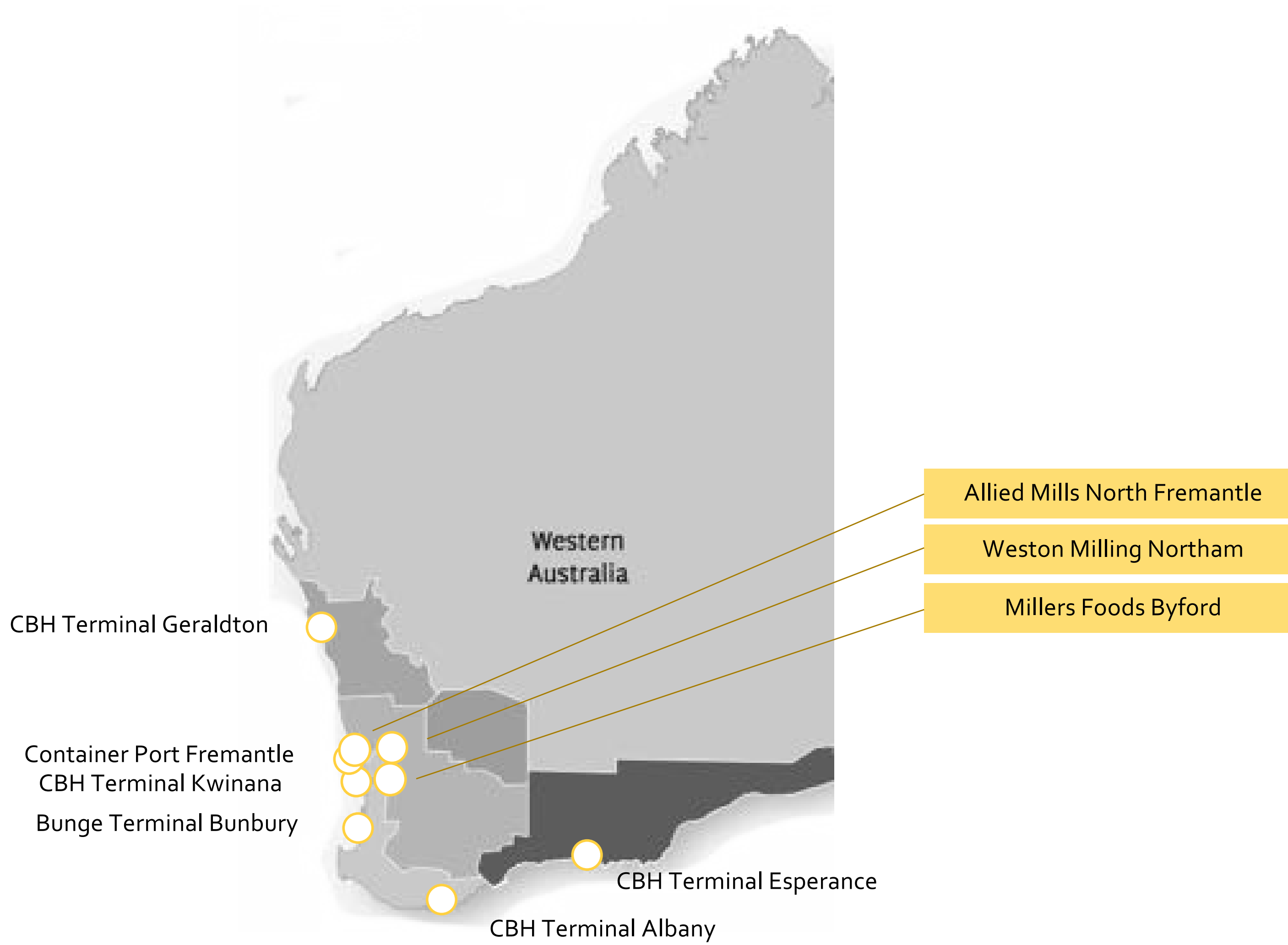
Firms across the wheat supply chain

Wheat is the key grain for the major grain firms operating in Western Australia

	Description	Farming	Bulk handling	Processing	Exporting/ marketing	Branded product
Lawson Grains	Macquarie Group's investment in broadacre agriculture	✓				
Hassad Australia	Global investor and developer in agriculture and livestock sectors; Qatar Investment Authority	✓				
Warakirri Cropping	Leader in Australian agricultural investment management; established in 1996 on behalf of Australian superannuation funds	✓				
Westchester	Global agriculture real estate investment managers	✓				
Esperance Quality Grains	Handling & storage, cleaning, trading and exporting company; co-owned farming operations	✓	✓		✓	
Premium Grain Handlers	Grain supply, storage, cleaning, processing, bagging and container packing service; established in 1995	✓	✓		✓	
CBH Group	Australia's largest co-operative; operations in grain storage, handling, transport, marketing and processing; established in 1933		✓		✓	
Bunge	Leading marketer of Australian grains; receival sites and port terminals in WA; established in 1923		✓		✓	
Allied Mills	One of Australia's largest manufacturers and distributor of bakery premixes, flour and semi-finished products; flour mill in North Fremantle			✓		✓
Millers Foods	Flour mill in Byford; flours, meals, premixes, pizza flours, baking ingredients; established in 1999 through management acquisition of Defiance flour mill			✓		✓
RKD Food Assurance Integrity	Golden Bull Flour company; part of RKD International, food sales and distribution			✓	✓	✓
Weston Milling	Maurianz brand; milling operations in Northam, WA; leading supplier of bakery ingredient solutions across Australia and NZ; animal nutrition operations also in WA			✓		✓
GrainCorp	Australia's largest integrated edible oils business and supplier of edible flour; storage and logistics, grain marketing, malt and oils				✓	
ADM	Grain merchandising businesses originating wheat, barley, canola, sorghum and pulses; distribution of ADM food ingredients and animal nutrition; established in 1991				✓	
Cargill	Grain and oilseed origination, storage and handling, grain and cotton trading and export, malt and oilseed processing, JV in beef processing; established 1967				✓	
Emerald Grain	One of the largest grain marketing and supply chain businesses in Australia				✓	
Glencore Agriculture	One of the largest buyers and exporters of Australian wheat, barley, canola, pulses, sorghum and cotton				✓	
LDC	Originates wheat, sorghum, barley and pulses from Australia and merchandises to Asia and Middle East; established in 1913				✓	
Plum Grove	Grain accumulation and export business; accumulates cargos for major end users Salim Group, Mitsui and Seaboard; operations in NSW via major stake in Agrigrain				✓	

Wheat port terminals and flour mill locations

Western Australia has three flour mills; majority of wheat is bulk shipped from port terminals

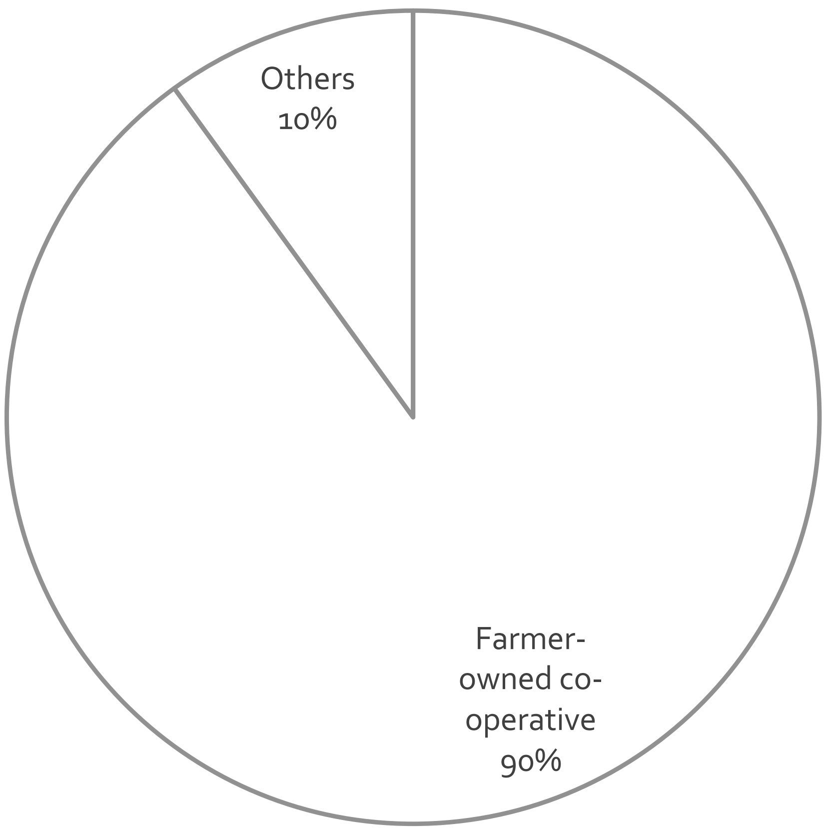


Source: modified from AEGIC; Coriolis analysis

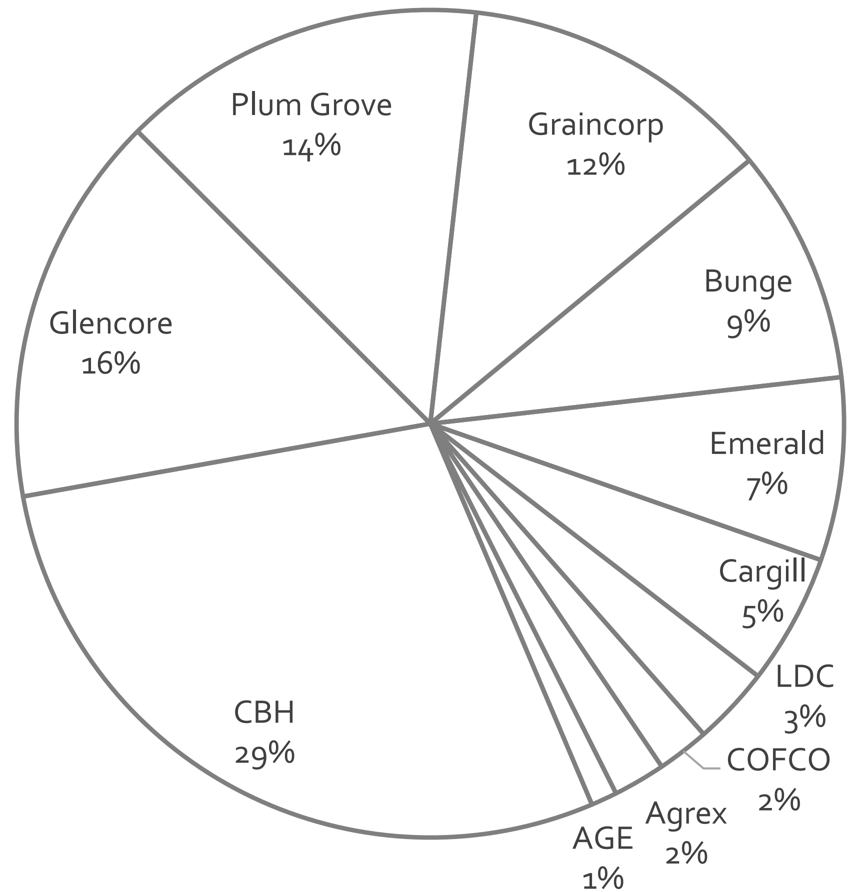
Bulk handling consolidated but trading competitive

The collection, distribution and storage of wheat is primarily conducted by CBH, a grower-owned cooperative; a number of firms export wheat from WA, with most key global traders present

Wheat bulk handling volume share (2017)



Share of WA export wheat volume by exporter (% of t; 2017)



Source: Australian Crop Forecasters; CBH; Coriolis analysis

Wheat sector continues to invest

Investment is occurring across the wheat supply chain, on-shore and off-shore

BUNGE

Bunge

- 2014 Commissioned new terminal at Bunbury port $40m
- 2015 Two new grain receivals

DRIVER

- Increase efficiencies to customers
- Vertically integrate operation

CBH GROUP

INTERFLOUR

CBH - Interflour

- 2005 Invested US$70m in Interflour Asia (5 mills) 50:50 Salim Group – ongoing investments in additional 4 mills
- 2016 Flour milling revenue $341m*

DRIVER

- Diversify risk along supply chain
- Closer to market demand
- Asian flour demand 7% annual growth
- Drive to reach 10,000mt/day by 2018

PEP

Allied Mills

- 2017 Pacific Equity Partners (via Pinnacle) buys Allied Mills (NZ/AU operations – 7 mills) from Cargill and GrainCorp for $360m
- Processes 800,000t wheat (GrainCorp supplied)
- Mill located in North Fremantle

DRIVER

- Supports adjacent business Pinnacle (bakery, pastries)

* 50% of revenue in FY16; Source: interviews; CBH Annual Report; press articles; Photo credit: Map Data: Google

Investment or acquisition targets

There are a number of potential investment or acquisition targets in the Western Australian wheat industry

Potential to acquire key Western Australian wheat operations

Firm	Current Owner	Operations	Product	Potential for outside investment?
Premium Grain Handlers	John Orr	Grain growing Grain cleaning, storage, exporting (Fremantle, Kellerberrin, Wandering)	Grains	Low; recent expansion
Demeter Cormack	Oates	Grain trader	Grains Oilseeds Pulses Animal feed	Medium
Grain Link	Goyder	Grain trader	Hay Grains	Medium
Esperance Quality Grains	Neil Wandel	Grain cleaning and handling; container exports	Grains	Medium; integrated operations; expanding into container exports
Millers Foods	Dunkley, Davies	1 plant (Byford)	Flour	Medium; integrated business with bakery operations (Tru Blue Foods)
Weston Milling	Associated British Foods (UK)	1 plant (Northam)	Flour	Medium; old, small plant; bread manufacturing operations in Perth (Tip Top bread); supply Anchor Foods
Allied Mills	Pacific Equity Partners	1 plant (North Fremantle)	Flour	High; recently acquired by private equity; Pinnacle (PEP owned bakery operations) has no production in WA; recently upgraded facilities

5. Barley

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

page 5 — 1. Core Opportunity

page 15 — 2. Current Industry Situation

page 45 — 3. Emerging Investment Themes

page 75 — 4. Wheat

page 100 — 5. Barley

page 125 — 6. Oats

page 150 — 7. Canola

page 176 — 8. Animal Feeds

page 200 — 9. Pulses & Other Grains

page 210 — 10. Key Firms Profiled

5.1 Global barley market situation

Barley and malt have attractive global markets with solid fundamentals

- High level macro drivers support consistent future barley demand

PRODUCTION

- Barley is a secondary crop accounting for 5% of global grain production
- Global production is shrinking at -0.1% per year (40y CAGR), driven by falling total consumption (including animal feed)

DEMAND

- Barley is used primarily in animal feeds (60%+), beverage production (30%+) and in foods and other products (less than 10%)
- All three of these major barley using sectors are experiencing significant production growth
- There is a wide range of global customers for WA barley

TRADE

- Global barley and malt trade is growing, driven by growing volume (10y CAGR 3.6%) and growing average prices (10y CAGR 3.7%) leading to growing trade value (10y CAGR 7.4%)

Macro drivers support stable market growth

High level macro drivers support consistent future barley demand

Global production growth

-0.1%pa

Global consumption growth (all forms)

-1.6%pa

Global meat production growth

2.4%pa

Global beer production growth

2.1%pa

Global food production growth

7.9%pa

Global trade volume growth

3.6%pa

X

Global trade price growth

3.7%pa

=

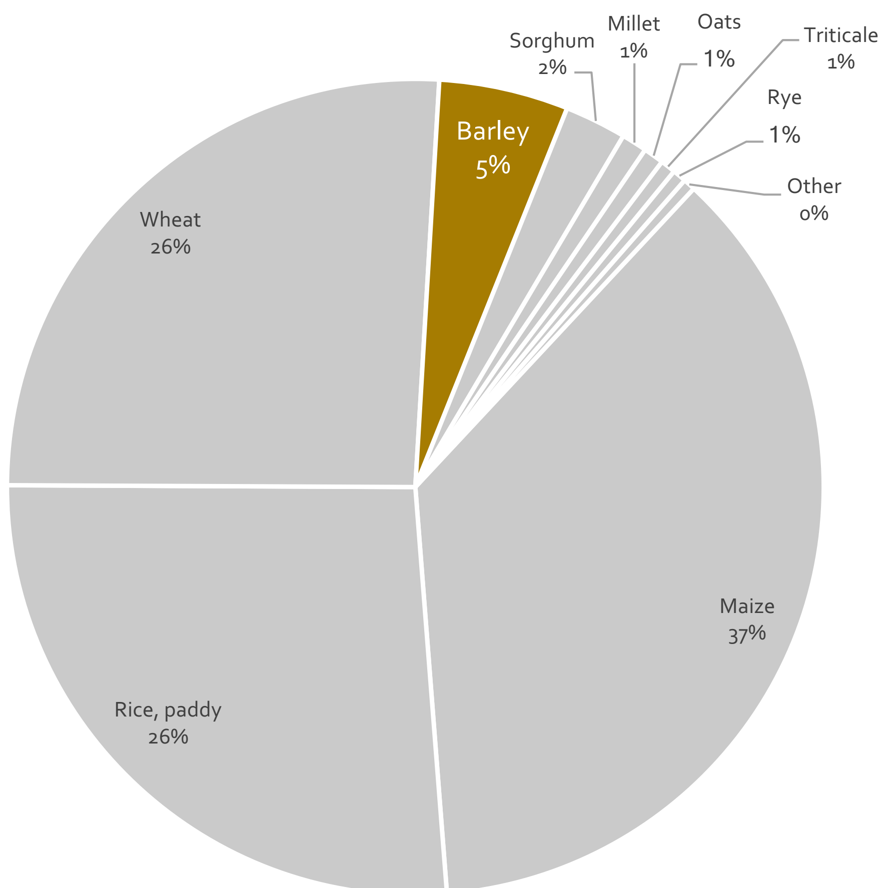
Global trade value growth

7.4%pa

Secondary crop

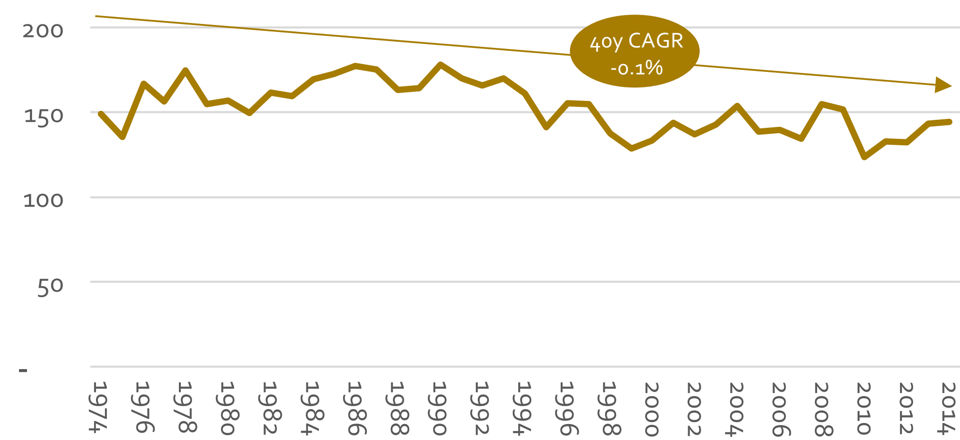
Barley is a secondary crop accounting for 5% of global grain production; global production is shrinking at -0.1% per year (40y CAGR), driven by falling total consumption (including animal feed)

Global grain production by type (t; b; 2014)

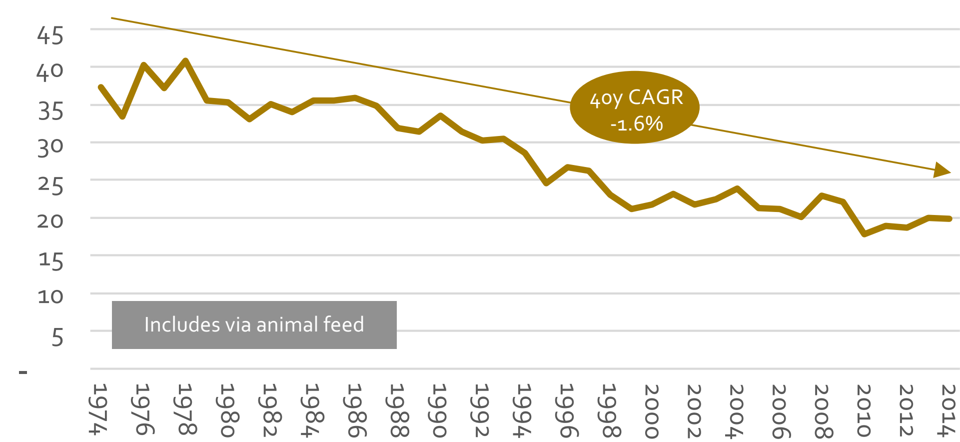


TOTAL = 2,819m tonnes

Global barley production by type (t; b; 74-14)



Global barley consumption per capita; all forms (kg; 74-14)



Source: FAO; Coriolis analysis

Three key uses

Barley is used primarily in animal feeds (60%+), beverage production (30%+) and in foods and other products (less than 10%)

ANIMAL FEED

60%+

- Widespread use in intensive animal production systems
- Some use in other meats & dairy
- Typically used in a preformulated, pelletised product along with other grains and supplements
- By-products of barley grain processing and barley hay also used as feed

BEVERAGES

30%+

- One of the main ingredients in beer (along with hops) and whiskey
- Growing beer consumption in Asia, particularly China

FOOD & OTHER

Under 10%

- Use as a food ingredient across a wide range of food products (e.g. soups, cereals, biscuits, malt vinegar, flours, baby food)
- Some use in flavoured milk powders, particularly in "malted milk"-type powders (Horlicks, Ovaltine, Milo)
- Some use in supplements (malt extract) and personal care products

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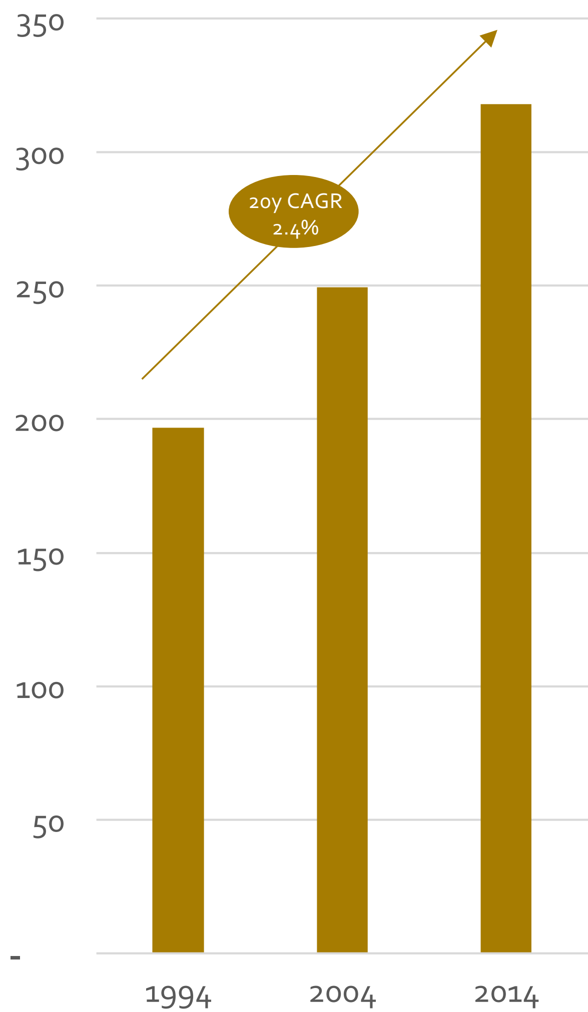
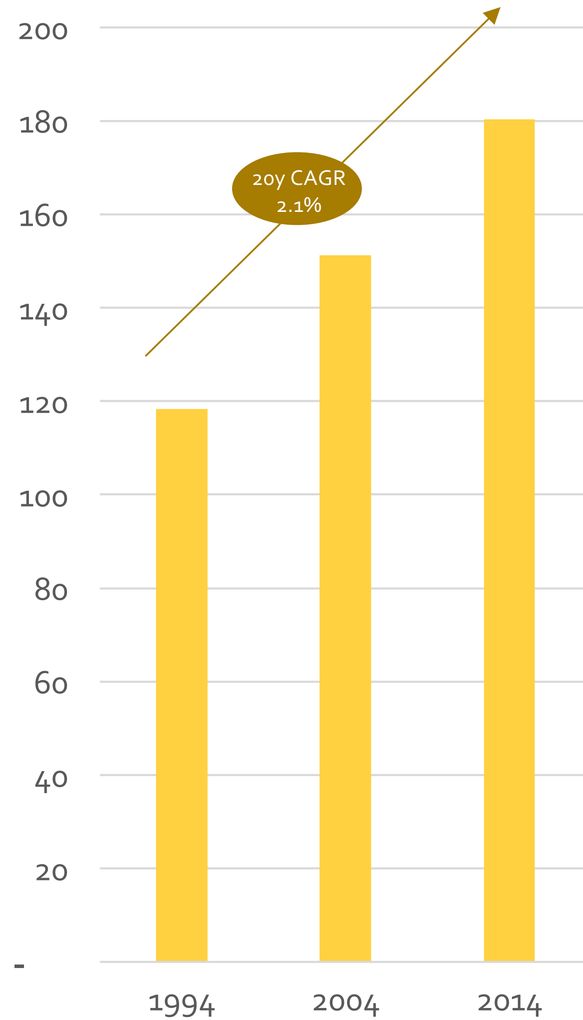
Growing market

All three of these major barley using sectors are experiencing significant production growth

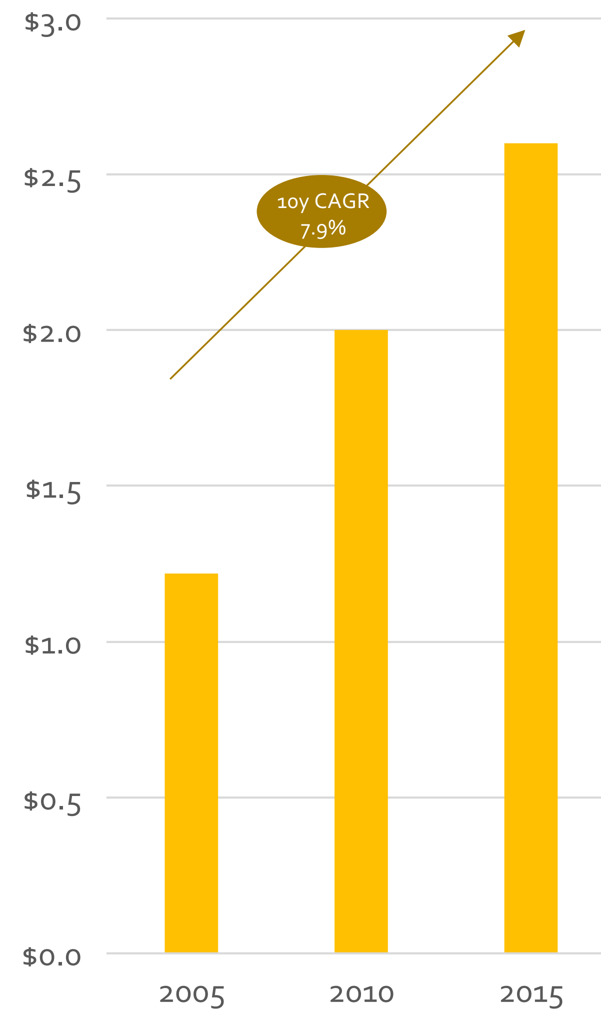
Global meat production (t; m; 94-14)



Global beer production (l; m; 94-14)



Global packaged food (US$t; 94-14)



Source: FAO; Coriolis analysis

Key global firms

There is a wide range of global customers for WA barley

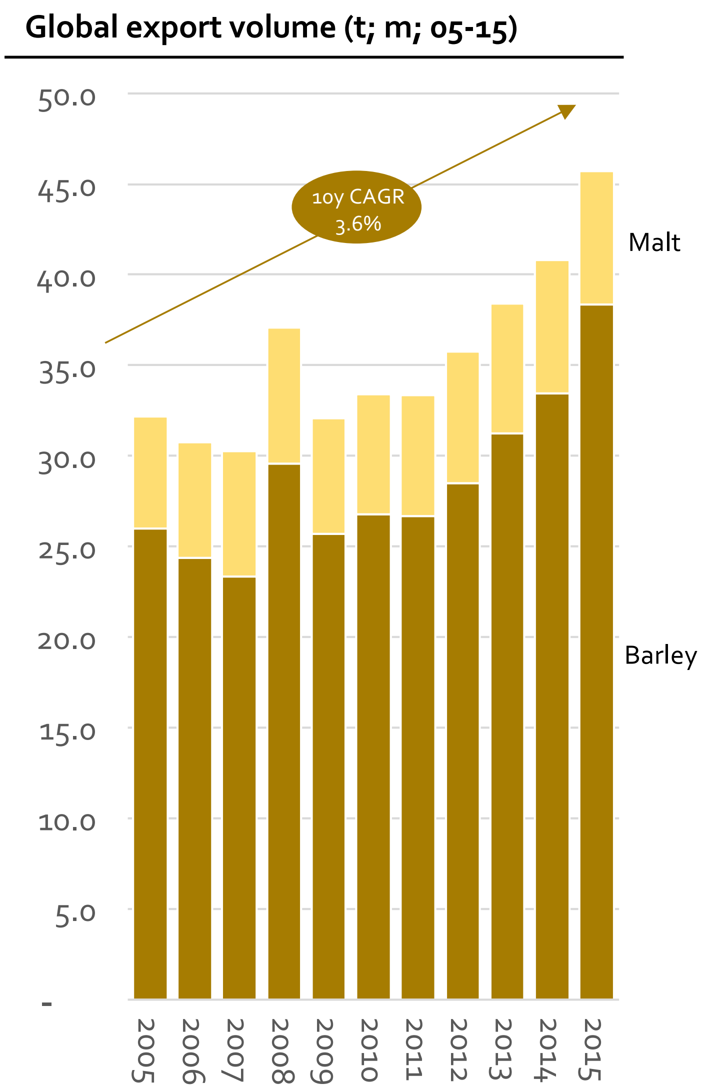
Examples of major global customers for barley

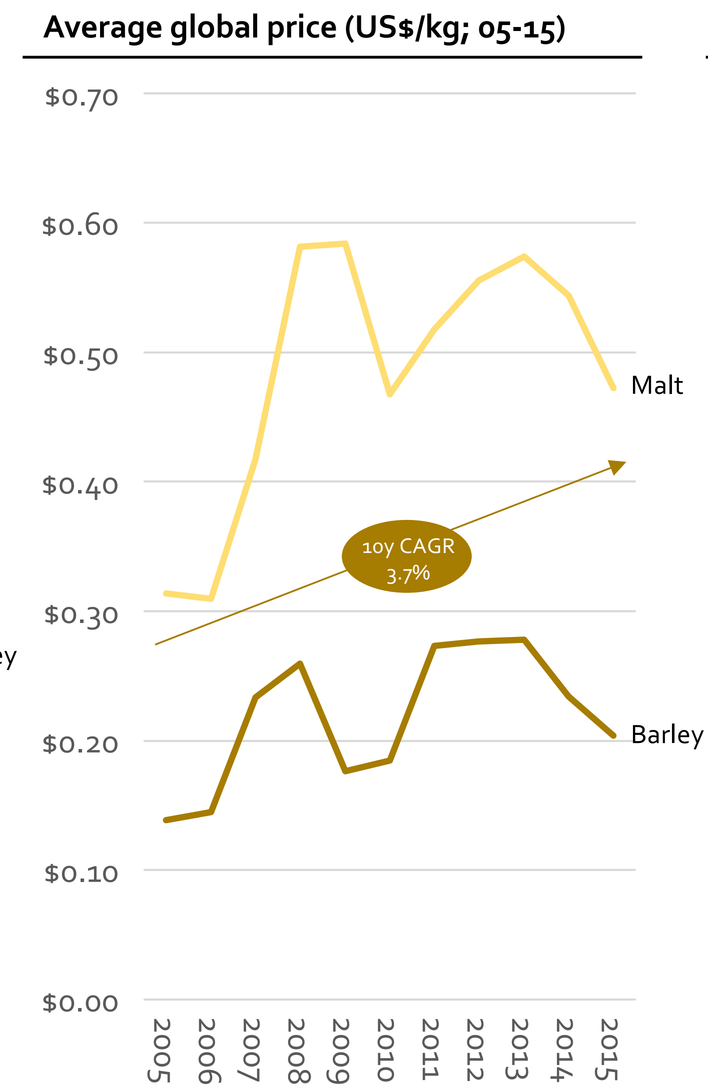
Parent Firm	Relevant Division	Year Founded	Ownership	Countries of Operation	Employees	Throughput	Turnover
VIVESCIA	Malteurop	1984/ 2012	Cooperative; France (11,000 farmers)	14 countries 27 sites	Malt 1,183	1.5m t barley 2.2m t malt	Parent: E3.6b Malteurop: E888m
Cargill	Cargill Malt	1865	Private: USA	Malt: 10 countries 18 operations	Total 150,000	2m t+ malt	Parent: US$107b
GrainCorp	Barrett Burston Canada Malting United Malt Hldg. GermanMalt GmbH Others	1917	ASX-listed; Australia	5 malt	-	1.4m t malt cap.	Parent: A$3.3b
Groupe soufflet		1900	Private; France	18 countries 61 sites 28 barley sites	Total 7,441	6.5m t group 2.28m t malt	Group: E4.7b Malt: E710m
CRISP malting GROUP	Crisp Malting GlobalMalt GmbH	1890	Private; UK	3 countries 7 sites	355	0.3m t malt	£112.9m
IREKS		1856	Private; Germany	Group: 90 countries	Group 2,700	-	-

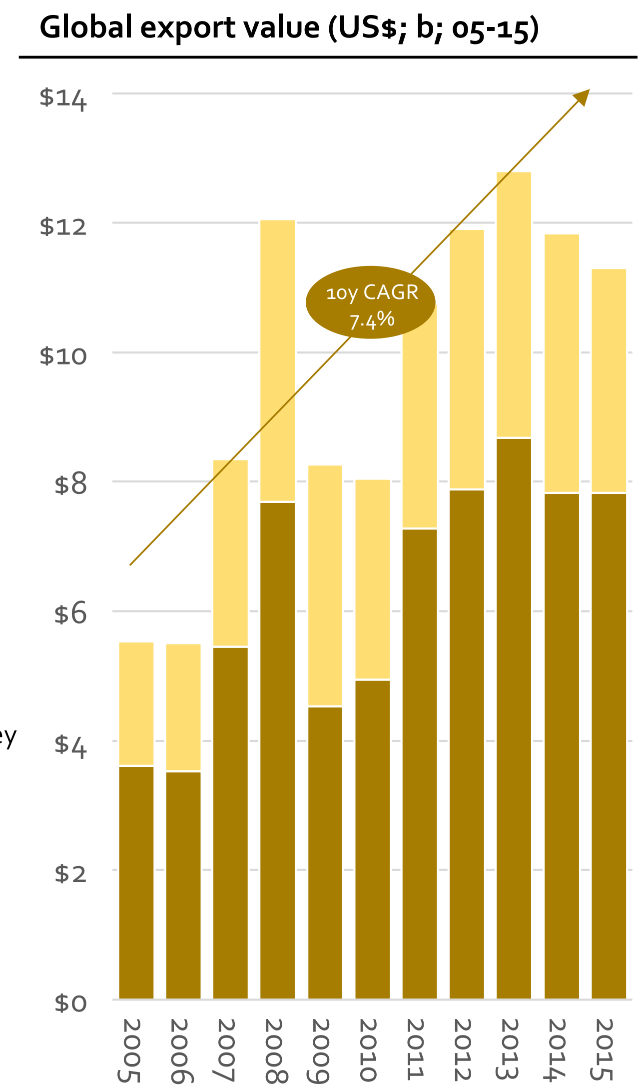
Source: various published sources; Coriolis analysis

Growing trade

Global barley and malt trade is growing, driven by growing volume (10y CAGR 3.6%) and growing average prices (10y CAGR 3.7%) leading to growing trade value (10y CAGR 7.4%)





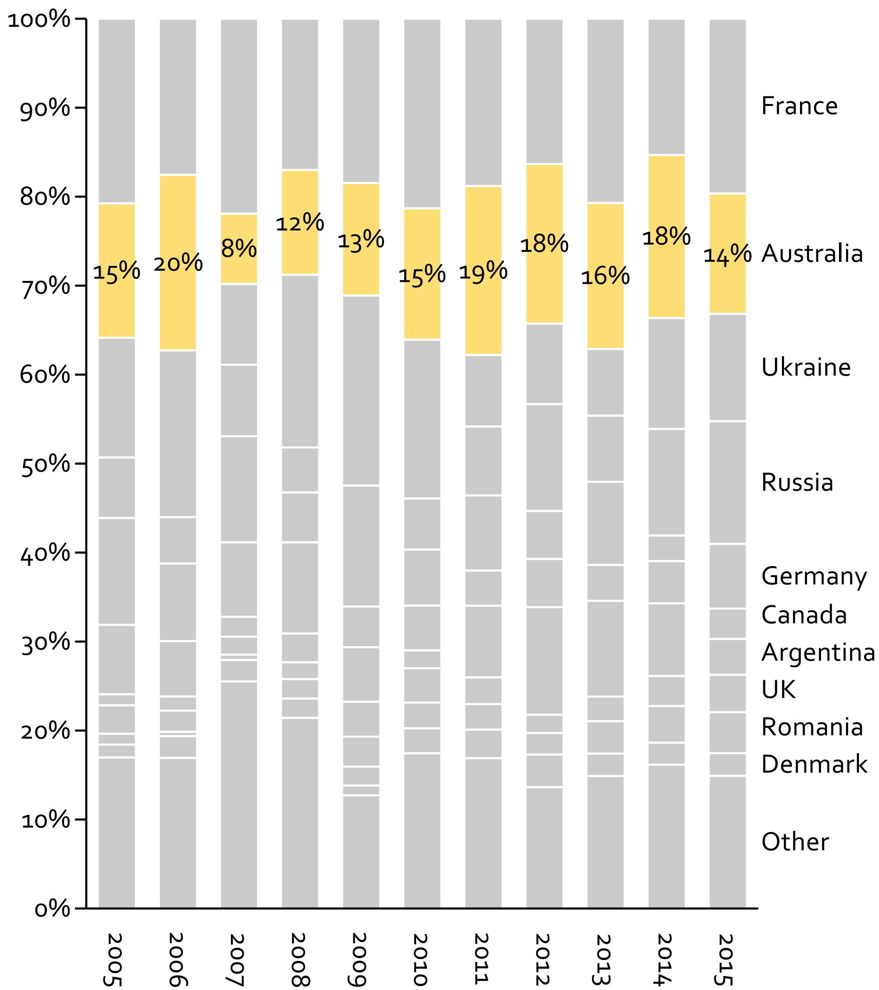


Source: FAO; Coriolis analysis

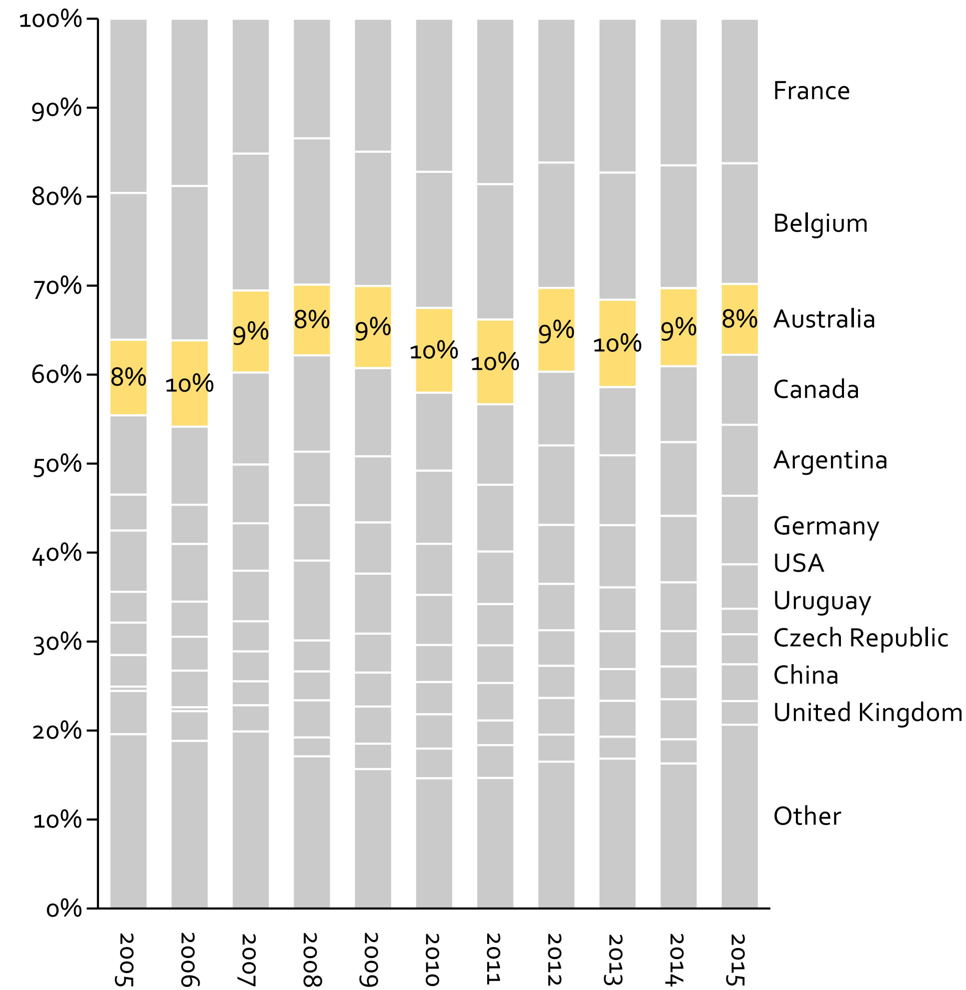
Global shares stable

Stable global market with limited variability in market shares of grain barley or malt exports

Share of global barley export volume (% of t; 2005-2015)



Share of global malt export volume (% of t; 2005-2015)



Source: Comtrade; Coriolis analysis

5.2 Western Australia barley situation

Western Australia is a major barley producer and exporter with potential for further production growth

- Western Australia is the largest barley producer in the Southern Hemisphere, both in total and per capita
- Macro drivers for WA barley industry present a solid growth environment going forward

PRODUCTION

- Western Australia can continue to grow barley area going forward
- Western Australia has achieved 1.8%pa (60y CAGR) barley yield increase since the 1950's
- A wide ranging group of climatic and competitive peers indicates further barley yield improvements could be possible
- Western Australia can continue to increase barley production in the future
- Western Australia is the largest barley producing state, with more than a third of national production; and production is expanding

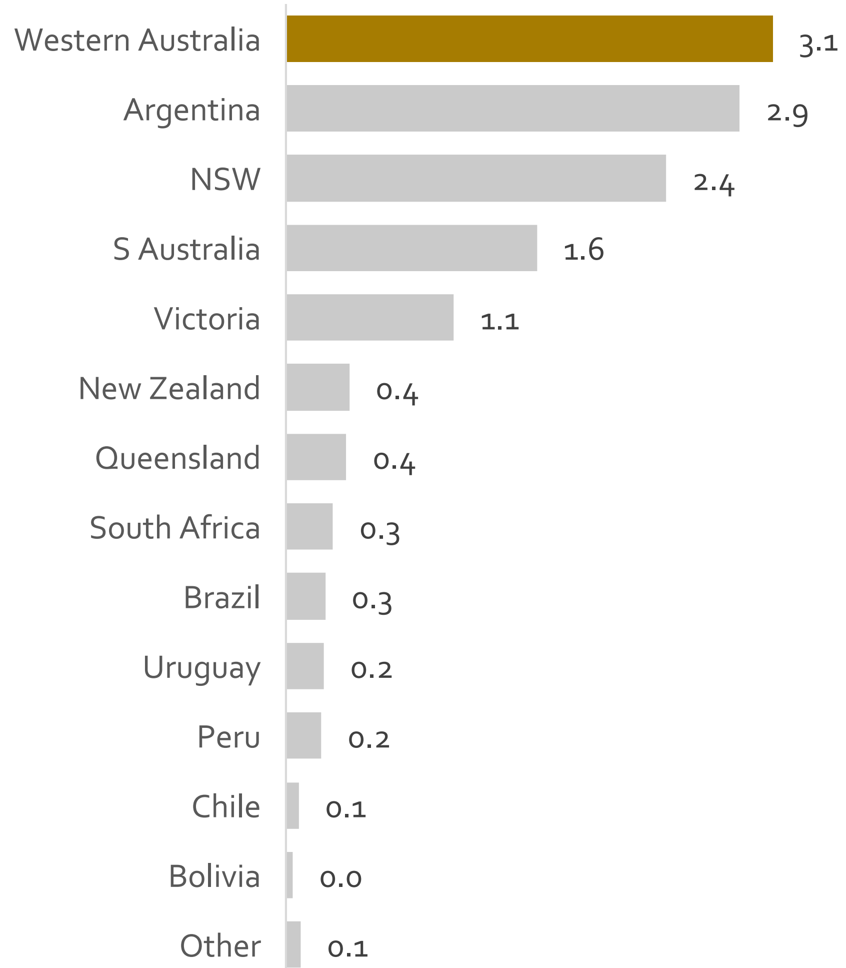
EXPORTS & MARKETS

- Australian barley exports go predominantly to China (83%); other key markets are Japan and the Gulf States

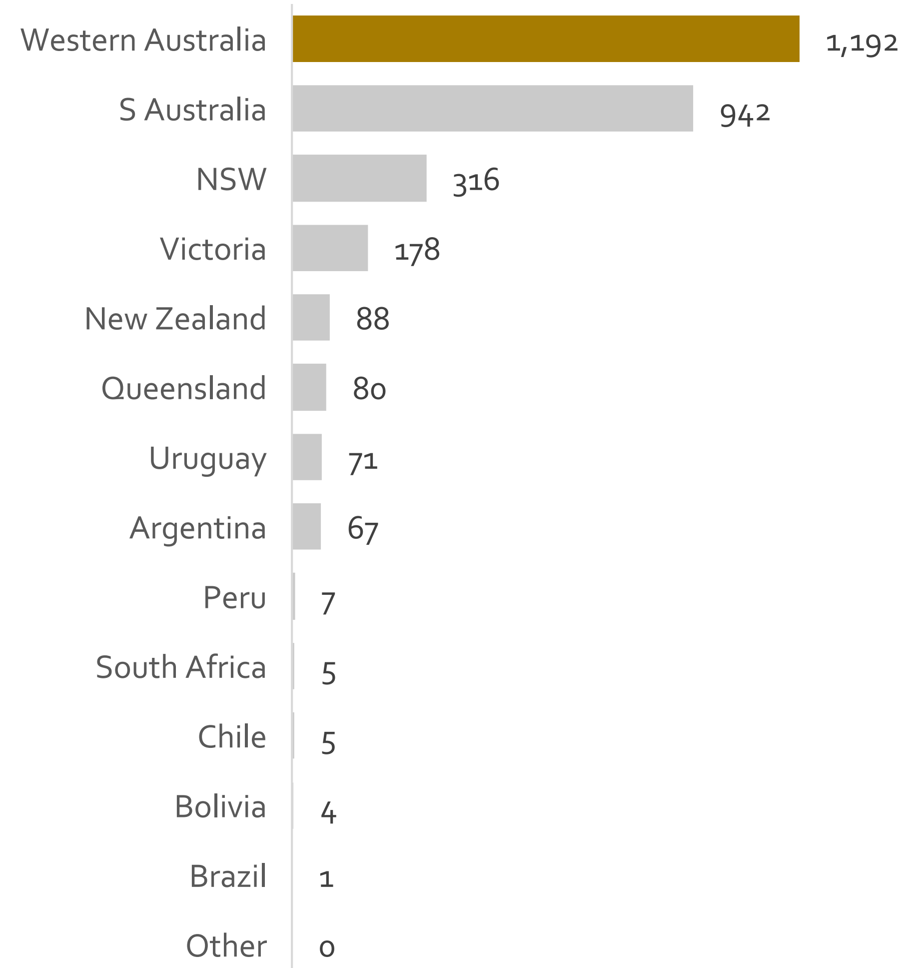
Largest Southern Hemisphere producer

Western Australia is the largest barley producer in the Southern Hemisphere, both in total and per capita

Southern Hemisphere barley production (t; m; 2014 or 15/16)



S.H. barley production per person (kg/head; 2014 or 15/16)



Source: FAO; ABS; UN; Coriolis analysis

Macro drivers support moderate growth

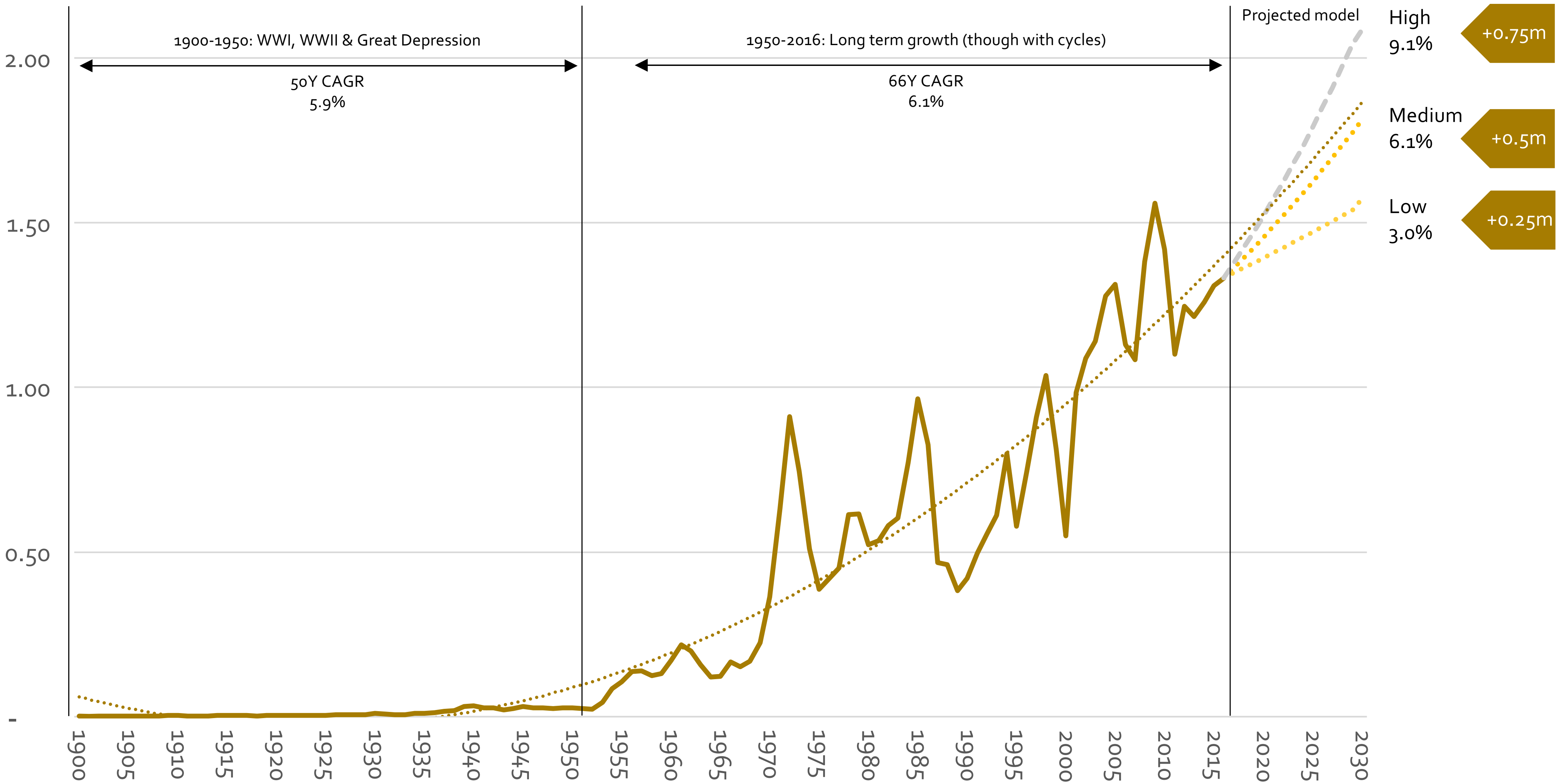
Macro drivers for WA barley industry present a solid growth environment going forward

Area Growth		Yield Growth		Production Growth
6% (3-9%pa)	X	1.8%pa	=	8% (3-9%pa)

Continued area growth

Western Australia can continue to grow barley area going forward

Barley area in Western Australia (ha; m; 1900-2015a; 2016-2030p)

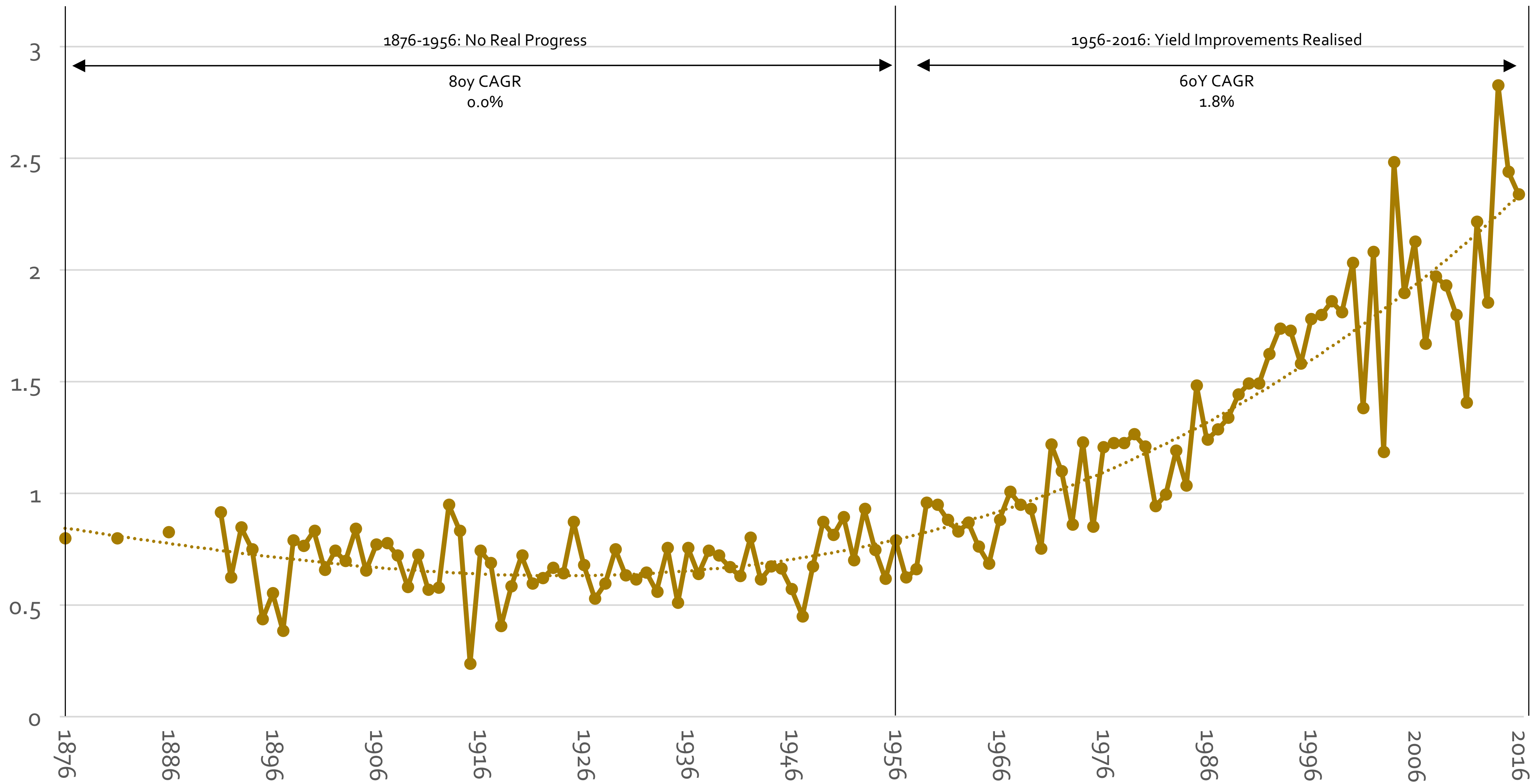


Source: various ABS publications and reports; Coriolis modelling

Achieved yield growth

Western Australia has achieved 1.8%pa (60y CAGR) barley yield increase since the 1950's

Barley yield in Western Australia (t/ha; 1876-2015a; 2016p)

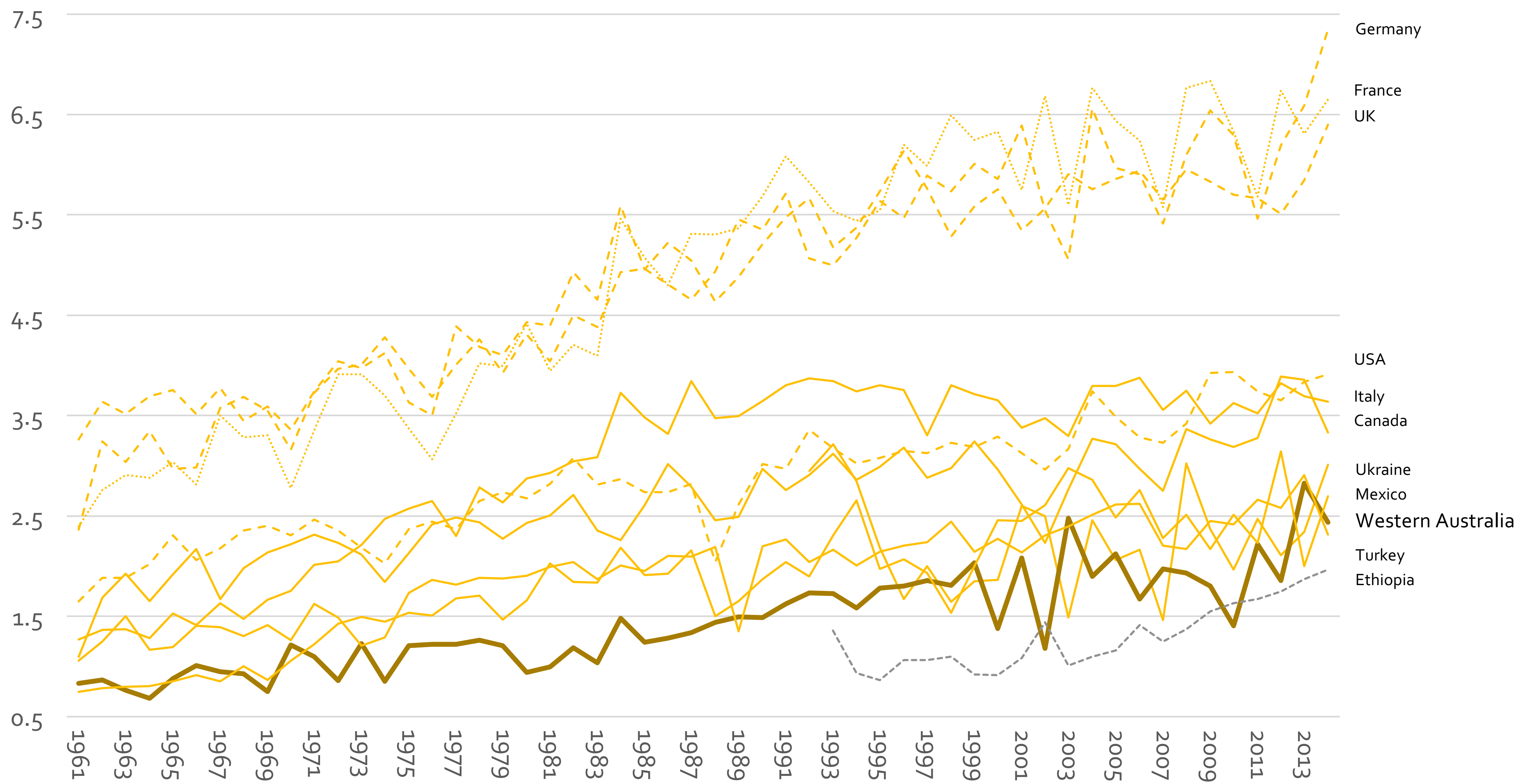


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Further yield improvements possible

A wide ranging group of climatic and competitive peers indicates further barley yield improvements could be possible

Average barley yield (t/ha; 61-14)

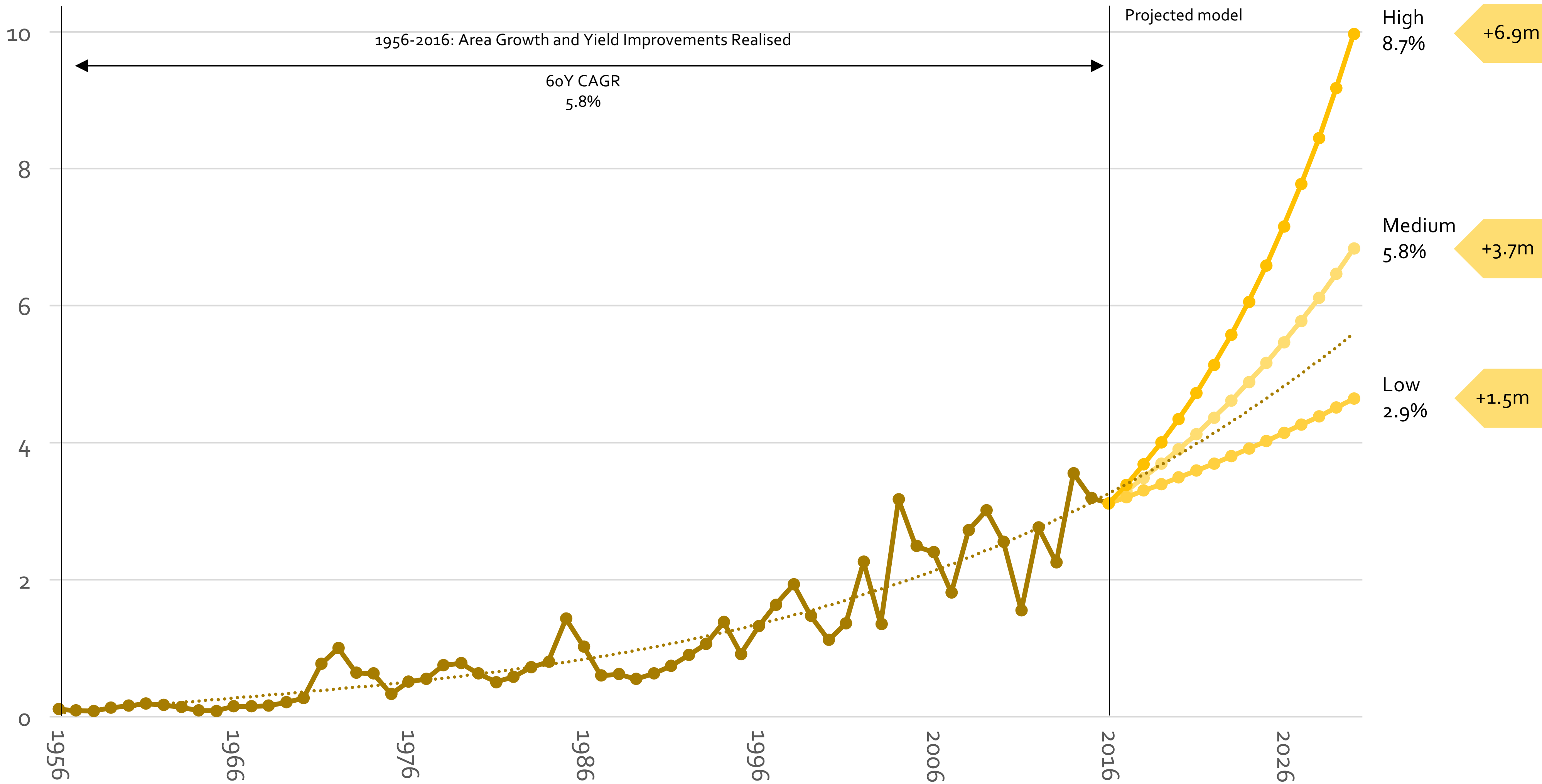


Note: 2004 is the latest available globally; WA uses 62-15; Source: United Nations FAO; various ABS publications and reports; Coriolis analysis

Production growing

Western Australia can continue to increase barley production in the future

Barley production in Western Australia (t; m; 1956-2015a; 2016-2030p)

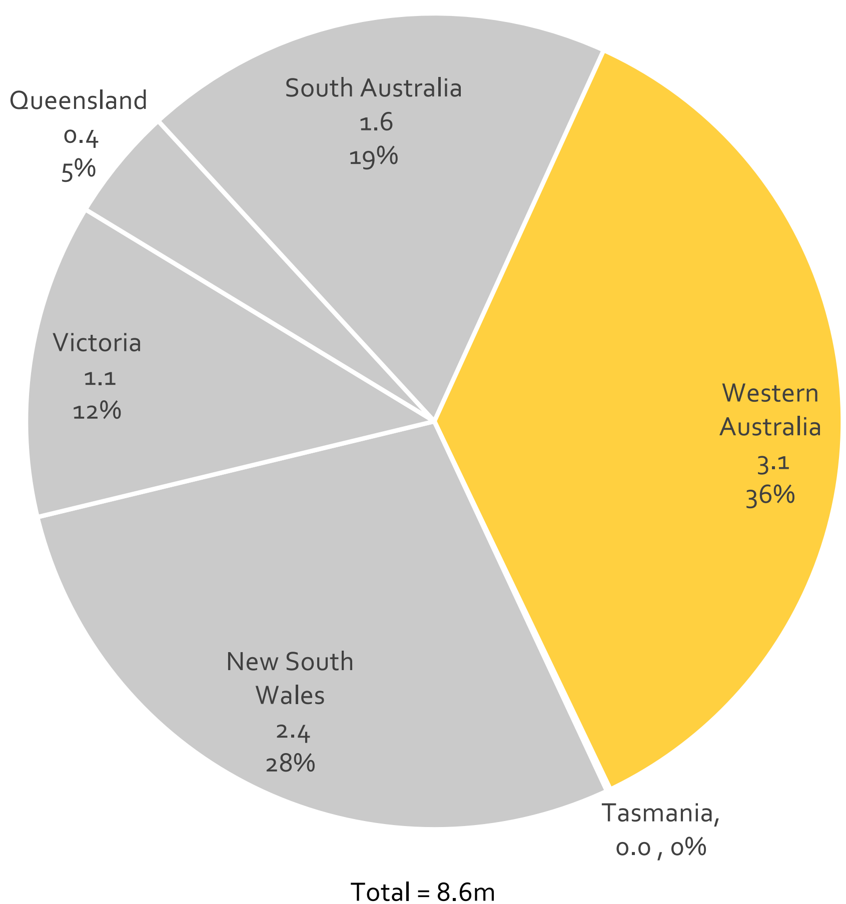


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

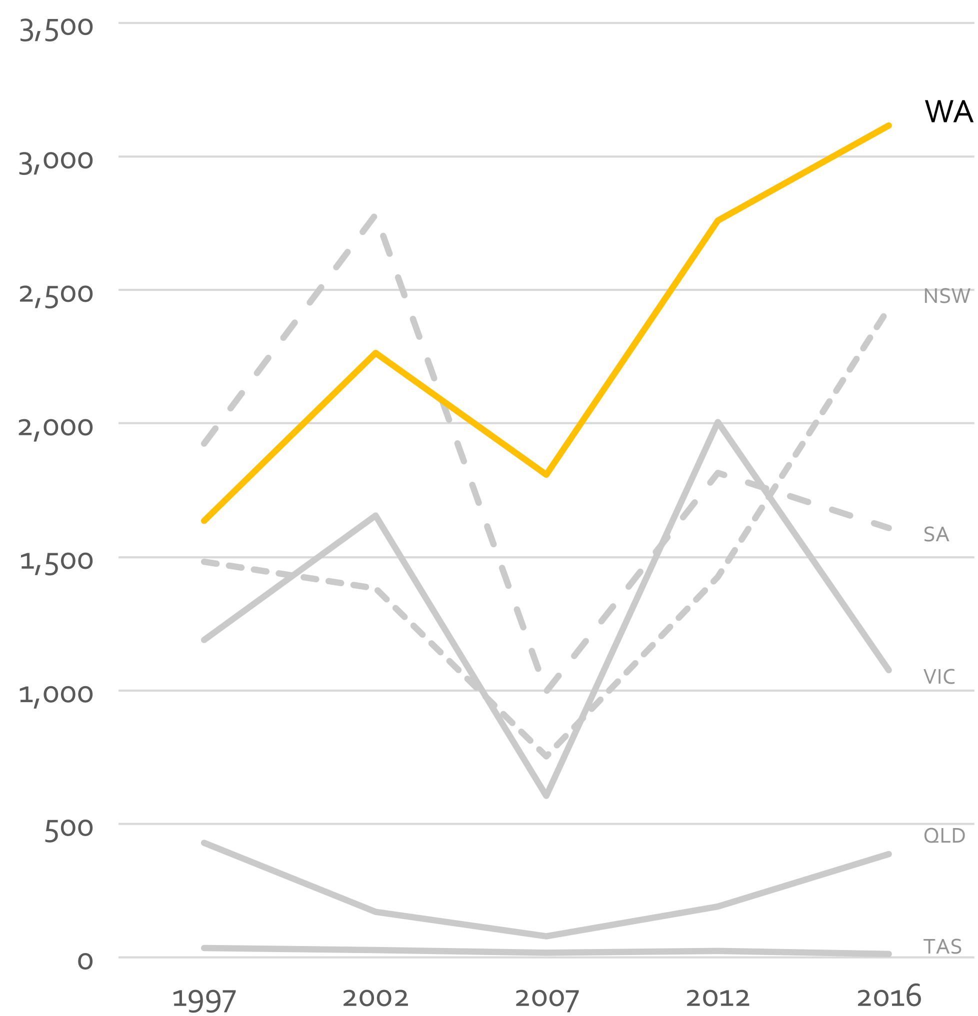
Key producer

Western Australia is the largest barley producing state, with more than a third of national production; and production is expanding

Australian barley production by state (t; m; 2015/16)



Australian barley production by state (t; m; 1997-2016)



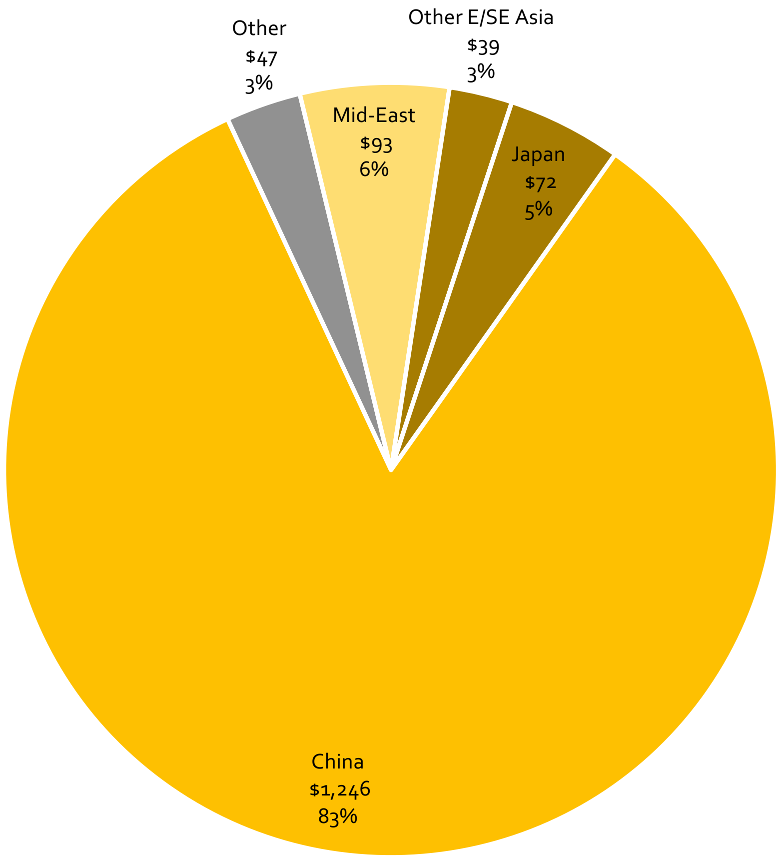
Source: various ABS publications and reports; Coriolis analysis

China the key market

Australian barley exports go predominantly to China (83%); other key markets are Japan and the Gulf States

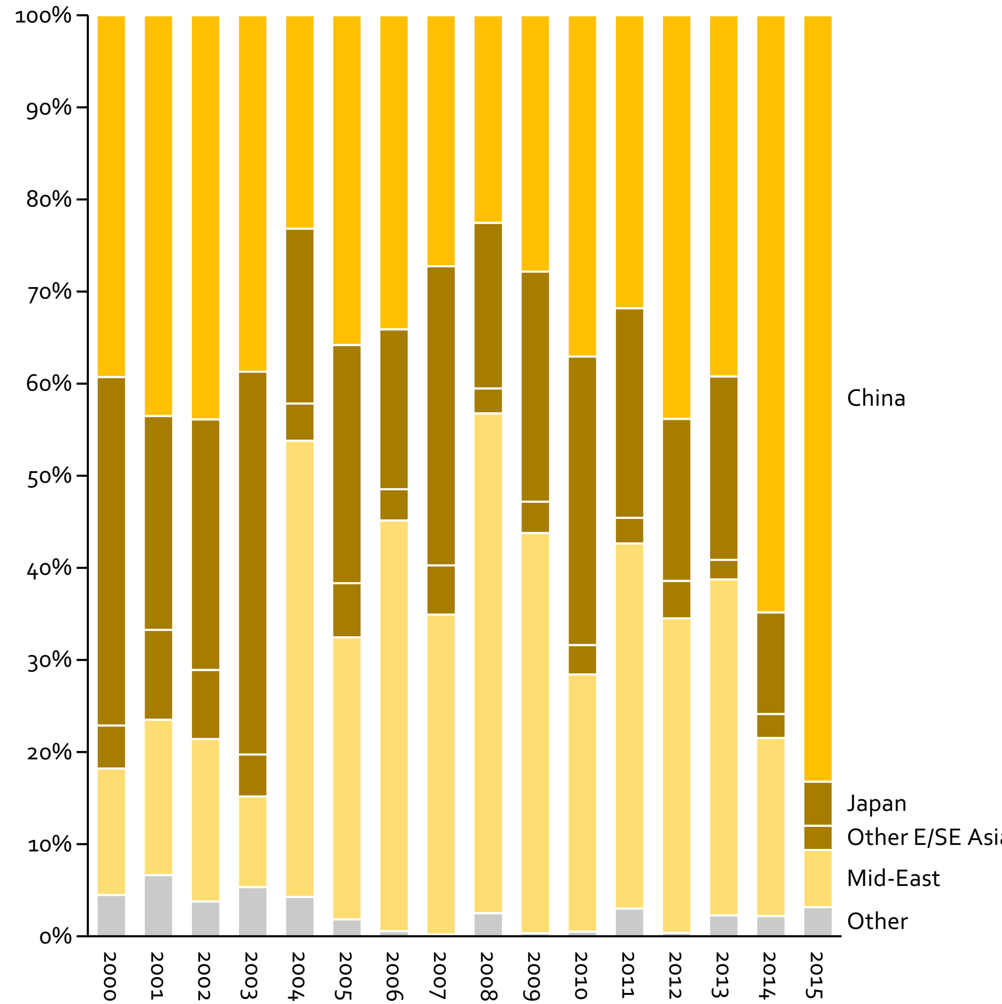
Australian barley exports by destination (US$; m; CIF; 2015)

Data is total Australia as reported CIF by receiving country
Australian reported data has confidentiality issues



Total = US$1,498m

Australian barley exports by destination (% US$; CIF; 00-15)



Note: uses barley grain; Source: United Nations Comtrade; Coriolis analysis

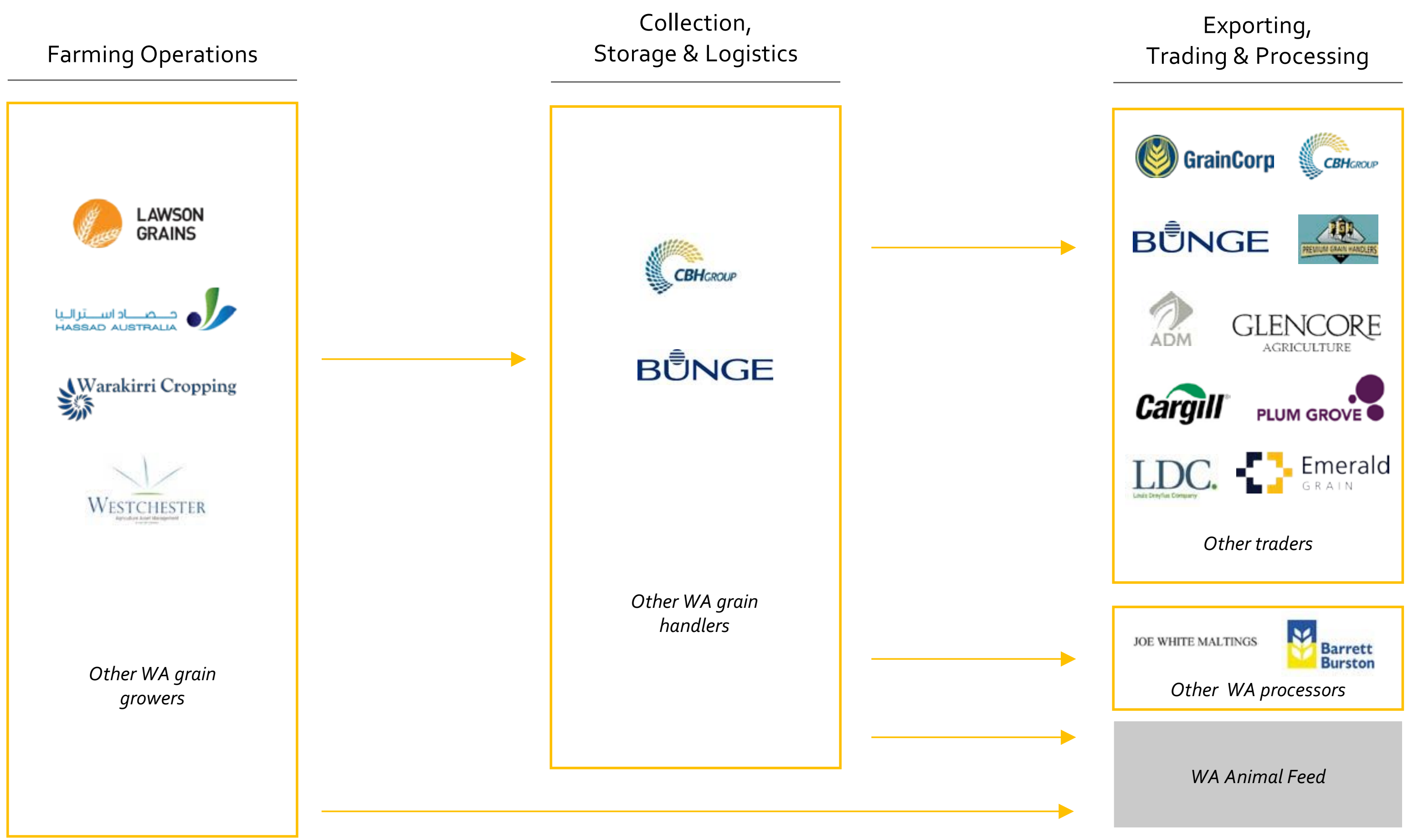
5.3 Western Australian barley firm activity

Western Australia has a robust barley industry

- Barley has a streamlined supply chain in Western Australia; highly consolidated at the handling and storage stage, some malting takes place
- Barley is an important part of the portfolio for the major grain firms operating in Western Australia
- Cargill and GrainCorp have malting facilities in Western Australia; located in Perth
- The collection, distribution and storage of barley is primarily conducted by CBH, a grower-owned cooperative; a number of firms export barley from WA, with most key global traders all present
- Western Australia has three large companies contributing to the success of the barley industry
- There are a number of potential acquisition targets in the Western Australian barley industry

Barley – a multistage supply chain

Barley has a streamlined supply chain in Western Australia; highly consolidated at the handling and storage stage, some malting takes place



Source: industry interviews, Coriolis analysis

Firms across the barley supply chain

Barley is an important part of the portfolio for the major grain firms operating in Western Australia

	Description	Farming	Bulk handling	Processing	Exporting/ marketing	Branded product
LAWSON GRAINS	Macquarie Group's investment in broadacre agriculture	✓				
HASSAD AUSTRALIA	Global investor and developer in agriculture and livestock sectors; Qatar Investment Authority	✓				
Warakirri Cropping	Leader in Australian agricultural investment management; established in 1996 on behalf of Australian superannuation funds	✓				
WESTCHESTER	Global agriculture real estate investment managers	✓				
Esperance Quality Grains	Handling & storage, cleaning, trading and exporting company; co-owned farming operations	✓	✓		✓	
PGH Premium Grain Handlers	Grain supply, storage, cleaning, processing, bagging and container packing service; established in 1995	✓	✓		✓	
CBH GROUP	Australia's largest co-operative; operations in grain storage, handling, transport, marketing and processing; established in 1933		✓		✓	
BUNGE	Leading marketer of Australian grains; receival sites and port terminals in WA; established in 1923		✓		✓	
GrainCorp	Australia's largest integrated edible oils business and supplier of edible flour; storage and logistics, grain marketing, malt and oils		✓	✓	✓	✓
Cargill	Grain and oilseed origination, storage and handling, grain and cotton trading and export, malt and oilseed processing, JV in beef processing; established 1967			✓	✓	✓
ADM	Grain merchandising businesses originating wheat, barley, canola, sorghum and pulses; distribution of ADM food ingredients and animal nutrition; established in 1991				✓	
	Animal feed, grains, pulses and oilseeds exporter; focus on Asian and Indian sub-continental markers				✓	
Emerald GRAIN	One of the largest grain marketing and supply chain businesses in Australia				✓	
GLENCORE AGRICULTURE	One of the largest buyers and exporters of Australian wheat, barley, canola, pulses, sorghum and cotton				✓	
GRAINLINK	Grain and hay marketer; established in 1999				✓	
LDC. Louis Dreyfus Company	Originates wheat, sorghum, barley and pulses from Australia and merchandises to Asia and Middle East; established in 1913				✓	
PLUM GROVE	Grain accumulation and export business; accumulates cargos for major end users Salim Group, Mitsui and Seaboard; operations in NSW via major stake in Agrigrain				✓	

Source: various published articles; company annual reports; Coriolis interviews and analysis

Barley port terminals and malting locations

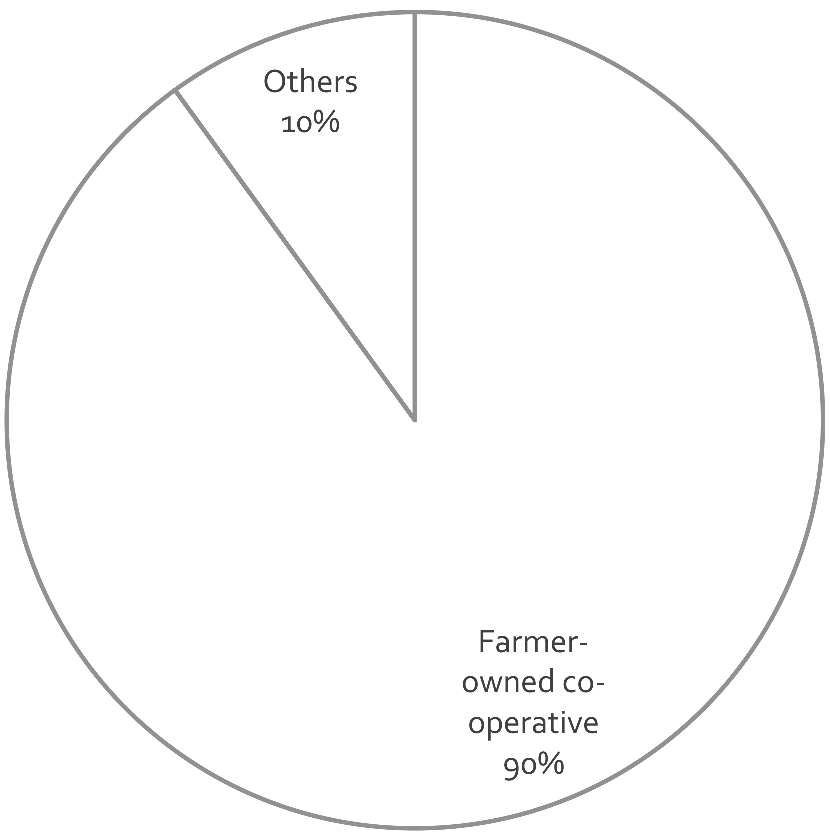
Cargill and GrainCorp have malting facilities in Western Australia

Source: modified from AEGIC; Coriolis analysis

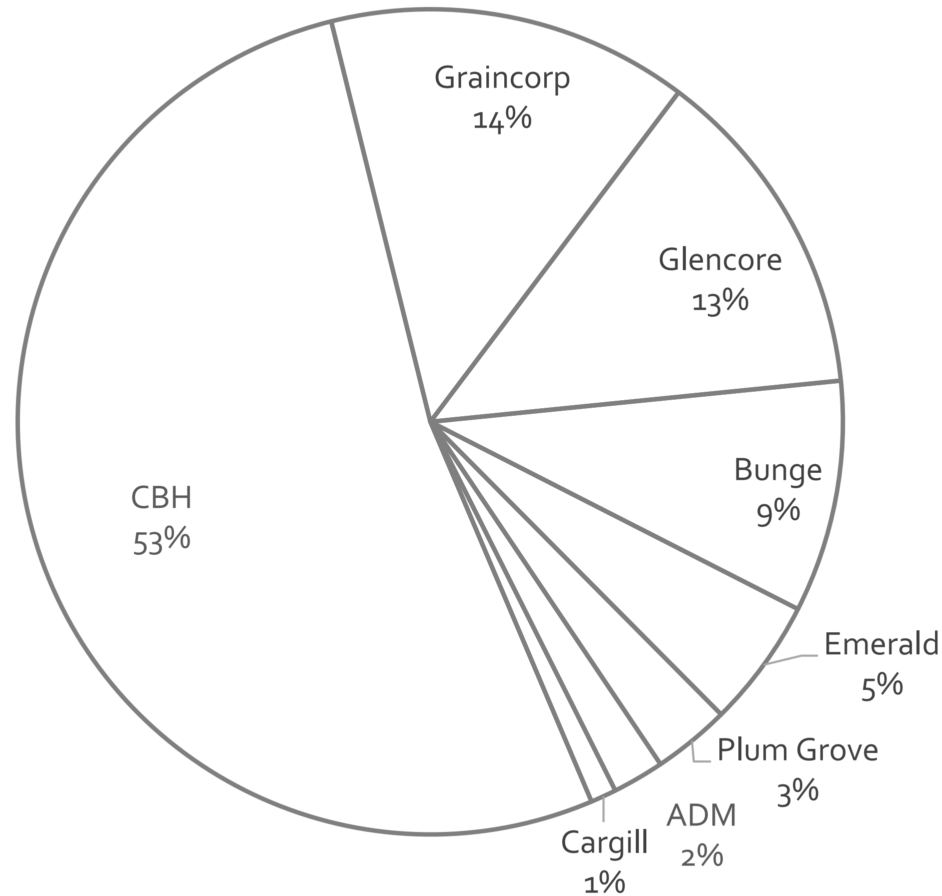
Bulk handling consolidated; wide range of exporters

The collection, distribution and storage of barley is primarily conducted by CBH, a grower-owned cooperative; a number of firms export barley from WA, with most key global traders all present

Barley bulk handling volume share (2016)



Share of WA barley export volume by firm (% of t; 2017)



Source: Australian Crop Forecasters; Coriolis analysis

Malting sector continues to invest

Western Australia has three large companies contributing to the success of the barley industry

Cargill – Joe White Malting

- Acquired plant in 2013 from Glencore A$420m
- Cargill Malt Asia Pacific #1 malting company in Australia with 7 plants producing 550,000t/yr malt
- Supply Asia, AU, NZ
- WA plant in Forrestfield, adjacent to CBH Metro Grain Centre
- Train access to port and Kwinana grain terminal
- Invested $30m in upgrades to improve quality 2014

GrainCorp – Barrett Burston

- Perth Malting – Welshpool under GrainCorp Malting division Barrett Burston
- Plant commissioned 1978
- 2011 GrainCorp acquired 'Kirin Brewery Co' malting operations $10.5m
- 50,000t capacity
- 12,000t malt storage capacity
- 10,000t barley storage capacity
- Road train deliveries to site

CBH – InterMalt (Vietnam)

- CBH JV InterMalt invested $75m in malting facility in Vietnam – Stage 1 capacity 110,000t (malt = 135,000t barley), Stage 2 220,000t
- Source barley from WA for Vietnam facility
- Malt for brewers in Vietnam (e.g. Heineken)

Photo credit: Map data: Google; CBH

Investment or acquisition targets

There are a number of potential investment or acquisition targets in the Western Australian barley industry

Potential to acquire key Western Australian barley operations

Firm	Current Owner	Operations	Product	Potential for outside investment?
Cargill	Cargill family (USA)	Grain trader 1 plant (Joe White Malting Forrestfield)	Grains Malting	Low; multinational diversified agribusiness, owned privately out of USA
Premium Grain Handlers	Orr	Grain growing Grain cleaning, storage, exporting (Fremantle, Kellerberrin, Wandering)	Grains	Low; recent expansion
Demeter Cormack	Oates	Grain trader	Grains Oilseeds Pulses Animal feed	Medium
Grain Link	Goyder	Grain trader	Hay Grains	Medium
GrainCorp	Public	Grain trader 1 plant (Barrett Burston Malting Welshpool)	Grains Malting	Medium; public company; Australia's largest agribusiness
Esperance Quality Grains	Wandel	Grain cleaning and handling; container exports	Grains	Medium; integrated operations; expanding into container exports

6. Oats

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

page 5 — 1. Core Opportunity

page 15 — 2. Current Industry Situation

page 45 — 3. Emerging Investment Themes

page 75 — 4. Wheat

page 100 — 5. Barley

page 125 — 6. Oats

page 150 — 7. Canola

page 176 — 8. Animal Feeds

page 200 — 9. Pulses & Other Grains

page 210 — 10. Key Firms Profiled

6.1 Global oat market situation

Oats are an attractive global product where the focus is shifting from feeds to foods

- High level macro drivers support growing future oats for human consumption demand

PRODUCTION

- Oats are a secondary crop accounting for 1% of global grain production
- Global production is shrinking at -1.8% per year (40y CAGR), driven by falling total consumption (due to including animal feed)

DEMAND

- Oats are used primarily in animal feeds (40-50%+), breakfast cereal/snack production (40-50%+) and as ingredient in food and other products
- Major oat using sectors are experiencing reasonable growth
- There is a wide range of global customers for oats based food products

TRADE

- Global oat trade is growing, driven by growing volume (10y CAGR 2.5%) and growing average prices (10y CAGR 5.9%) leading to growing trade value (10y CAGR 8.6%)
- Relatively stable global market shares, but Australia is growing share
- Competitive set is highly attractive in that almost all are high income, developed countries

Macro drivers support market growth

High level macro drivers support growing oats for human consumption demand

Global production growth

-1.8%pa

Global consumption growth (all forms including animal)

-3.3%pa

Global meat production growth

2.4%pa

Global breakfast cereal production growth

4%pa

Global beauty care production growth

4%pa

Oats

Global trade volume growth 2.0%pa X Global trade price growth 5.3%pa = Global trade value growth 7.4%pa

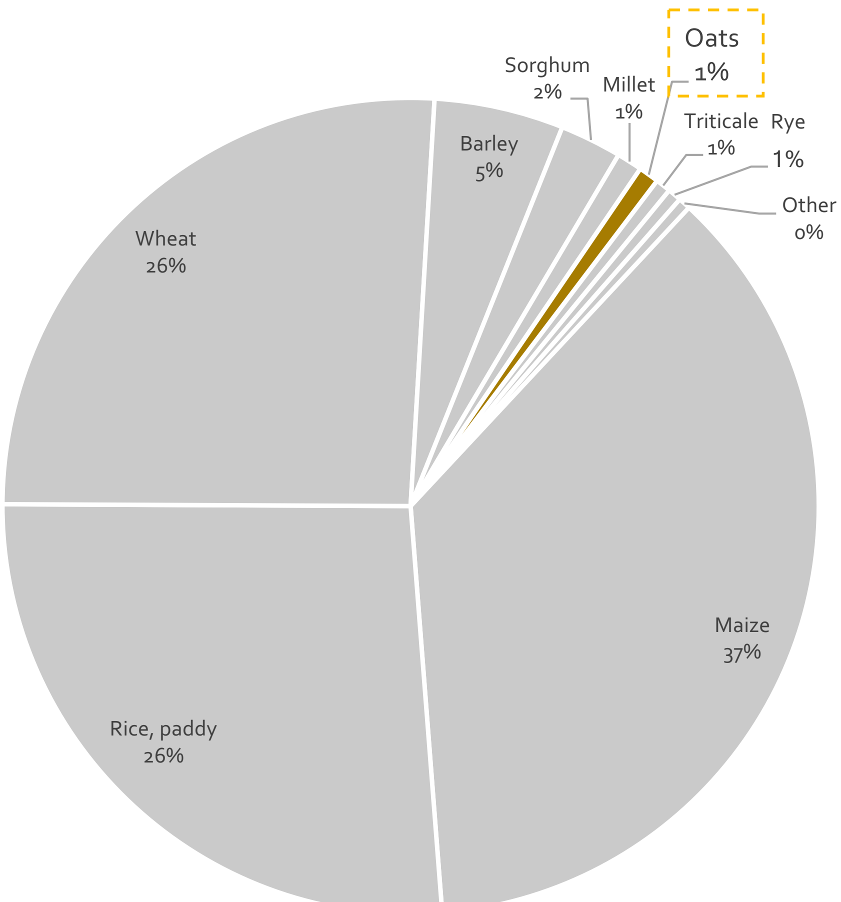
Rolled Oats

Global trade volume growth 7.5%pa X Global trade price growth 4.1%pa = Global trade value growth 11.8%pa

Growing secondary crop

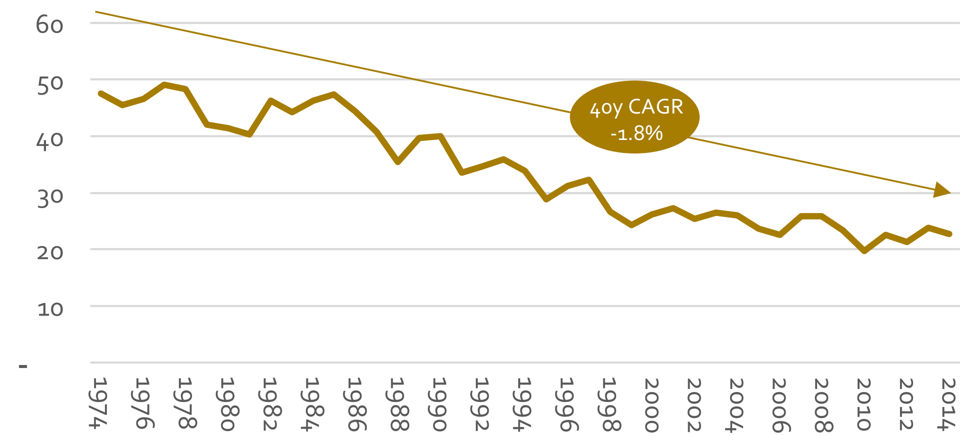
Oats are a secondary crop accounting for 1% of global grain production; global production is shrinking at -1.8% per year (40y CAGR), driven by falling total consumption (due to including animal feed)

Global grain production by type (t; m; 2014)

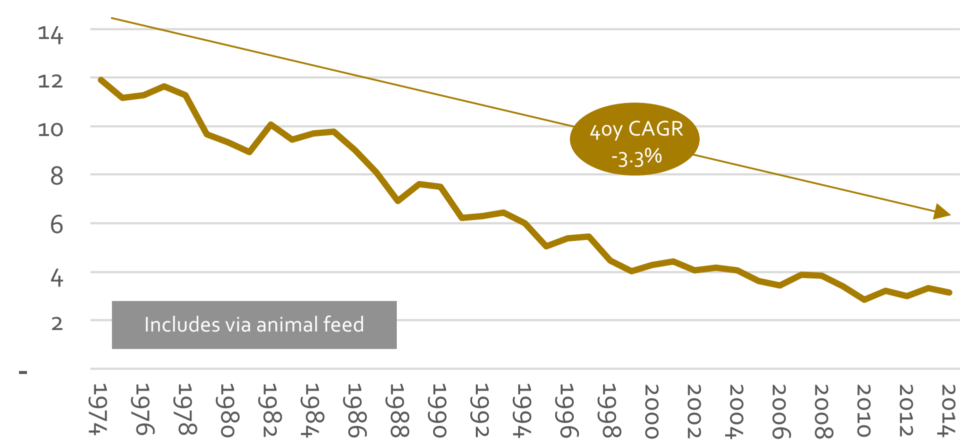


TOTAL = 2,819m tonnes

Global oat production by type (t; m; 74-14)



Global oat consumption per capita; all forms (kg; 74-14)



Source: FAO; Coriolis analysis

Three key uses

Oats are used primarily in animal feeds (40-50%+), breakfast cereal/snack production (40-50%+) and as ingredient in food and other products

ANIMAL FEED

40-50%+

- Used as animal feed across multiple species
- High carbohydrate energy source
- Declining use (due to higher effective price relative to other feeds) pulling down total oat industry results

BREAKFAST CEREAL/SNACKS

40-50%+

- Widespread use in breakfast foods (oatmeal, muesli, granola and in extruded products) and snacks (biscuits, muesli bars)
- Hot cereals growing, particularly in Asia
- Consumer positioning/perception of oats as "the healthy grain"

INGREDIENT

5-10%

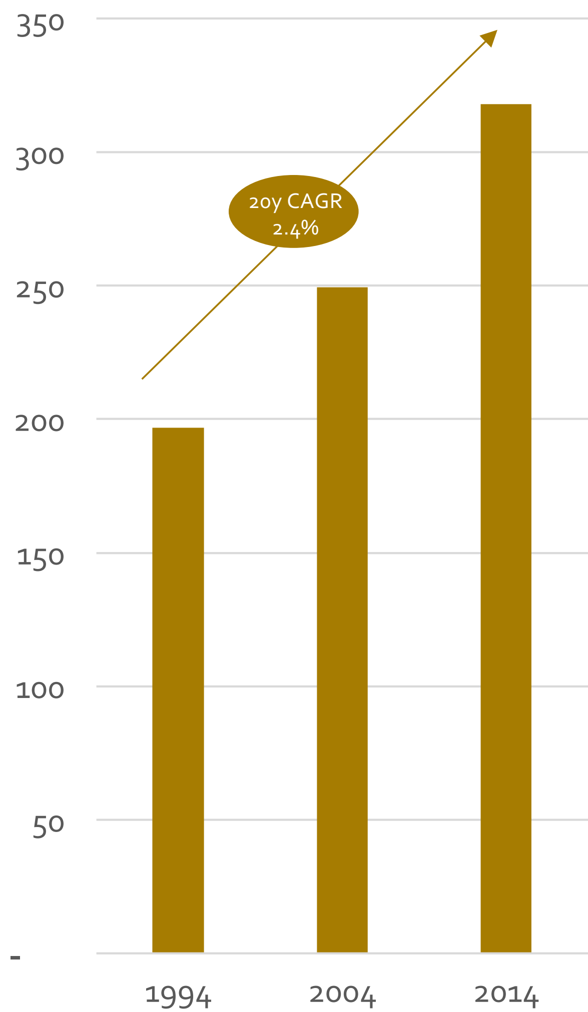
- Processed into oat flakes, bran, flour, groats and fibre
- Used as a food ingredient across a wide range of food products (e.g. oat-based noodles)
- Emerging use in plant based alternative dairy
- Use in health & beauty care (HBC) and supplements (e.g. malt extract)

Photo credit: (fair use; low resolution; complete product/brand for illustrative purposes)

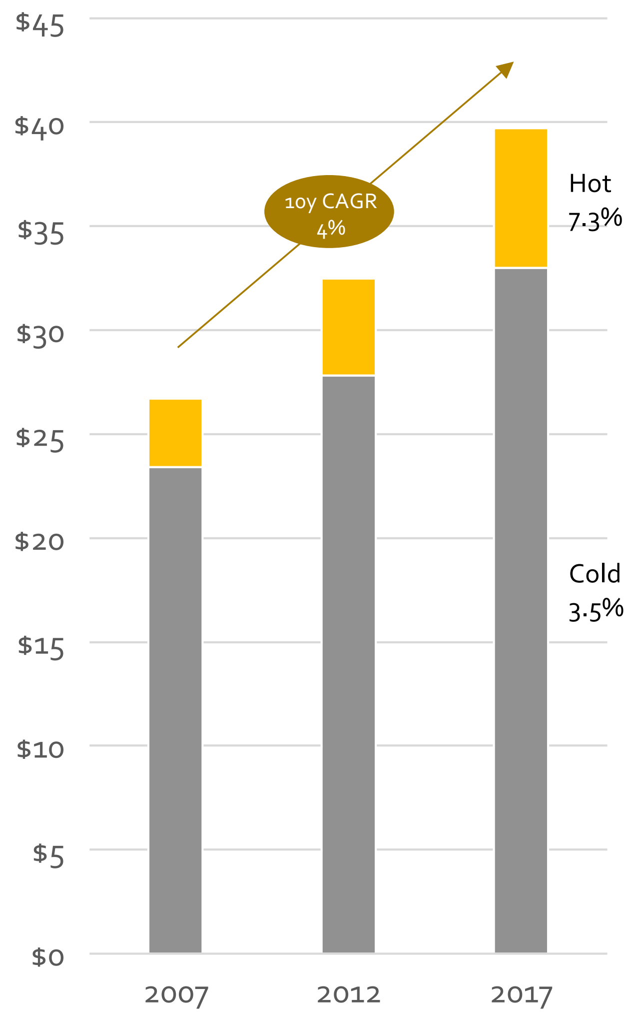
Growing market

Oat using sectors are experiencing reasonable growth

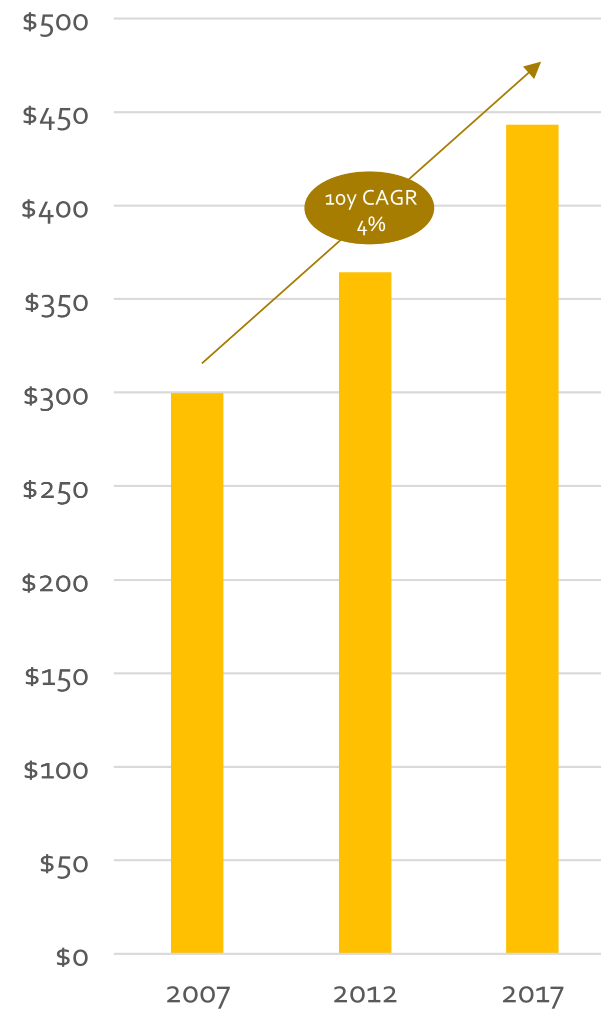
Global meat production (t; m; 94-14)



Global breakfast cereal value (US$b; 07-17)



Global beauty care (US$b; 07-17)



Source: FAO; Research & Markets; Euromonitor; Coriolis analysis

Key global firms

There is a wide range of global customers for oats based food products

Example: Top five global breakfast cereal and muesli bar customers for oats

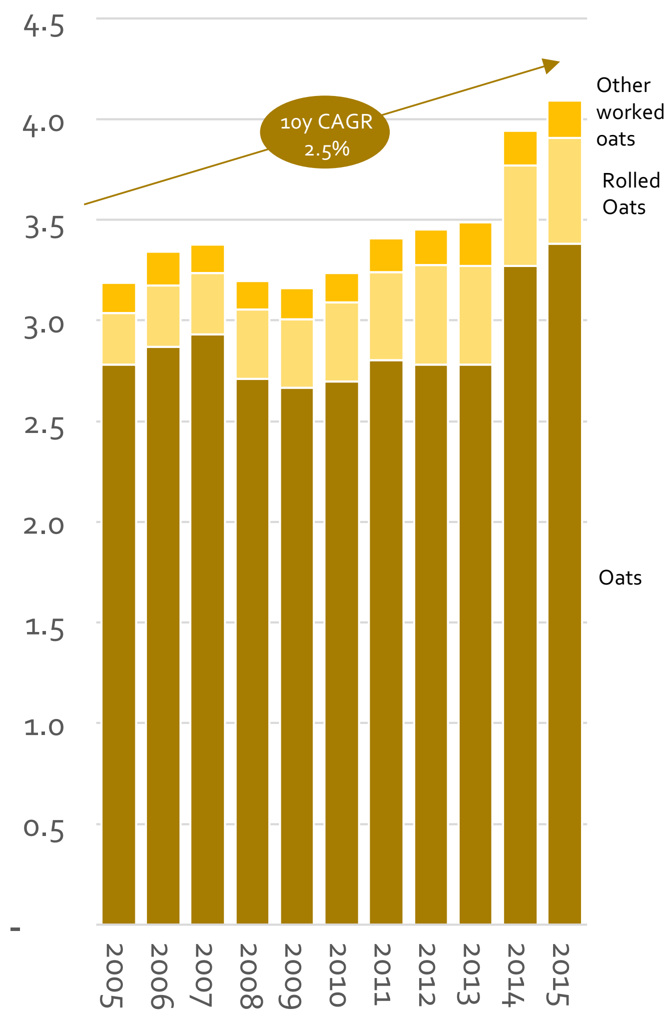
Firm	Year Founded	Turnover	# of Employees	Key Grain Product Brands	Key Products	Countries of Operation	Manufacture In Australia?
Kellogg's	1906	US$14.8b	33,600	Corn Flakes Special K Nutri-Grain Kashi Bear Naked	Breakfast Cereals Biscuits/Crackers Muesli Bars Other Foods	Manufacture: 18 Sell: 180	Yes
General Mills	1856	US$16.6b	39,000	Cheerios Nature Valley Curves Fibre One Oatmeal Crisp	Breakfast Cereal Muesli Bars Baking Mixes Refrigerated Dough Other Foods	Manufacture: 18 Sell: 100+	Yes
CPW SA	1989 JV	US$820m	4,600	Nesquick Fitness	Breakfast Cereals Beverages	Manufacture: 17 Sell 130+	Yes
PepsiCo	1898	US$62.8b	264,000	Quaker Puffed Wheat Doritos Numerous Other Snacks	Breakfast Cereals Muesli Bars Snacks Other Foods Beverages	Manufacture: 315 plants worldwide Sell: 200+	Yes Rolled Oats in WA
Post	1895	US$5b	2,800	Honey Bunches of Oats Better Oats MaltOMeal	Breakfast Cereals Muesli Bars Baked Goods Other Foods	Manufacture: 2 Sell: 20+	No

Source: various published sources

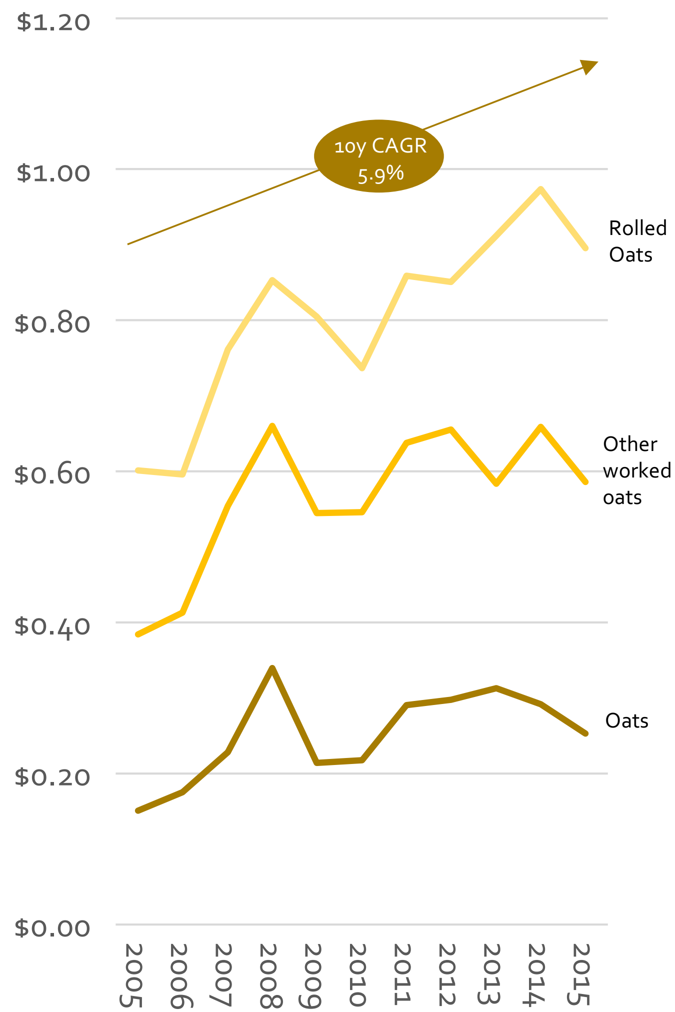
Growing trade

Global oat trade is growing, driven by growing volume (2.5% 10y CAGR) and growing average prices (5.9% 10y CAGR) leading to growing trade value (8.6% 10y CAGR)

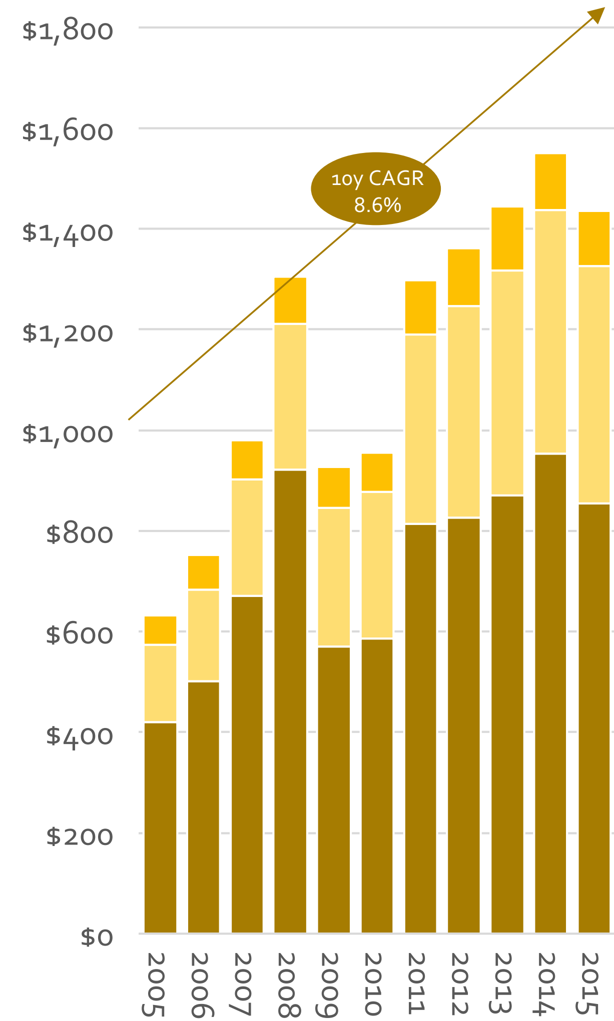
Global export volume (t; m; 05-15)



Average global price (US$/kg; 05-15)



Global export value (US$; m; 05-15)

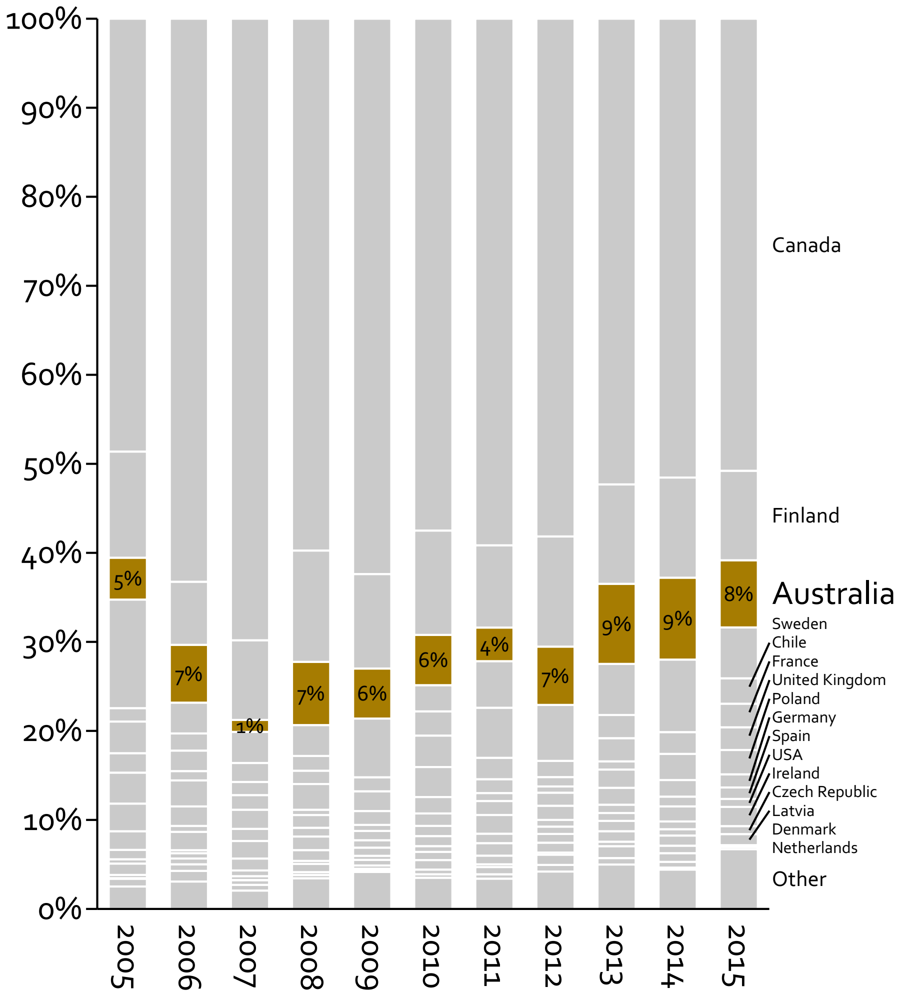


Source: FAO; Coriolis analysis

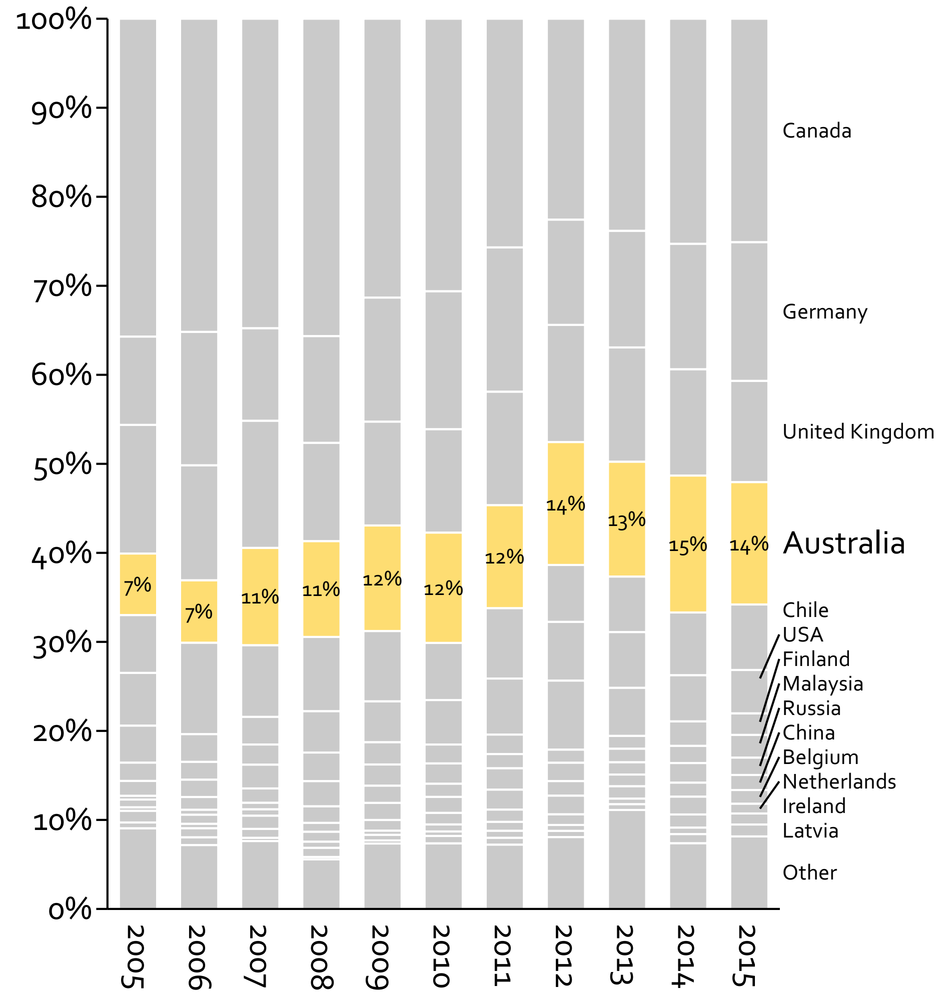
Global shares stable

Relatively stable global market shares, but Australia is growing share; competitive set is highly attractive in that almost all are high income, developed countries

Share of global grain oat export volume (% of $; 2005-2015)



Share of global rolled oats export volume (% of $; 2005-2015)



Source: Comtrade; Coriolis analysis

6.2 Western Australia oat situation

Western Australia is competitive in oat production and exporting with potential for moderate long term production growth

- Western Australia is the second largest oat producer in the Southern Hemisphere and the largest on a per capita basis
- Macro drivers for WA oat industry present a solid, through relatively low growth, environment going forward

PRODUCTION

- Western Australian oat area has been relatively stable since the mid-90's; future planting trends will be driven by market forces
- Western Australia has achieved long term oat yield growth of 1.4%pa (66y CAGR) since the 1950's
- A wide ranging group of climatic and competitive peers indicates further oat yield improvements should be possible
- Western Australia can continue to increase oat production going forward

- Western Australia is the largest oat producing region in Australia, with more than a third of national production; the state is maintaining share of declining national production

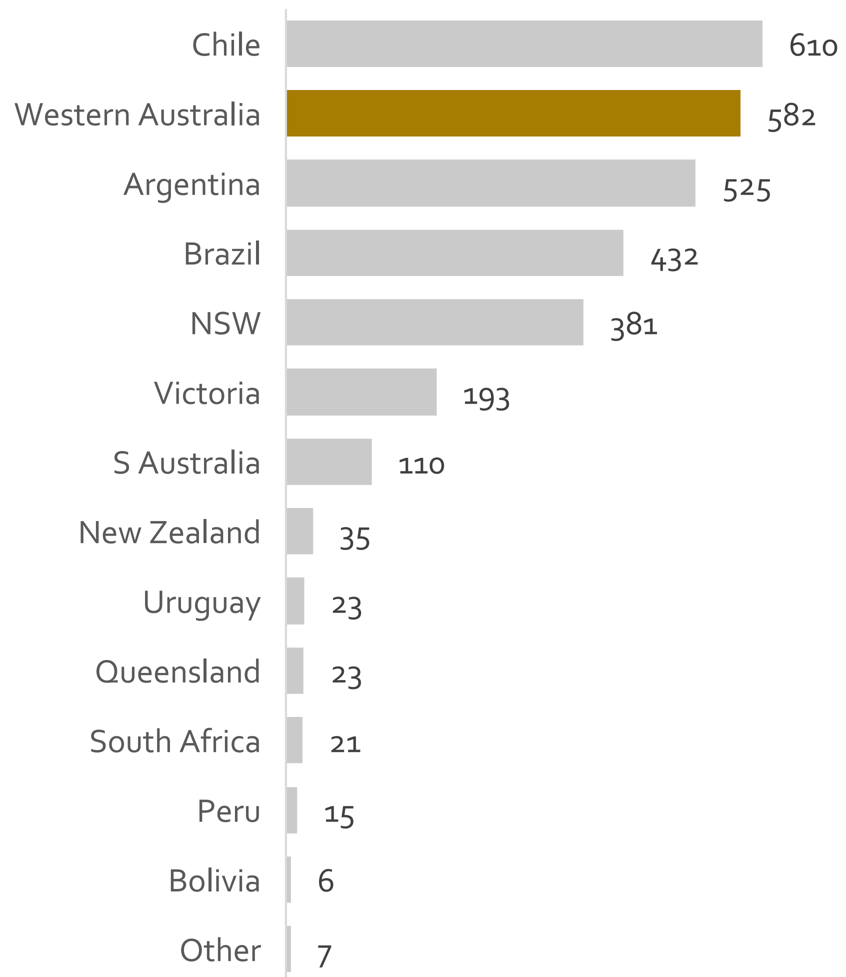
EXPORTS & MARKETS

- Australian cereal/rolled oats exports go to China (35%), Japan (12%), Malaysia (12%), India (13%) and a range of other destinations

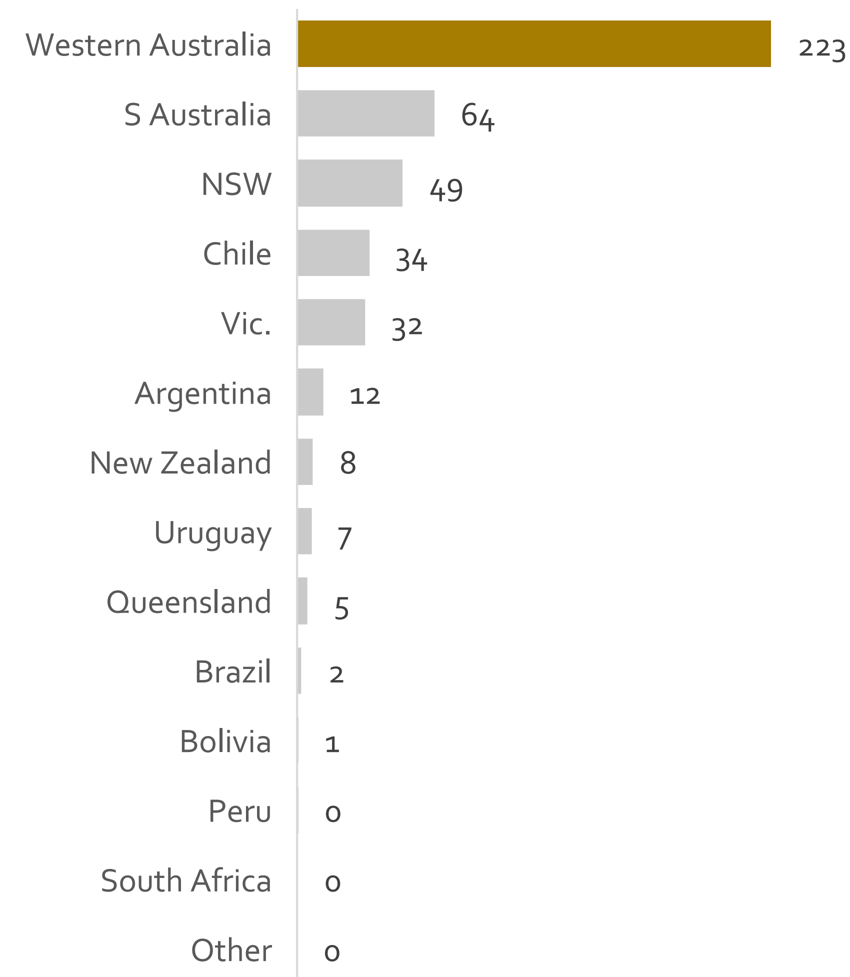
Major Southern Hemisphere producer

Western Australia is the second largest oat producer in the Southern Hemisphere and the largest on a per capita basis

Southern Hemisphere oats production (t; 000; 2014 or 15/16)



S.H. oats production per person (kg/head; 2014 or 15/16)



Source: FAO; ABS; UN; Coriolis analysis

Macro drivers support moderate oat growth

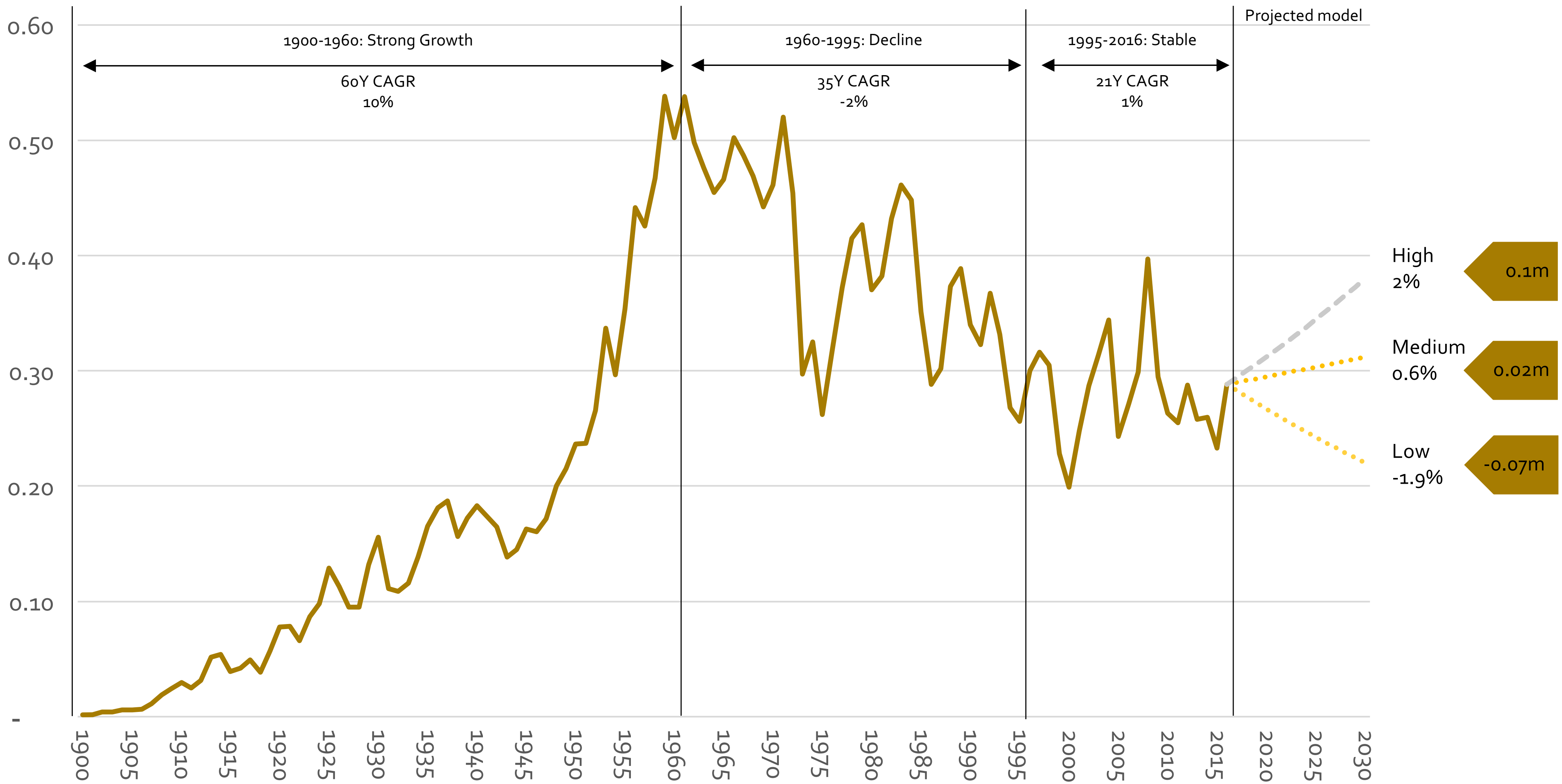
Macro drivers for WA oat industry present a solid, through relatively low growth, environment going forward

Area Growth		Yield Growth		Production Growth
0.6% (-2% to 2%pa)	X	1.4%pa	=	2% (0.2% to 3%pa)

Continued area growth

Western Australian oat area has been relatively stable since the mid-90's; future planting trends will be driven by market forces

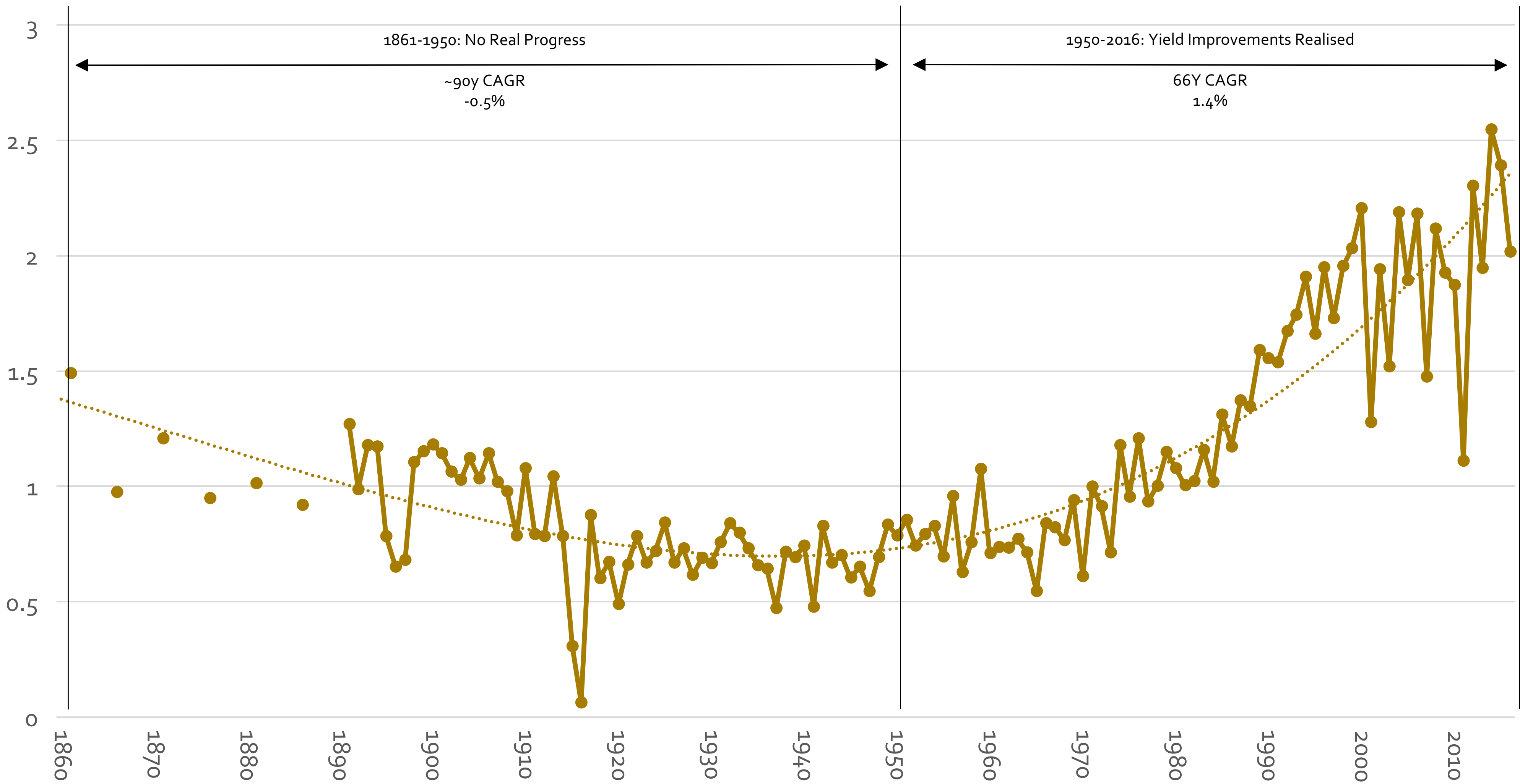
Oat area in Western Australia (ha; m; 1900-2015a; 2016p; 2017-2030p)



Note: data excludes oats grown for animal feed (where possible) discussed elsewhere; Source: various ABS publications and reports; Coriolis analysis and modelling

Western Australia has achieved long term oat yield growth of 1.4%pa (66y CAGR) since the 1950's

Oat yield in Western Australia (t/ha; 1861-2015a; 2016p)

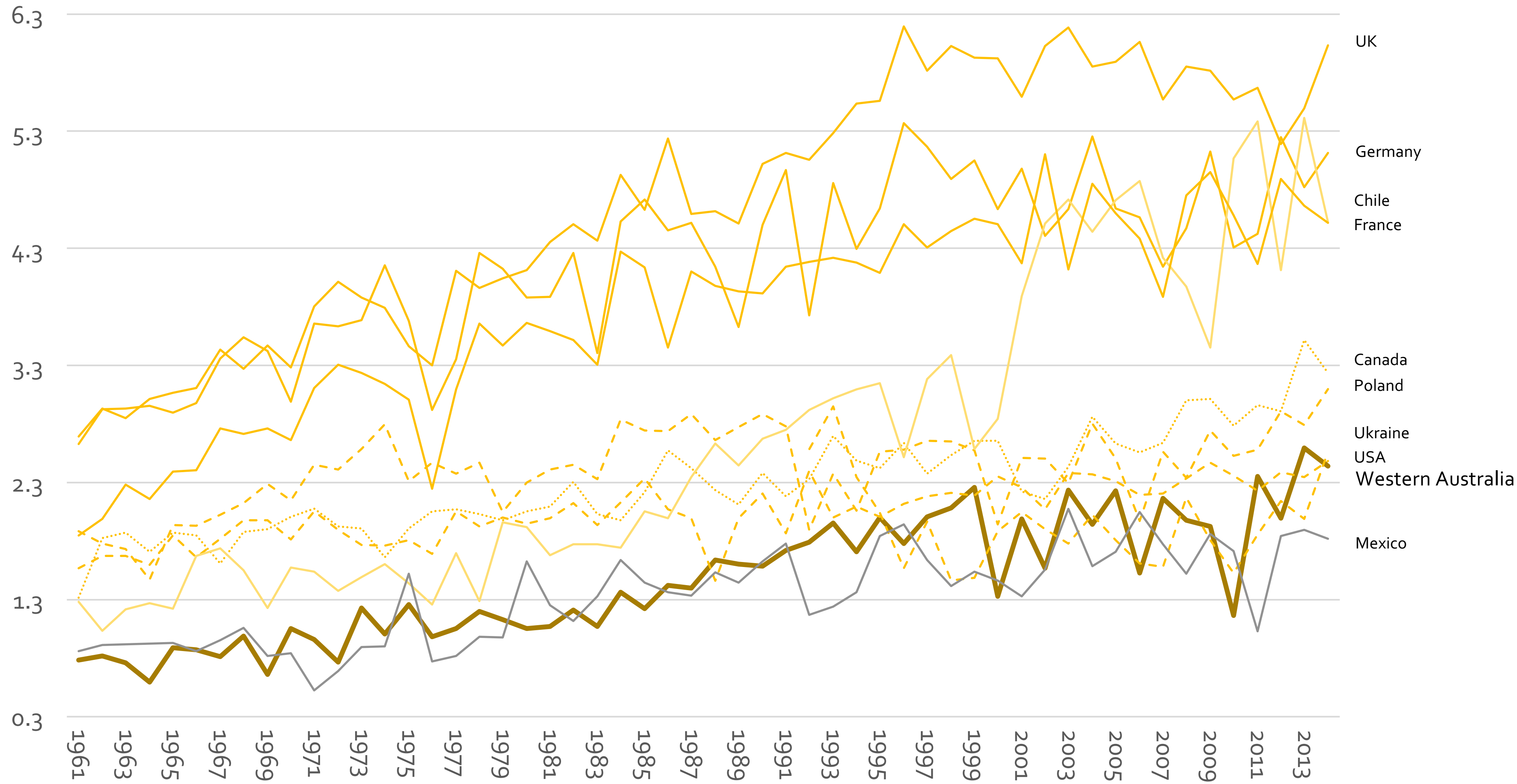


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Further yield improvements possible

A wide ranging group of climatic and competitive peers indicates further oat yield improvements should be possible

Average oat yield (t/ha; 61-14)



Note: 2004 is the latest available globally; WA uses 62-15; Source: United Nations FAO; various ABS publications and reports; Coriolis analysis

New improved genetic traits

Beyond yield, there are opportunities to breed for traits in oats that command a premium from the processor

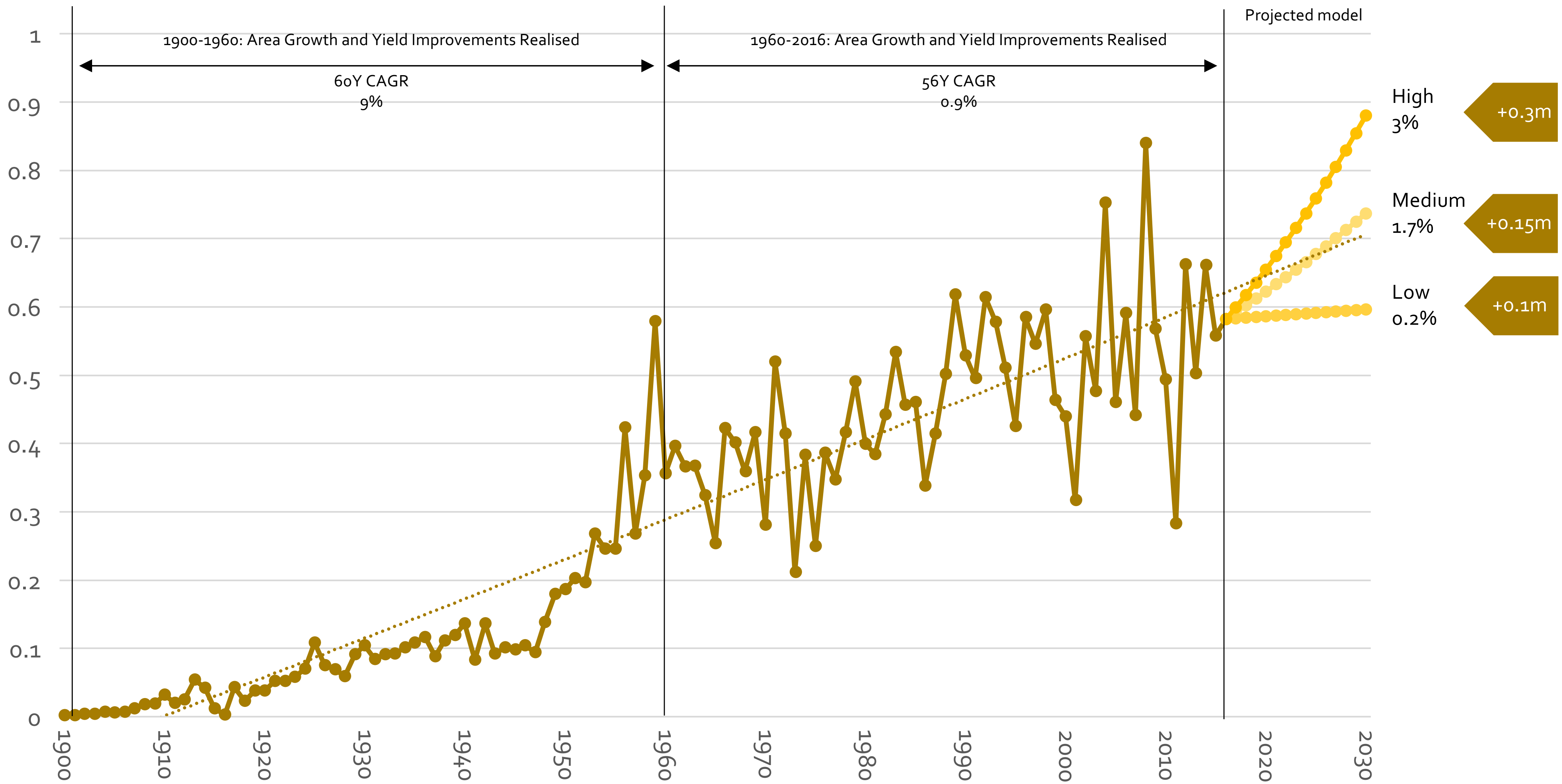
- "Developing WA grown oats, in WA conditions that gets a superior outcome. Developing a variety that gets 2% higher beta glucan in WA conditions. How do we achieve this? It would be difficult, but it would achieve a significant market advantage." Manager, multinational food company
- "There will be huge demand in SE Asia. We will never be their low cost supplier but can make sure we supply grain with traits that their processors can extract value from." Director, research institution
- "We just need stable production, and with the right breed of oats with the high levels of protein and beta glucan." Managing Director, grain processor, medium

Source: Coriolis interviews and analysis

Production growing

Western Australia can continue to increase oat production going forward

Oat production in Western Australia (t; m; 1900-2015a; 2016p; 2017-2030p)

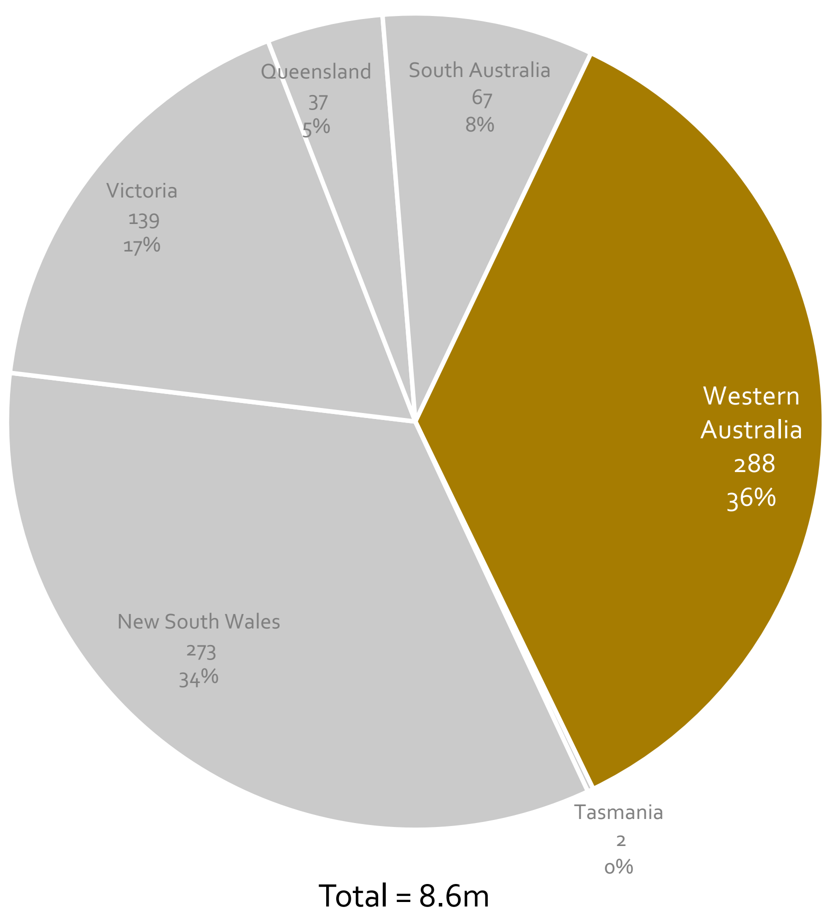


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis and modelling

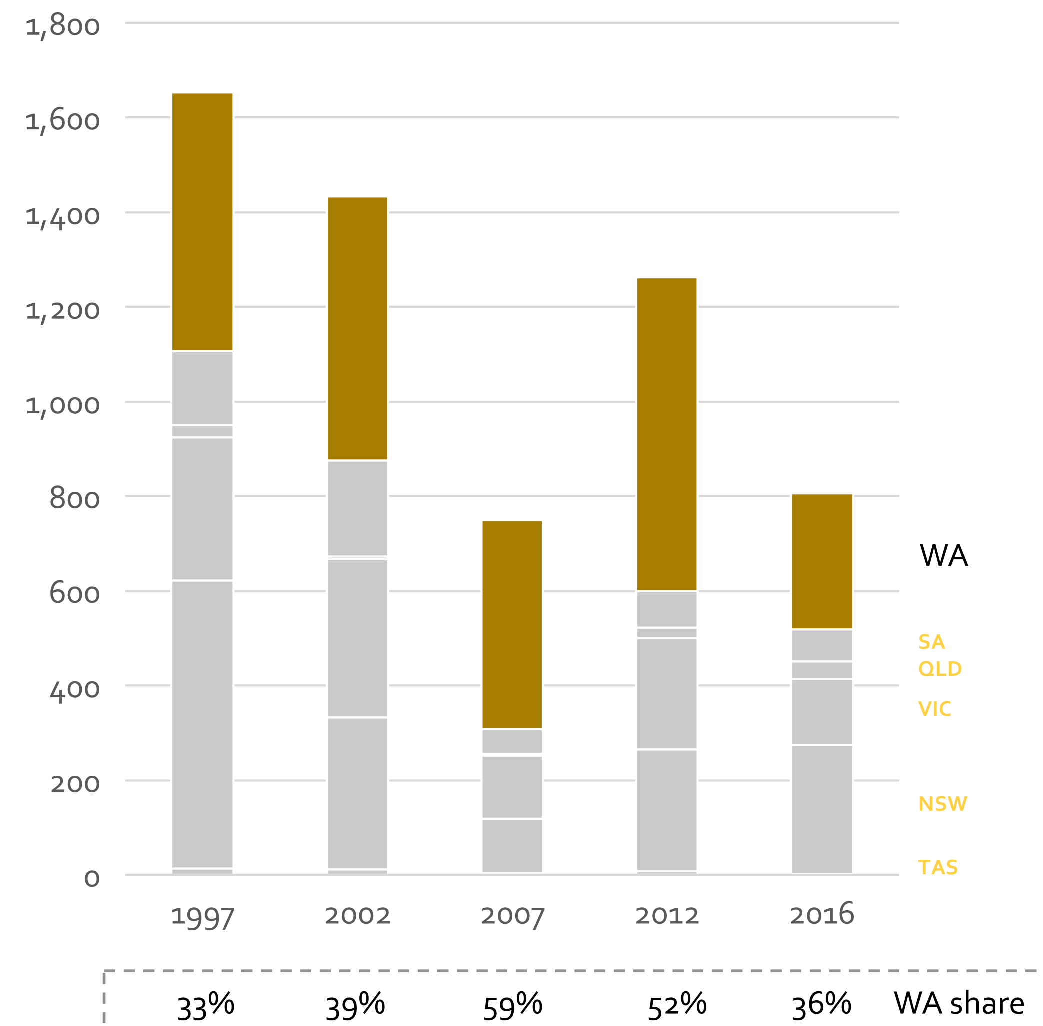
Key producer

Western Australia is the largest oat producing region in Australia, with more than a third of national production; the state is maintaining share of declining national production

Australian oat production by state (t; 000; 2015/16)



Australian oat production by state (t; 000; 1997-2016)



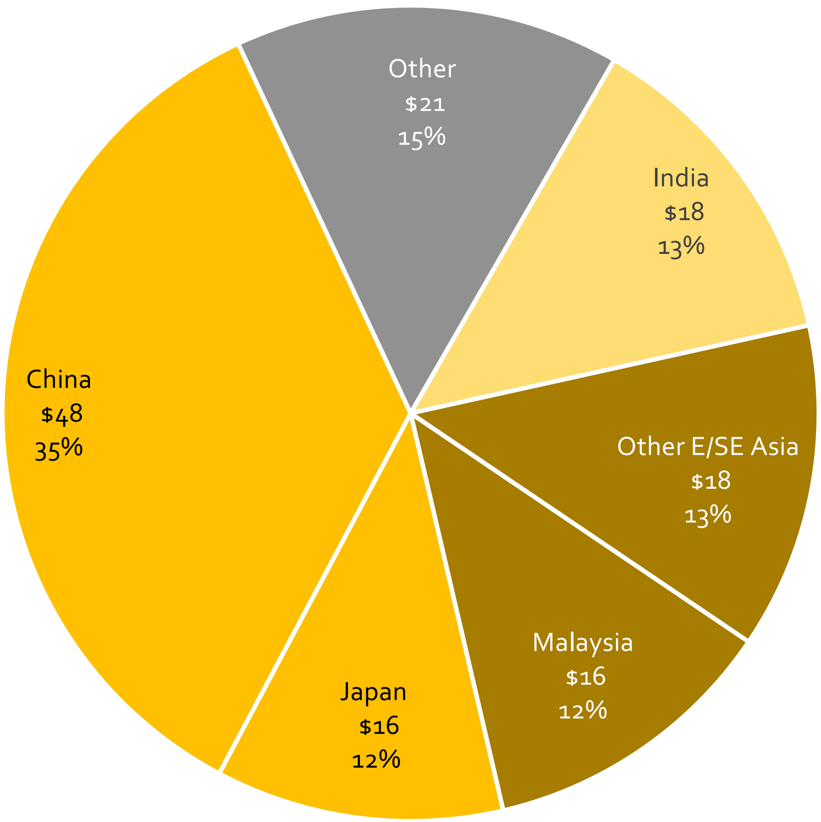
Source: various ABS publications and reports; Coriolis analysis

East & South East Asian markets

Australian cereal/rolled oats exports go to China (35%), Japan (12%), Malaysia (12%), India (13%) and a range of other destinations

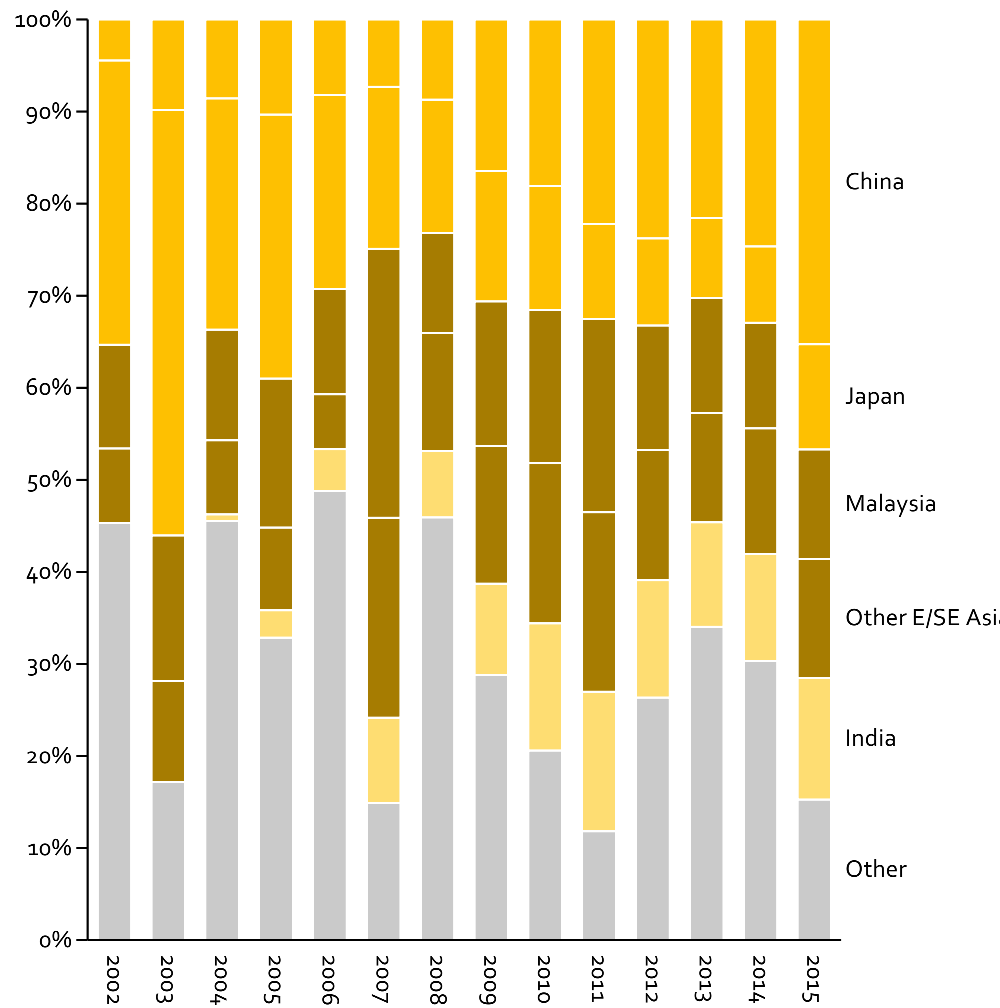
Australian oat exports by destination (US$; m; CIF; 2015)

Data is total Australia as reported CIF by receiving country
Australian reported data has confidentiality issues



Total = US$136m

Australian oat exports by destination (% US$; CIF; 02-15)



Source: United Nations Comtrade; Coriolis analysis

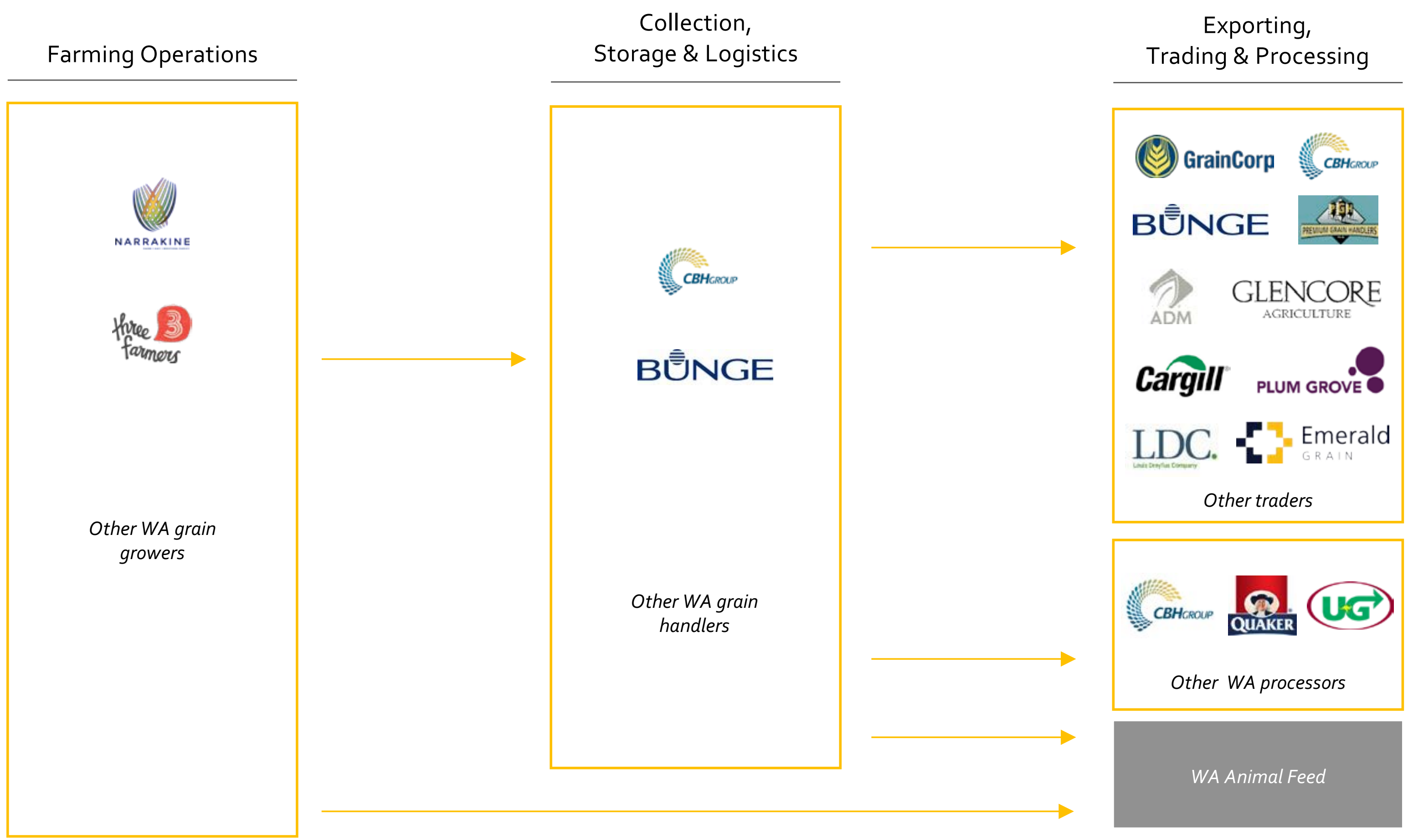
6.3 Western Australia oat firm activity

Western Australia has a robust oats industry

- Oats have a streamlined supply chain in Western Australia; some primary processing occurring
- Oats are an important part of the portfolio for the major grain firms operating in Western Australia
- Quaker Oats, Unigrain and CBH have oat processing facilities in Western Australia
- Western Australia has seen significant investment in oat processing capacity; absorbs approximately 30% of WA oats
- There are a number of potential acquisition targets in the Western Australian oats industry

Oats – a multistage supply chain

Oats have a streamlined supply chain in Western Australia; some primary processing occurring



Source: industry interviews; Coriolis analysis

Firms across the oats supply chain

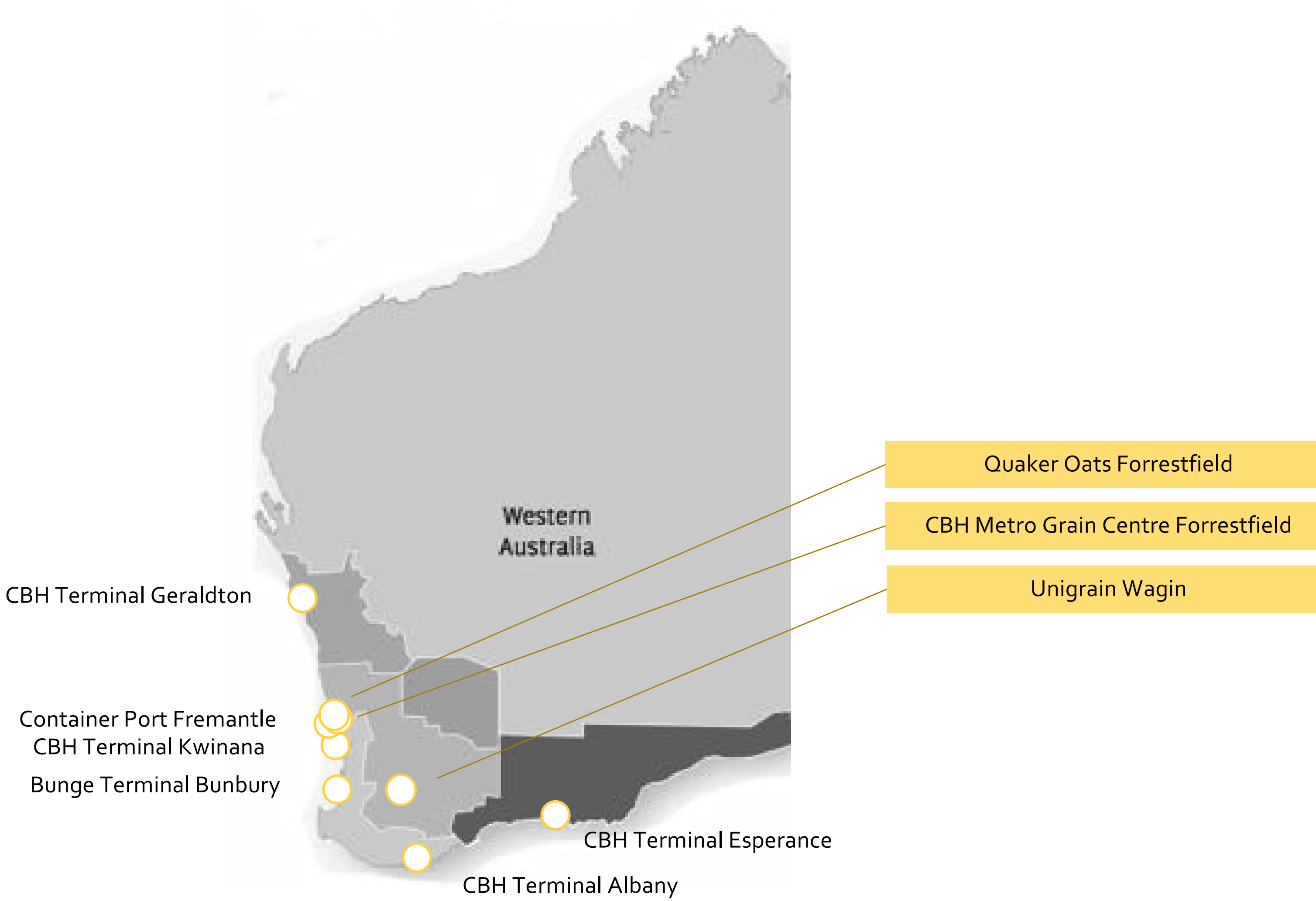
Oats are an important part of the portfolio for the major grain firms operating in Western Australia

	Description	Farming	Bulk handling	Processing	Exporting/ marketing	Branded product
NARRAKINE	Family owned farming enterprise; hay, straw, grain processing and direct export	✓		✓	✓	✓
Three Farmers	Oat and quinoa growers and processors; branded retail products	✓		✓		✓
Esperance Quality Grains	Handling & storage, cleaning, trading and exporting company; co-owned farming operations	✓	✓		✓	
PGH Premium Grain Handlers	Grain supply, storage, cleaning, processing, bagging and container packing service; established in 1995	✓	✓		✓	
CBH Group	Australia's largest co-operative; operations in grain storage, handling, transport, marketing and processing; established in 1933		✓	✓	✓	
BUNGE	Leading marketer of Australian grains; receival sites and port terminals in WA; established in 1923		✓		✓	
GrainCorp	Australia's largest integrated edible oils business and supplier of edible flour; storage and logistics, grain marketing, malt and oils		✓	✓	✓	✓
Cargill	Grain and oilseed origination, storage and handling, grain and cotton trading and export, malt and oilseed processing, JV in beef processing; established 1967			✓	✓	✓
QUAKER	Multinational food company specialising in breakfast oat products; owned by PepsiCo; oat milling facility in WA			✓	✓	✓
UG	Leading food and agribusiness specialising in the manufacture of oat cereal and pulse based food and food ingredients, animal nutrition products; WA and VIC			✓	✓	✓
	Animal feed, grains, pulses and oilseeds exporter; focus on Asian and Indian sub-continental markers				✓	
Emerald GRAIN	One of the largest grain marketing and supply chain businesses in Australia				✓	
GRAINLINK	Grain and hay marketer; established in 1999				✓	
PLUM GROVE	Grain accumulation and export business; accumulates cargos for major end users Salim Group, Mitsui and Seaboard; operations in NSW via major stake in Agrigrain				✓	

Source: various published articles; company annual reports; Coriolis interviews and analysis

Oats port terminals and processing facilities

Quaker Oats, Unigrain and CBH have oat processing facilities in Western Australia



Source: modified from AEGIC; Coriolis analysis

Western Australia oats sector continues to invest

Western Australia has seen significant investment in oat processing capacity; absorbs approximately 30%* of WA oats

CBH – Metro Grain Centre

- 2015 Acquires Blue Lake Milling oat processor in SA/VIC $47m
- 2017 Investing in new oat processing facility at Metro Grain Centre – milling capacity 60,000t (doubling BLM current capacity)
- Complete Mar 2018

DRIVER

- Increase scale and capability in oats
- Leverage WA reputation for clean safe food
- Secure value in oats supply chain
- Increase geographic spread

Unigrain

- 2014 Unigrain acquires Morton's Seed and Grain (2 sites)
- 2015 Processed 120,000t oats
- 2016 Installed new oat roller (consolidated operations at Wagin)
- 2016 Built desalination plant

DRIVER

- Plant efficiency
- Secure processing close to SEA
- Growing market demand

Quaker

- 1989 start milling at Forrestfield site
- 2010 New oat cleaning facility
- 2015 New oat mill commissioned
- Vision for 250,000t/yr

DRIVER

- Increase plant efficiency
- Secure quality supply from WA
- Increase geographic spread

* DAFWA; Source: annual reports; company interviews; press articles; Photo credit: Map data: Google

Investment or acquisition targets

There are a number of potential investment or acquisition targets in the Western Australian oats industry

Potential to acquire key Western Australian oat operations

Firm	Current Owner	Operations	Product	Potential for outside investment?
Premium Grain Handlers	Orr	Grain growing Grain cleaning, storage, exporting (Fremantle, Kellerberrin, Wandering)	Grains	Low; recent expansion
Quaker Oats	PepsiCo	1 plant (Forrestfield)	Oats	Low; owned by second largest food & beverage company in the world; recent investment in plant capacity
Unigrain	Costa, May families	2 plants (WA, VIC)	Oats Animal feed	Low; family business; recently invested in Wagin operations
Narrakine	Harding family	1 plant (Williams)	Hay Grains Oats	Low; vertically integrated family business; moving into processing oats
Australian Grown Superfoods	Wiese, Gooding, Knell	1 plant (Narrogin) Farming operations	Quinoa Oats	Medium; recently established; recently commissioned plant; recently launched new products
Demeter Cormack	Oates	Grain trader	Grains Oilseeds Pulses Animal feed	Medium
Grain Link	Goyder	Grain trader	Hay Grains	Medium
GrainCorp	Public	Grain trader	Grains	Medium; public company; Australia's largest agribusiness
Esperance Quality Grains	Wandel	Grain cleaning and handling; container exports	Grains	Medium; integrated operations; expanding into container exports

7. Canola

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

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7.1 Global canola market situation

Canola seed and oil are attractive global markets with solid fundamentals

- High level macro drivers support growing future canola seed and oil demand

PRODUCTION

- Canola is an expanding crop, accounting for 8% of global oilcrop production; global production is growing at 5.9% per year (40y CAGR), driven by global consumption increasing at 4.4% per year (40y CAGR)

DEMAND

- Canola is predominantly used to make canola oil which has a wide range of uses; the oil production process also generates canola meal which is generally used as animal feed
- Global canola oil production increasing at 6% (40y CAGR) with all major producers growing; strong growth over last decade, particularly in Northern Europe
- Global canola processing is relatively concentrated driven by high capital costs and economies of scale

TRADE

- Global canola seed trade is expanding, driven by increasing volume (10y CAGR 9.2%) and average prices (10y CAGR 3.3%), leading to growing trade value (10y CAGR 12.8%)
- Some year to year variability in Australia's global market share, but clearly growing long term

Macro drivers support canola market growth

High level macro drivers support growing future canola seed and oil demand

Global production growth

5.9%pa

Global consumption growth (all forms)

4.4%pa

Global canola oil production growth

6%pa

Global canola meal production growth

6%pa

Canola seed

Global trade volume growth 9.5%pa X Global trade price growth 4.6%pa = Global trade value growth 14.6%pa

Canola oil

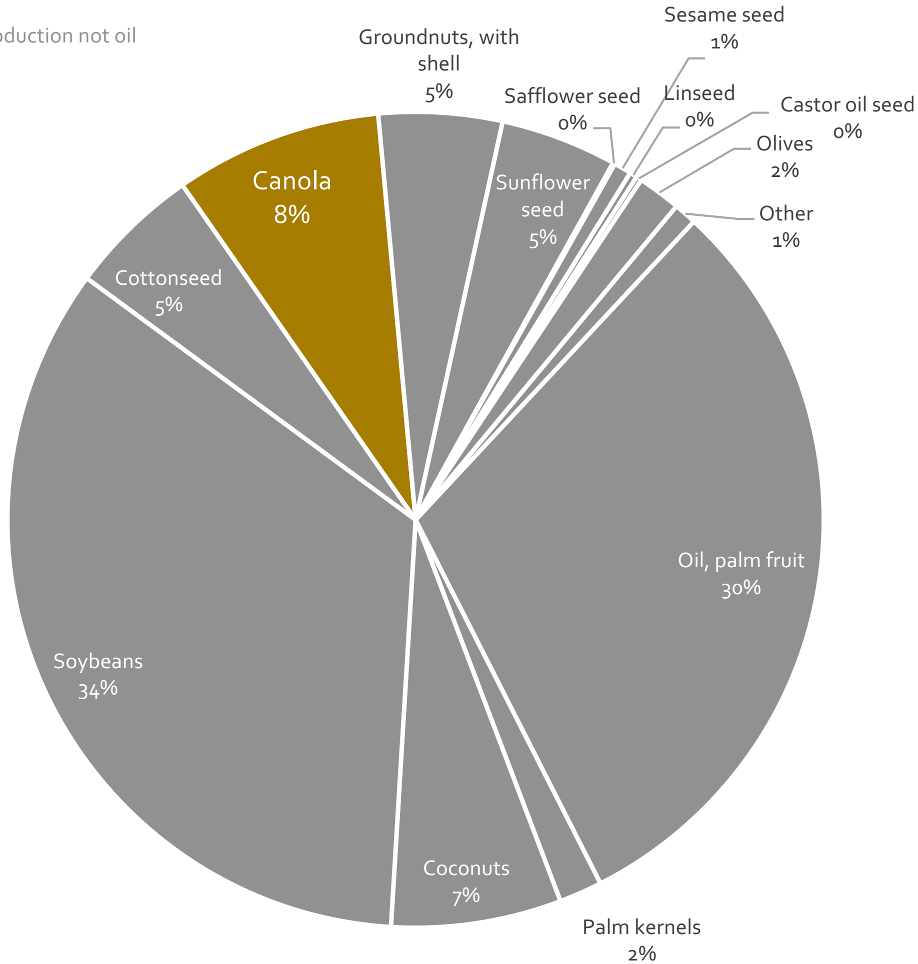
Global trade volume growth 8.5%pa X Global trade price growth 2.0%pa = Global trade value growth 10.7%pa

Growing oilcrop

Canola is an expanding crop, accounting for 8% of global oilcrop production; global production is growing at 5.9% per year (40y CAGR), driven by global consumption increasing at 4.4% per year (40y CAGR)

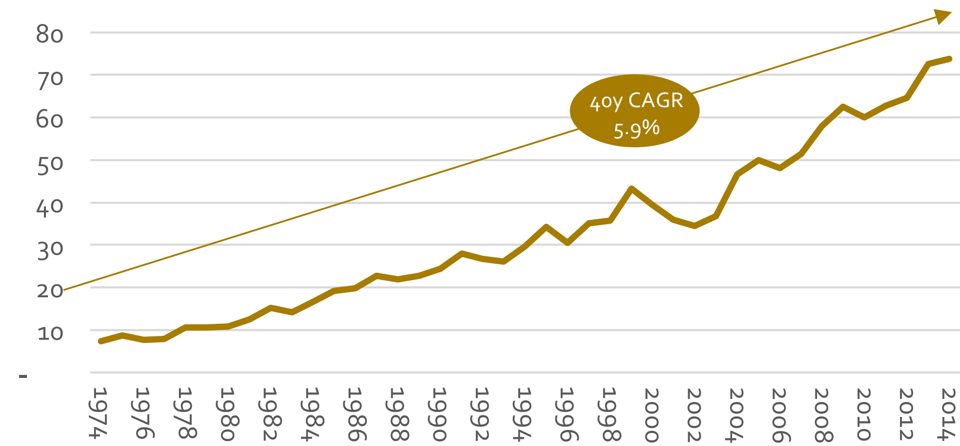
Global oilcrops production by type (t; m; 2014)

Raw production not oil

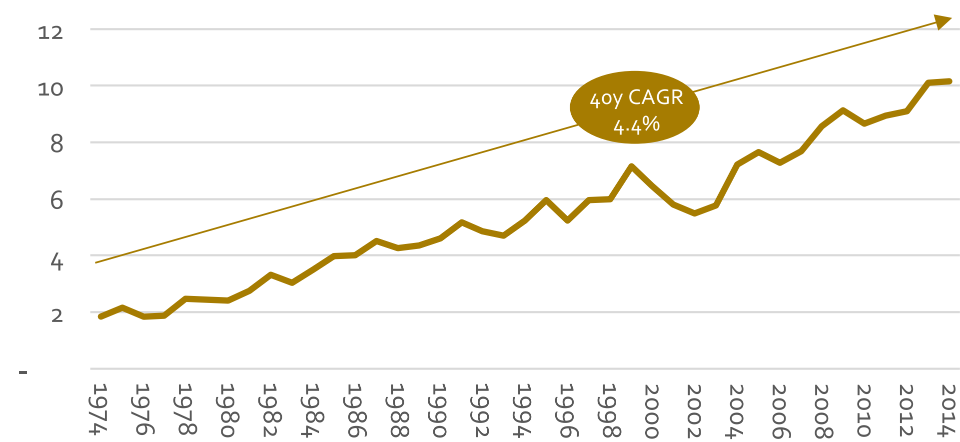


TOTAL = 898m tonnes

Global canola/rapeseed production (t; m; 74-14)



Global canola/rapeseed consumption/capita (kg; 74-14)



Source: FAO; Coriolis analysis

Used to make oil (& animal feed)

Canola is predominantly* used to make canola oil which has a wide range of uses; the oil production process also generates canola meal which is generally used as animal feed

CANOLA SEED

- Global production concentrated in drier areas away from the equator
- Well suited to dryer climates of Western Australia
- Production primarily in developed temperate climate countries
- Second largest temperate climate oilcrop (after soybeans)

CRUSHING/MILLING

- Seed is 38-45% oil; remaining material is suitable for livestock feed
- Capital intensive with large economies of scale
- Larger plants can crush 1,000t+ per day; largest 7,000t capacity
- Growing use in biodiesel in EU

COOKING OIL

FOOD INGREDIENT

INDUSTRIAL LUBRICANT

COSMETICS/NON-FOOD

OTHER USES

BIODIESEL

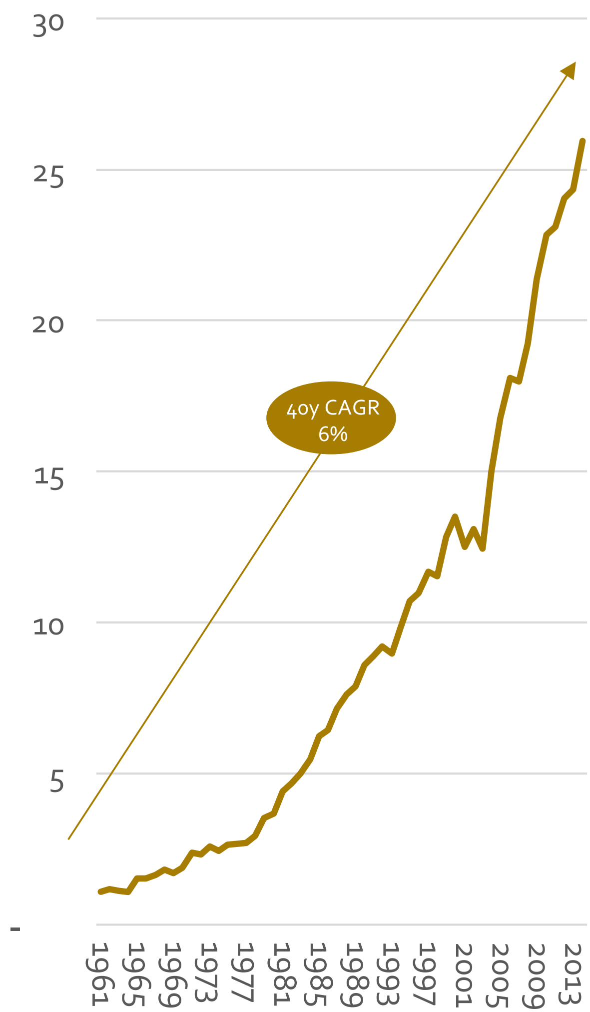
CANOLA MEAL (ANIMAL FEED)

* small amounts for other uses; Photo: canola crop (CC BY-SA 3.0; John O'Neill); Alba (Alba)

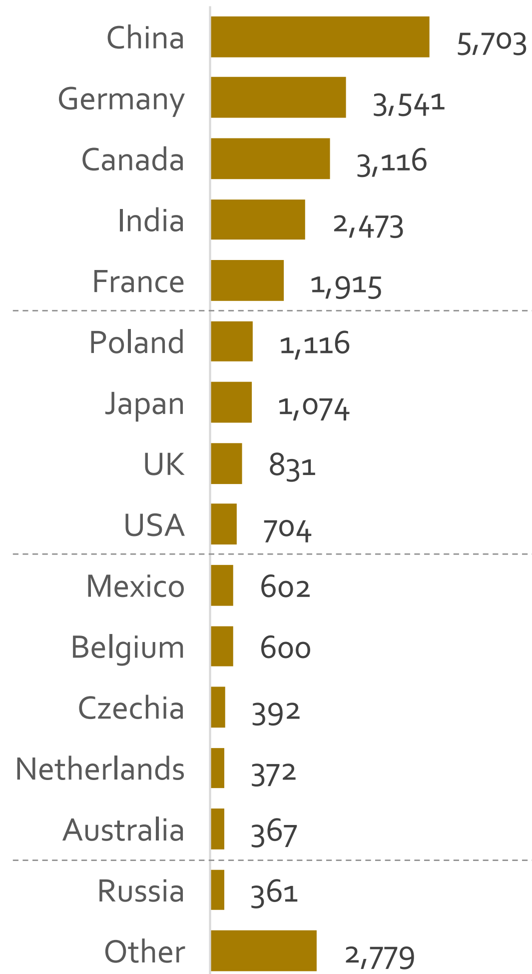
Growing market

Global canola oil production increasing at 6% (40y CAGR) with all major producers growing; strong growth over last decade, particularly in Northern Europe

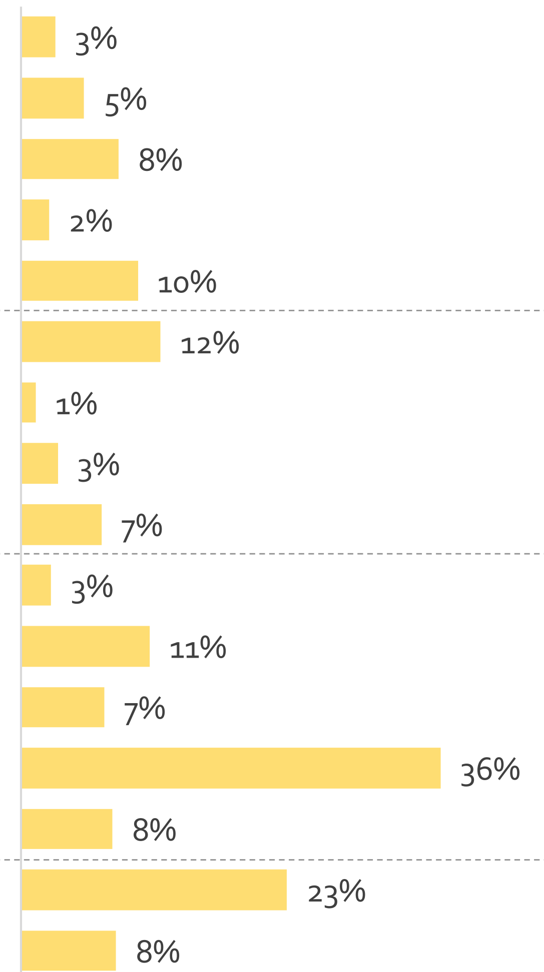
Global canola oil production (t; m; 61-14)



Canola oil production (t; 000; 2014)



10y CAGR canola oil vol. (% t; 04-14)



Source: FAO; Coriolis analysis

Key global firms

Global canola processing is relatively concentrated driven by high capital costs and economies of scale

Examples of major global customers for canola

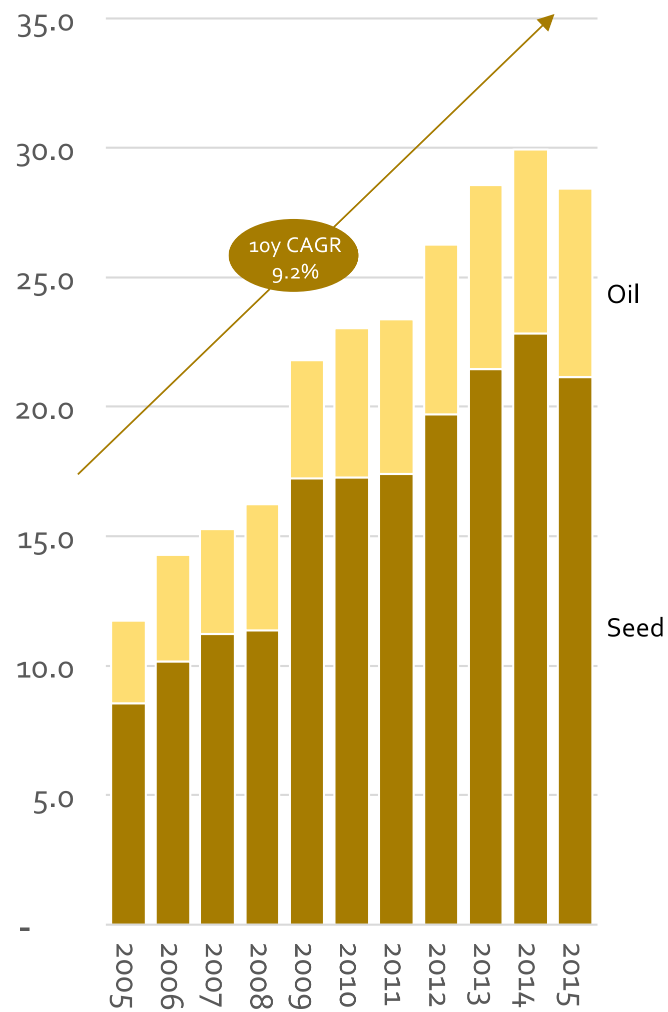
Parent Firm	Relevant Division	Year Founded	Ownership	Countries of Operation	Employees	Throughput	Turnover
BUNGE	Oilseed Processing	1818 1995	Public; NYSE	40 countries	Total 30,000+	1/3+ global oilseed crush	Parent: $42.7b (14)
Cargill	Cargill	1865	Private: USA	70 countries (all operations)	Total 150,000	-	Parent: US$107b
LDC. Louis Dreyfus Company	Oilseed Processing	1851	Private; France	50 countries	Total 25,000	Group: 81m t 11% of global oilseed flows	Parent: US$55.7b
ADM	Oilseeds processing	1902 1923	Public; NYSE	160 countries 124 oilseed sites 155,000t/day cap	Total 32,300	-	Parent: US$67.7b
GLENCORE AGRICULTURE	Oilseed Processing	Spun-off 2016	Glencore; Canada Pension; BCIMC	35 countries 36 proc. sites 274 storage	Total 155,000 (parent)	Canada 1.05m t	Parent: US$153b
RICHARDSON	Canola Processing	1857	Private; Canada	Canada; 2 sites	2,500	1.6m t canola/yr. 700k canola oil	US$28.6b

Source: various published sources

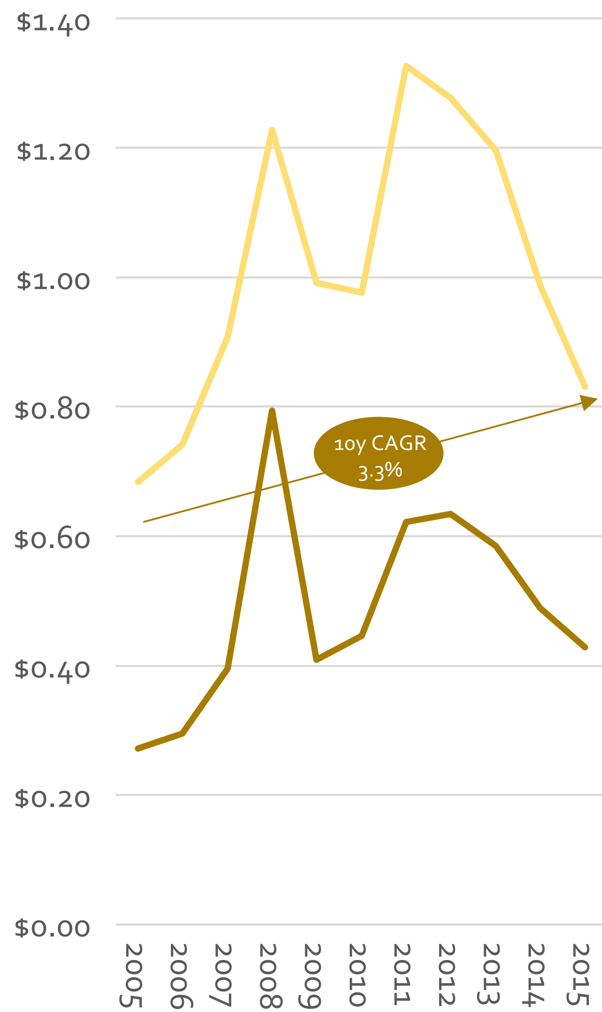
Growing trade

Global canola seed trade is expanding, driven by increasing volume (10y CAGR 9.2%) and average prices (10y CAGR 3.3%), leading to growing trade value (10y CAGR 12.8%)

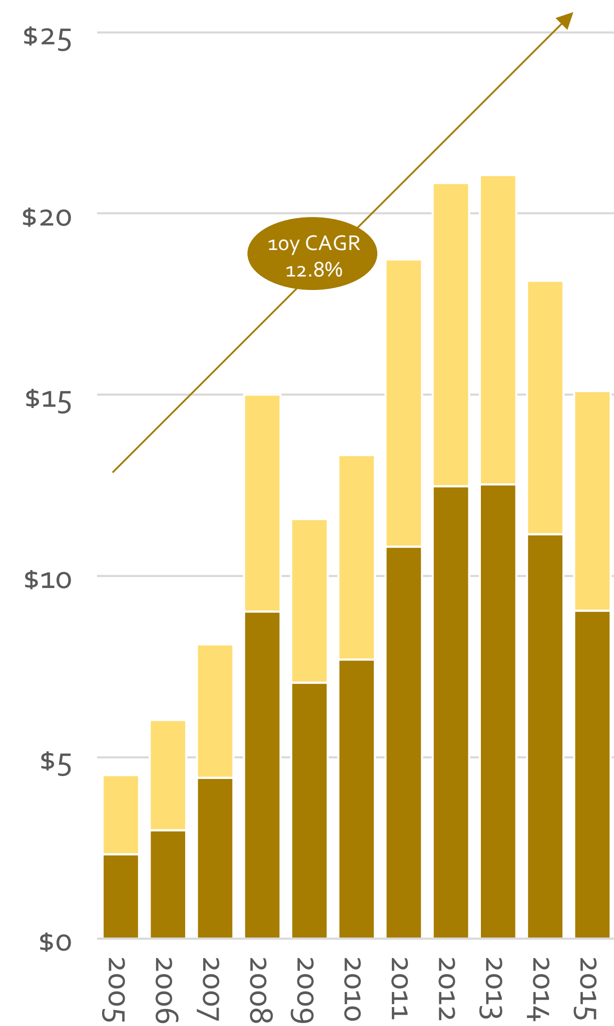
Global export volume (t; m; 05-15)



Global average price (US$/kg; 05-15)



Global export value (US$; b; 05-15)

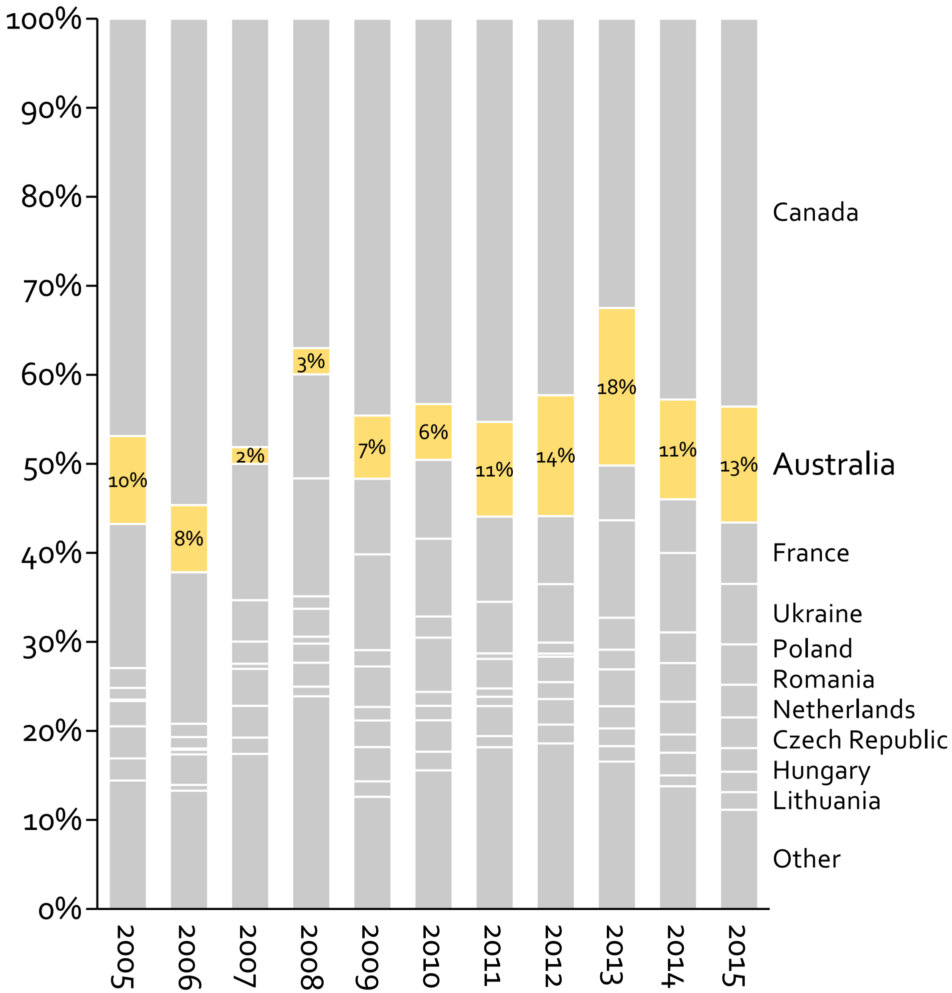


Source: FAO; Coriolis analysis

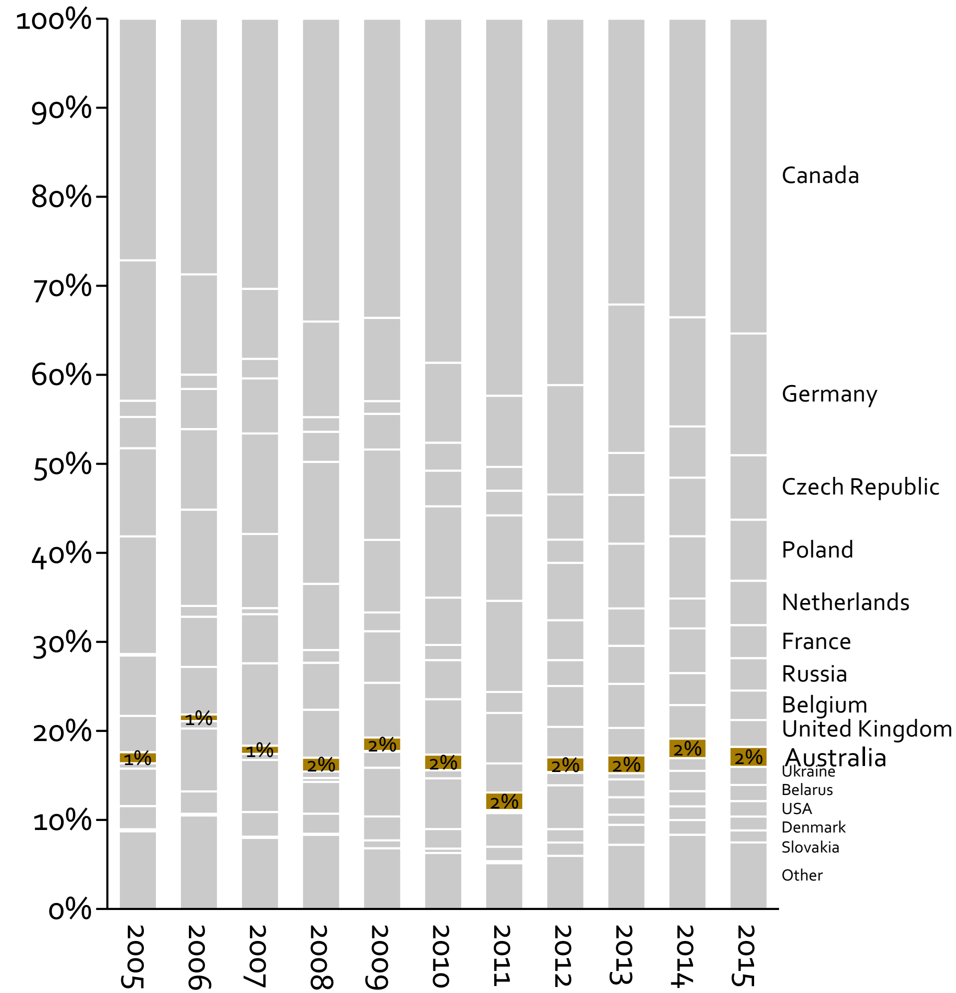
Global shares stable

Some year to year variability in Australia's global market share, but clearly growing long term

Share of global canola seed export vol. (% of t; 2005-2015)



Share of global canola oil export volume (% of t; 2005-2015)



Source: Comtrade; Canola Council of Canada; Coriolis analysis

7.2 Western Australia canola situation

Western Australia is a rapidly growing canola producer and exporter with potential for robust long term growth

- Western Australia is the largest canola producer in the Southern Hemisphere, both in total and per capita
- Macro drivers for WA canola industry support a robust growth environment in the future

PRODUCTION

- Western Australia can continue to grow canola area going forward
- Western Australia has achieved 1.5% (24y CAGR) canola yield growth since the early 90's; some year to year variability
- A wide ranging group of climatic and competitive peers indicates further yield improvements should be possible
- Western Australia can continue to increase canola production in the years ahead

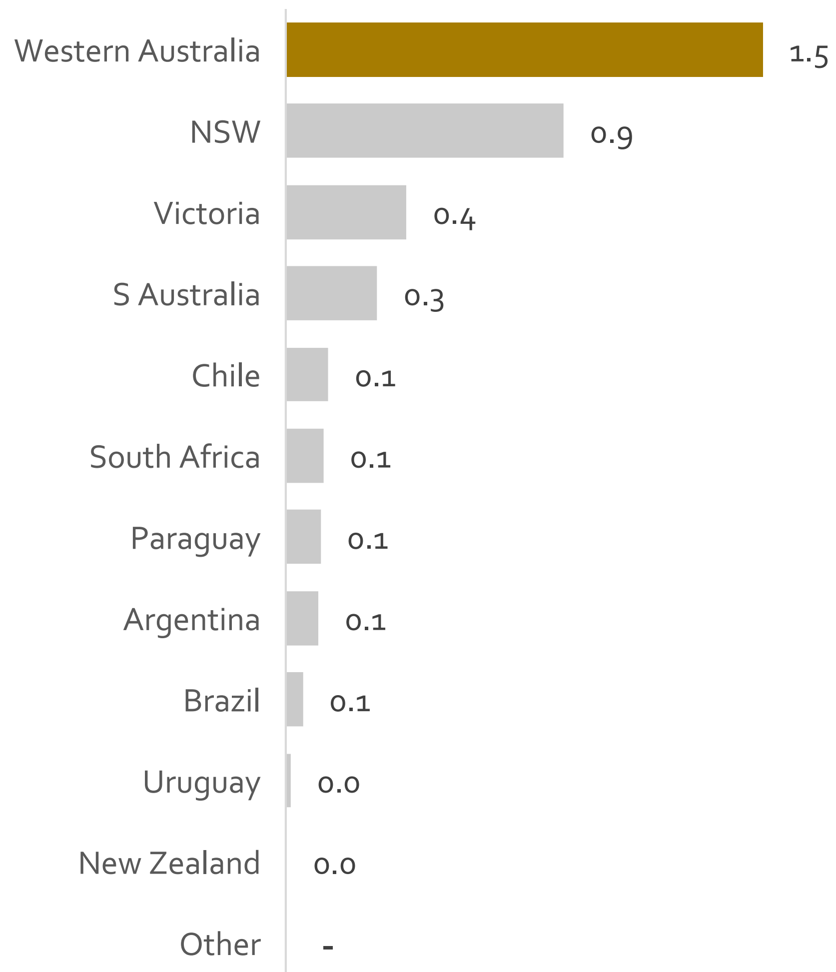
EXPORTS & MARKETS

- Western Australia exported A$1.3b worth of canola (YE Mar 17), representing more than two-thirds of the Australian total, and exports are growing strongly
- Western Australian canola exports go predominantly to Europe
- Western Australia sells canola to a range of European customers

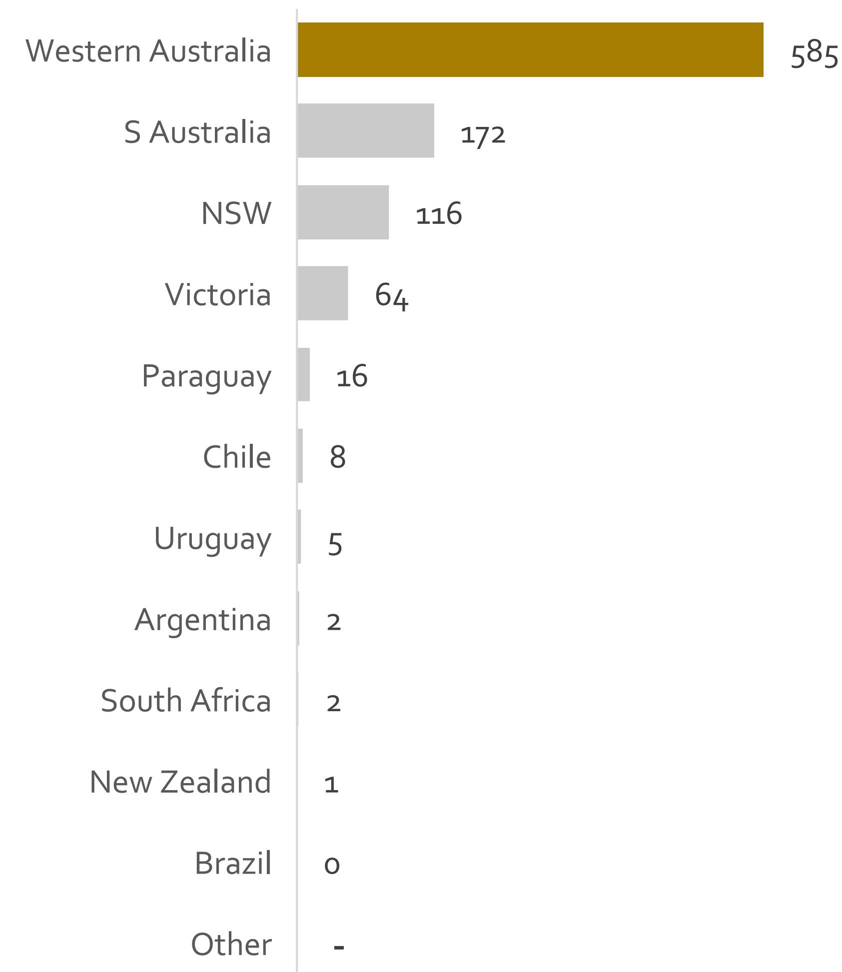
Largest Southern Hemisphere producer

Western Australia is the largest canola producer in the Southern Hemisphere, both in total and per capita

Southern Hemisphere canola production (t; m; 14 or 15/16)



S.H. canola production per person (kg/head; 2014 or 15/16)



Source: FAO; ABS; AOF; UN; Coriolis analysis

Macro drivers support robust growth

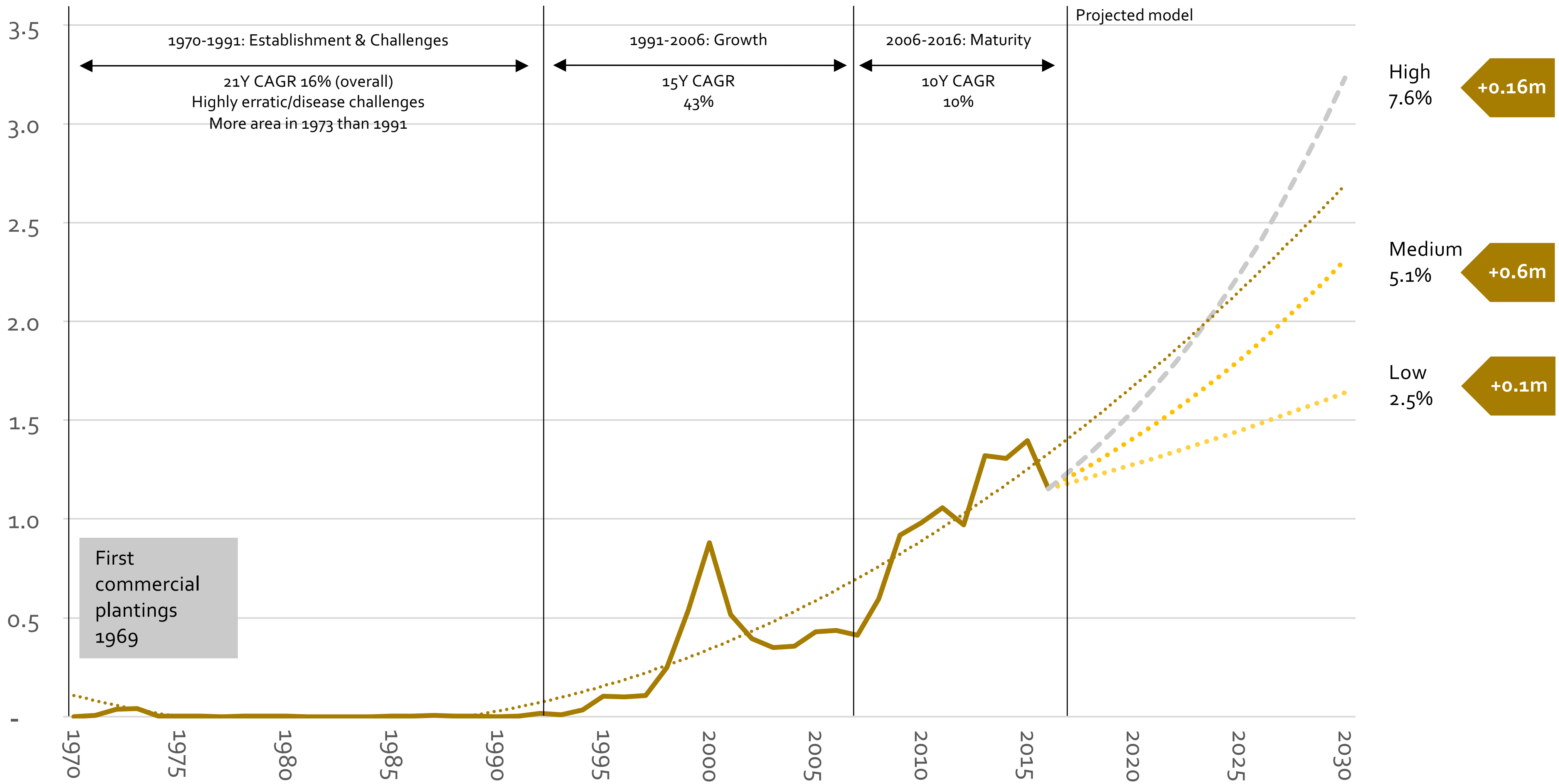
Macro drivers for WA canola industry support a robust growth environment in the future

Area Growth 5% (2.5% to 7.6%pa)	X	Yield Growth 1.5%pa	=	Production Growth 6.5% (2.4% to 9.5%pa)

Continued area growth

Western Australia can continue to grow canola area going forward

Canola area in Western Australia (ha; m; 1970-2015a; 2016p; 2017-2030p)

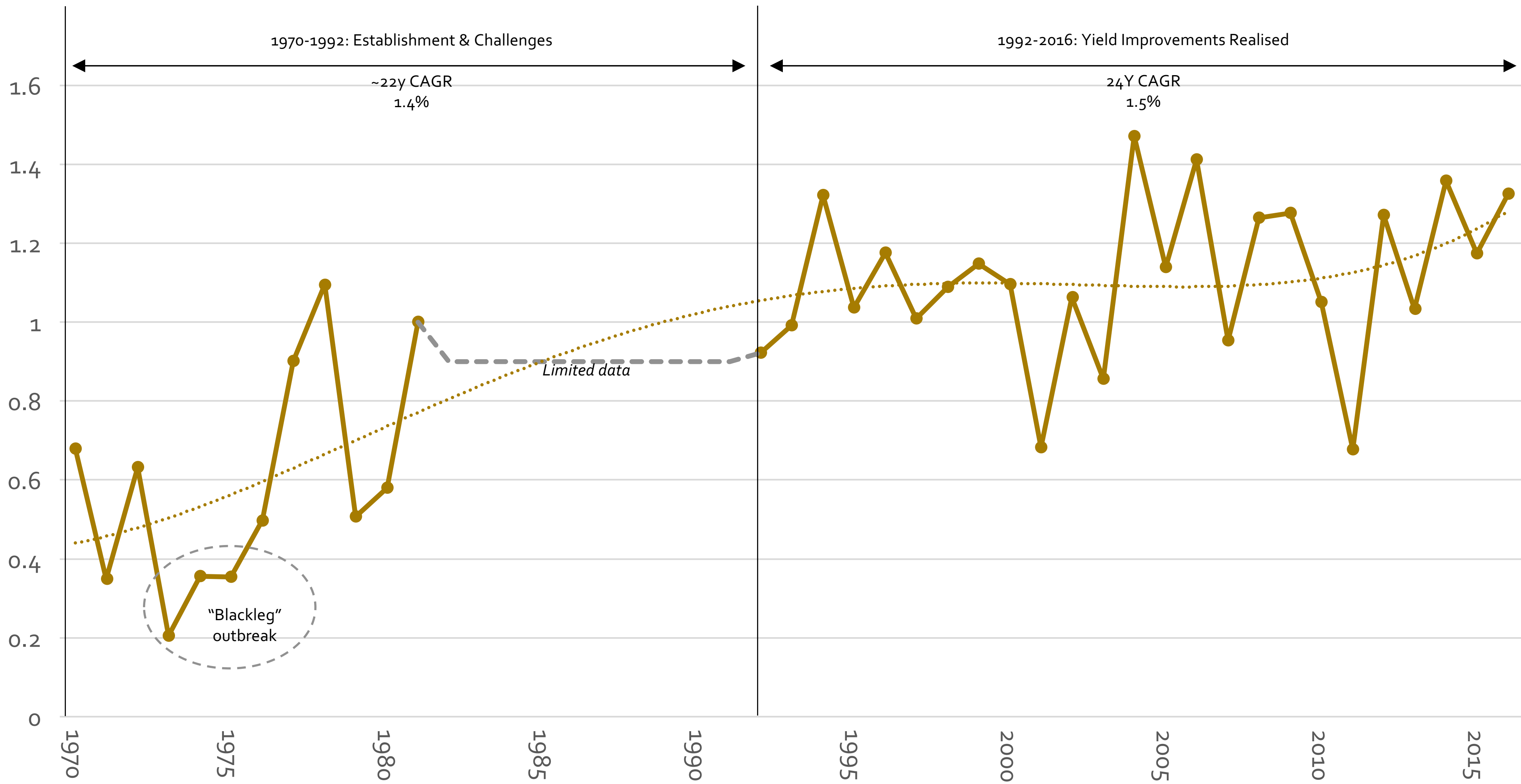


Source: various ABS publications and reports; Australian Oilseed Federation Annual Report 2015-16; Coriolis modelling

Achieved yield growth

Western Australia has achieved 1.5% (24y CAGR) canola yield growth since the early 90's; some year to year variability

Canola yield in Western Australia (t/ha; 1970-2015a; 2016p)



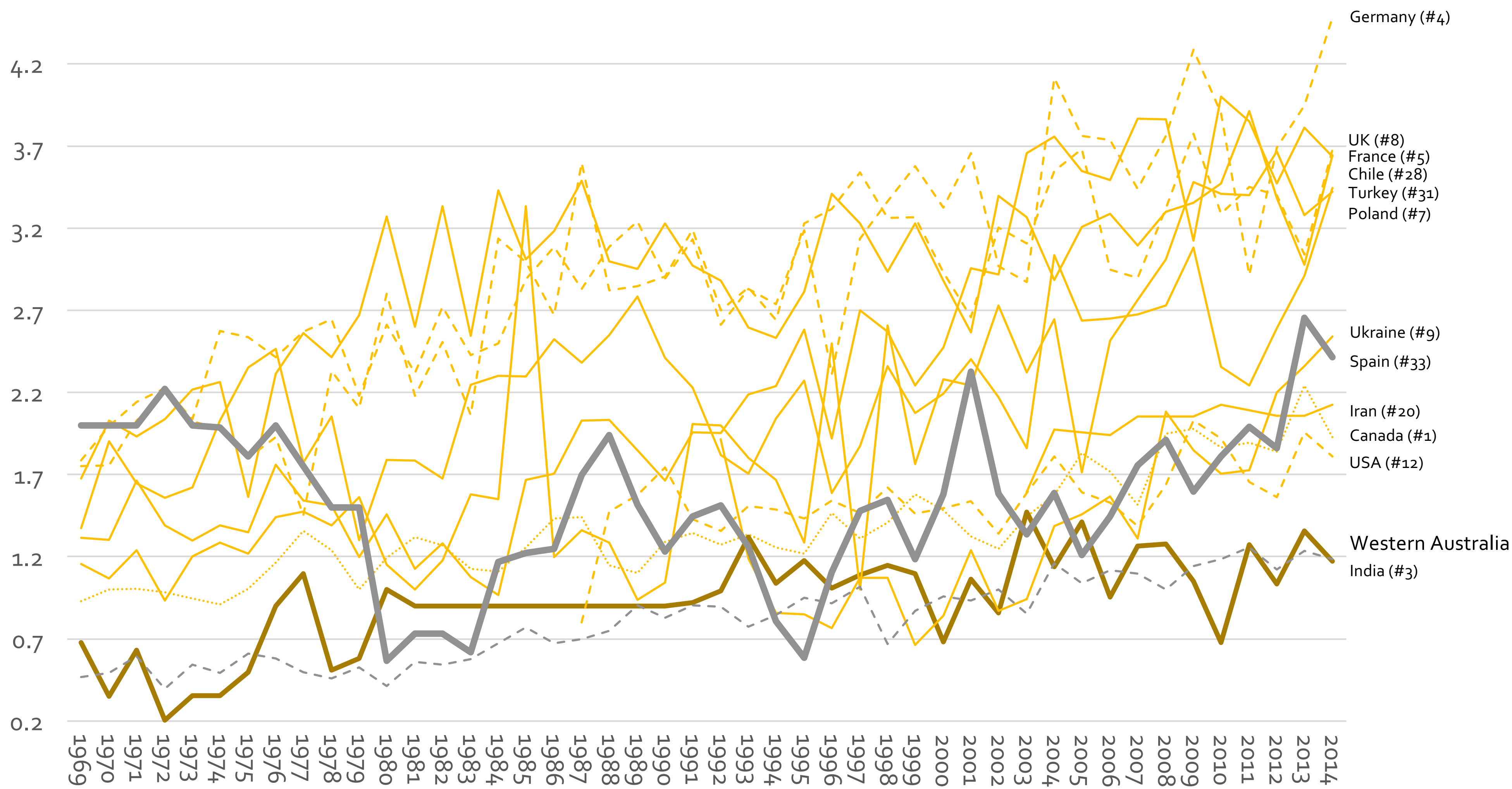
Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Australian Oilseed Federation Annual Report 2015-16; Coriolis modelling

Further yield improvements possible

A wide ranging group of climatic and competitive peers indicates further yield improvements should be possible

Average canola/rapeseed yield (t/ha; 69-14)

(Global production rank)

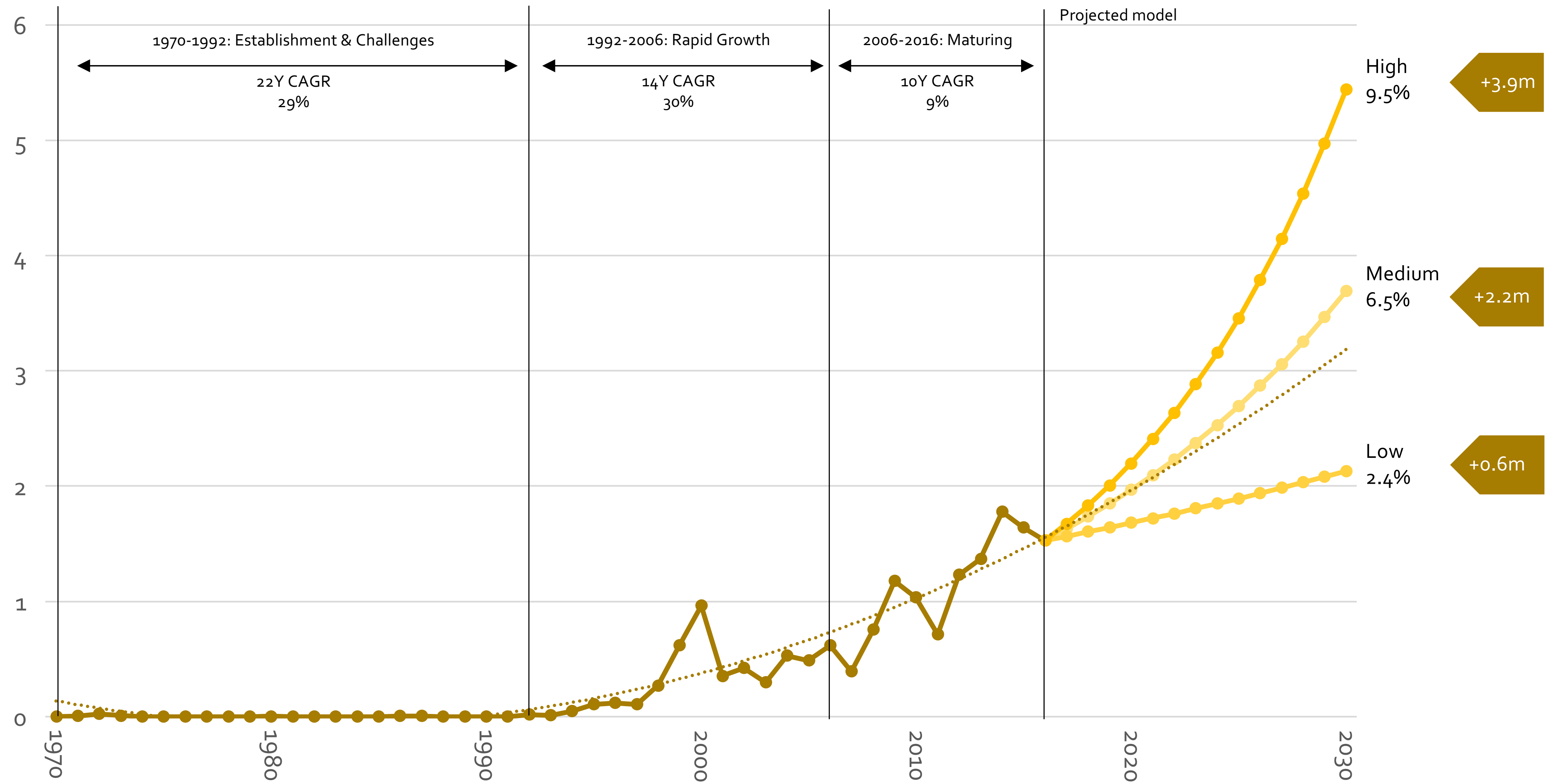


Note: 2004 is the latest available globally; WA uses 62-15; Source: United Nations FAO; various ABS publications and reports; Coriolis analysis

Production growing

Western Australia can continue to increase canola production in the years ahead

Canola production in Western Australia (t; m; 1970-2015a; 2016p; 2017-2030p)

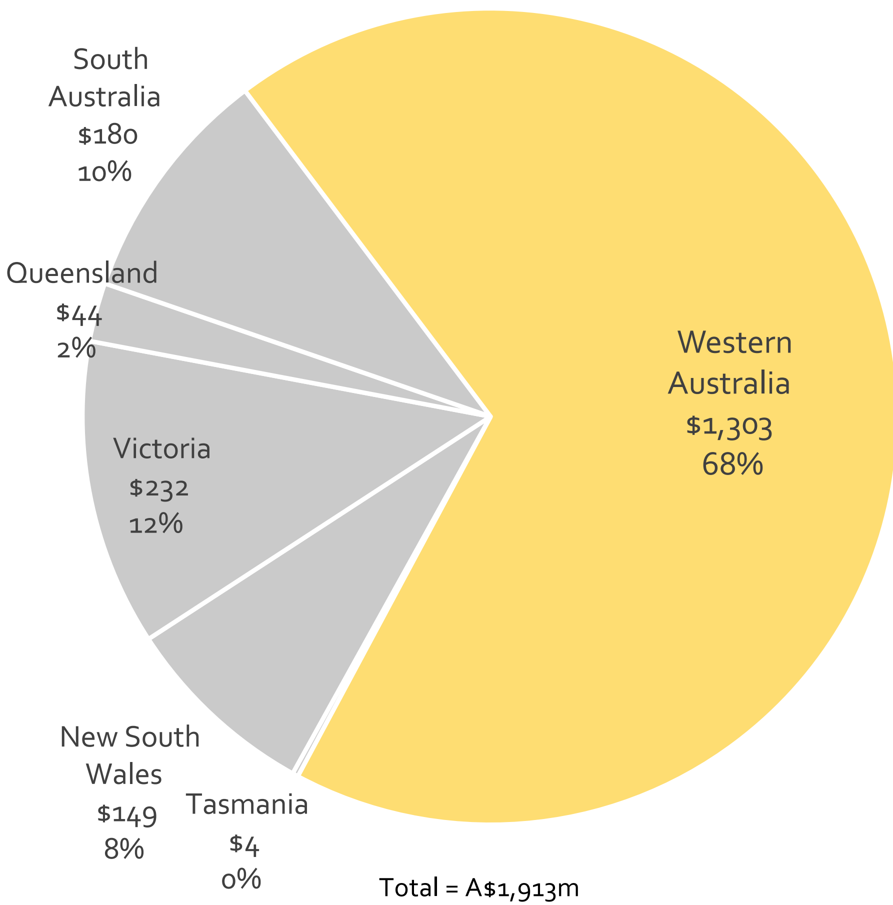


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Australian Oilseed Federation Annual Report 2015-16; Coriolis modelling

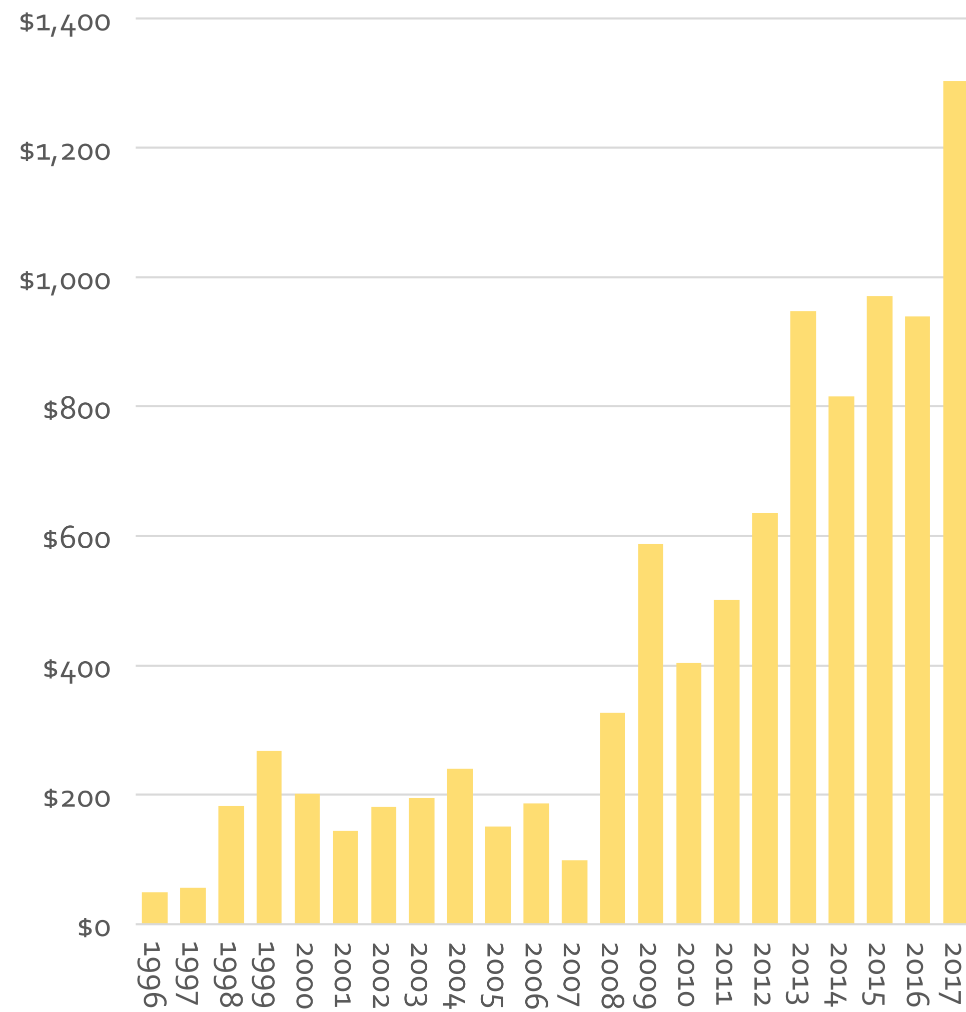
Leading Australian exporter

Western Australia exported A$1.3b worth of canola (YE Mar 17), representing more than two-thirds of the Australian total, and exports are growing strongly

Australian canola export value by state (A$m; YE Mar 17)



WA canola export value (A$; m; FOB; 96-17*)

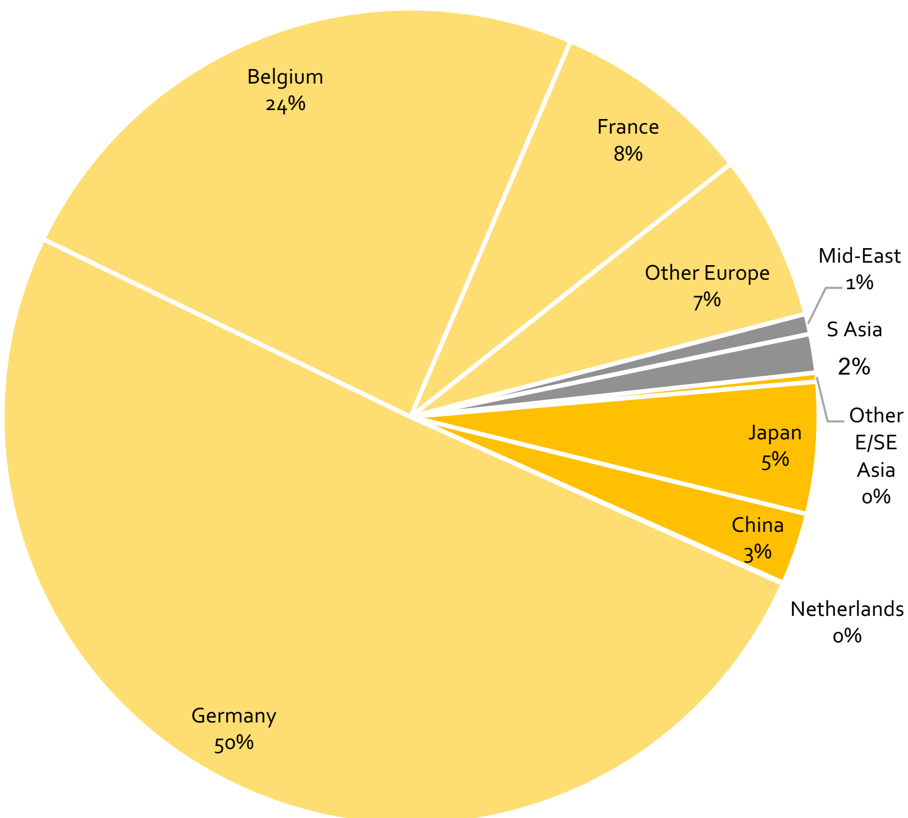


*TTM 3/17, all rest YE Dec; Source: ABS; Coriolis analysis

Europe the key market

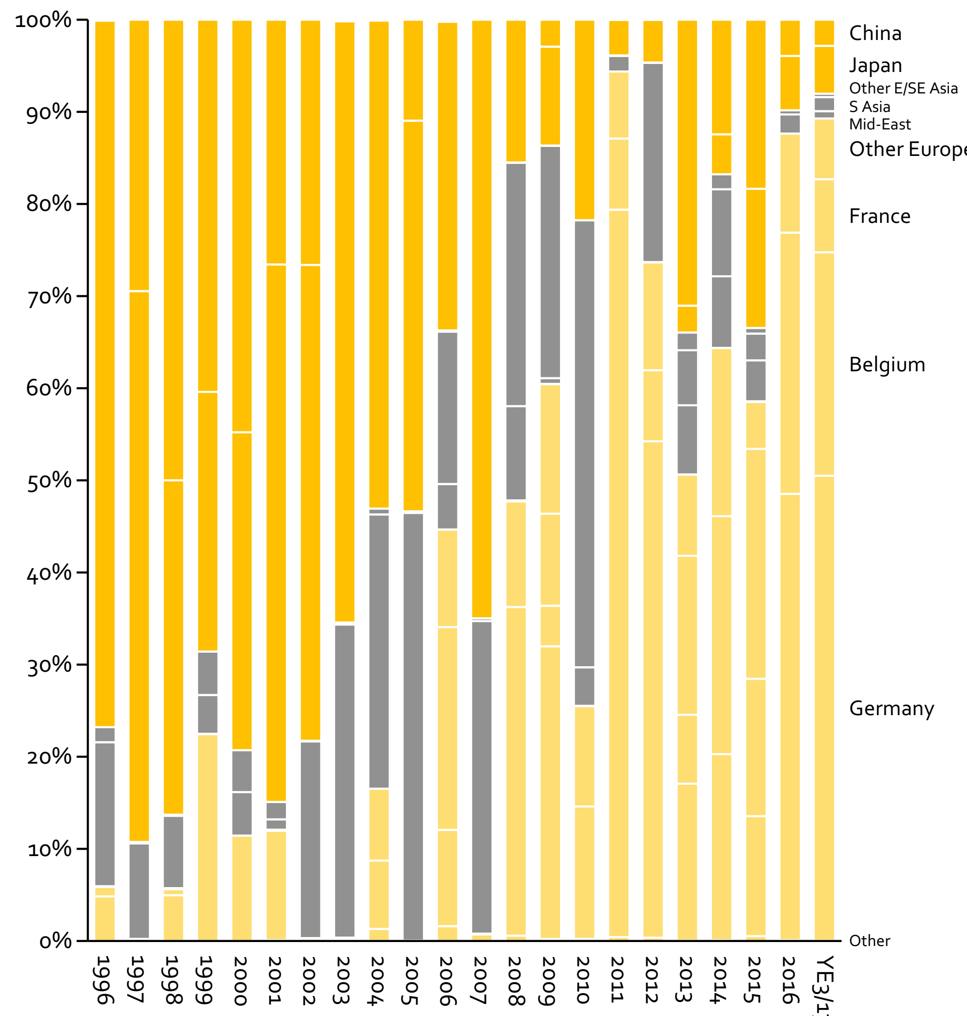
Western Australian canola exports go predominantly to Europe

WA canola exports by destination (A$; m; YE Mar 17)



Total = A$1,303m

% of WA canola exports by destination (% of $; 96-17*)



*YE 3/17; Source: ABS; Coriolis analysis

Key European customers

Western Australia sells canola to a range of European customers

Example major customers for canola in select European markets important to WA

Market	National rapeseed / canola crush (t; 15)	Select canola processors in these markets
Germany	9,548,000t	ADM, Bunge, Cargill, Brökelmann+Co Oelmühle GmbH+Co, LDC Louis Dreyfus Company, Avril, olenex Specialists in Edible Oils
Belgium	1,530,000t	Vandeputte, Scaldis, Cargill
France	4,653,000t	ADM, Avril, Cargill, Céréales Centre Ouest

Source: various published sources

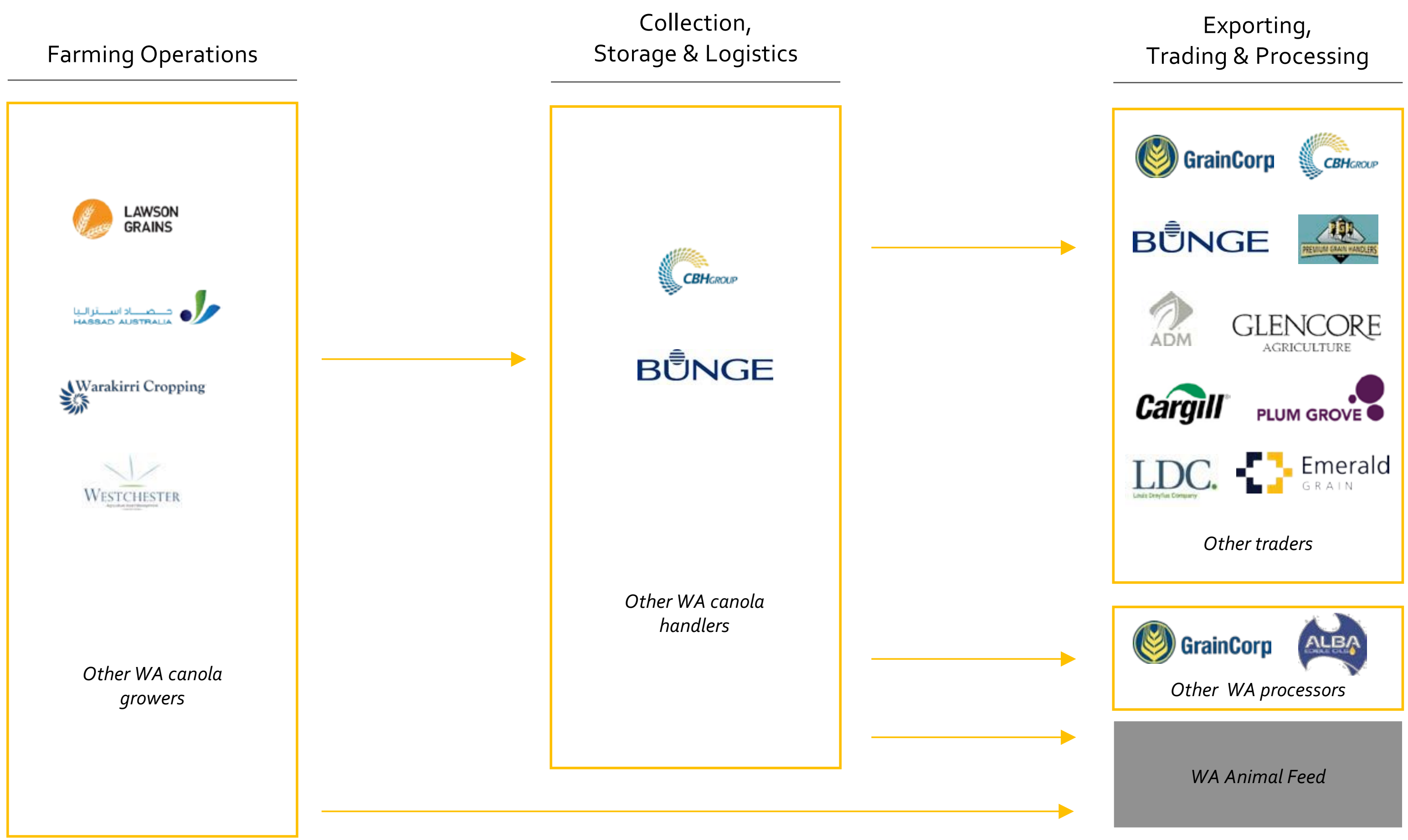
7.3 Western Australia canola firm activity

Western Australia has a robust canola industry

- Canola has a streamlined supply chain in Western Australia; highly consolidated at the handling and storage stage, some crushing and refining takes place in the state
- Canola is an important part of the portfolio of the major grain firms operating in Western Australia
- GrainCorp operates the largest canola oil refinery in Western Australia, the Riverlands Oilseeds facility
- The collection, distribution and storage of canola is primarily conducted by CBH, a grower-owned cooperative; a number of firms export canola from WA, with most key global canola traders present
- On the back of growing demand for quality oil and feed products, the oilseed industry continues to invest across the supply chain
- There is a number of potential acquisition targets in the Western Australian canola industry

Canola – a multistage supply chain

Canola has a streamlined supply chain in Western Australia; highly consolidated at the handling and storage stage, some crushing and refining takes place in the state



Source: industry interviews, Coriolis analysis

Firms across the canola supply chain

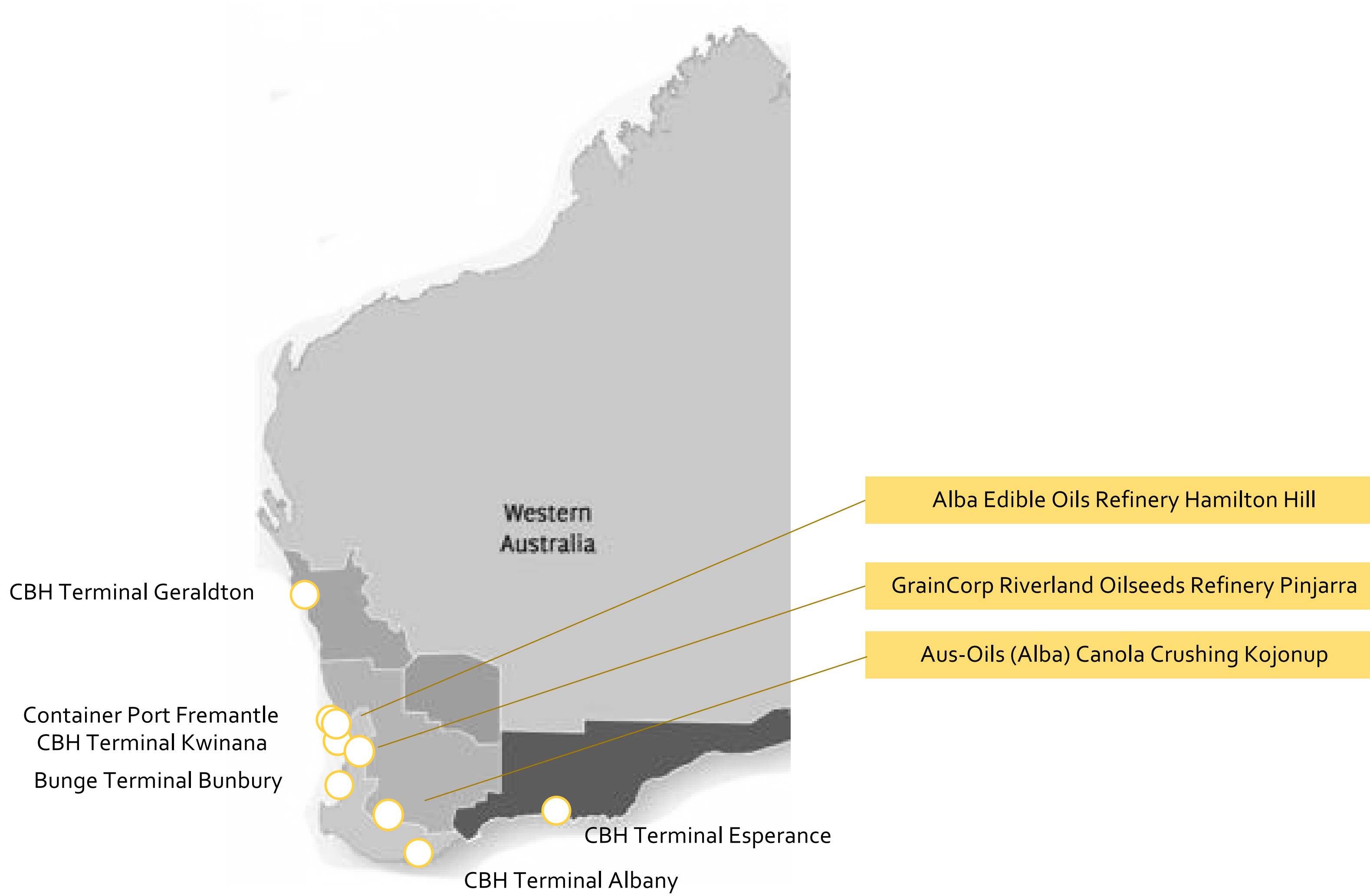
Canola is an important part of the portfolio of the major grain firms operating in Western Australia

	Description	Farming	Bulk handling	Processing	Exporting/ marketing	Branded product
Lawson Grains	Macquarie Group's investment in broadacre agriculture	✓				
Hassad Australia	Global investor and developer in agriculture and livestock sectors; Qatar Investment Authority	✓				
Warakirri Cropping	Leader in Australian agricultural investment management; established in 1996 on behalf of Australian superannuation funds	✓				
Westchester	Global agriculture real estate investment managers	✓				
Esperance Quality Grains	Handling & storage, cleaning, trading and exporting company; co-owned farming operations	✓	✓		✓	
Premium Grain Handlers	Grain supply, storage, cleaning, processing, bagging and container packing service; established in 1995	✓	✓		✓	
CBH Group	Australia's largest co-operative; operations in grain storage, handling, transport, marketing and processing; established in 1933		✓		✓	
Bunge	Leading marketer of Australian grains; receival sites and port terminal in WA; established in 1923		✓		✓	
GrainCorp	Australia's largest integrated edible oils business and supplier of edible flour; storage and logistics, grain marketing, malt and oils		✓	✓	✓	
Alba	Refiner of high quality vegetable oils and fats based in WA; manufacturing businesses in WA and VIC; Aus-Oils crushing business			✓	✓	✓
ADM	Grain merchandising businesses originating wheat, barley, canola, sorghum and pulses; distribution of ADM food ingredients and animal nutrition; established in 1991				✓	
Cargill	Grain and oilseed origination, storage and handling, grain and cotton trading and export, malt and oilseed processing, JV in beef processing; established 1967				✓	
	Animal feed, grains, pulses and oilseeds exporter; focus on Asian and Indian sub-continental markers				✓	
Emerald Grain	One of the largest grain marketing and supply chain businesses in Australia				✓	
Glencore Agriculture	One of the largest buyers and exporters of Australian wheat, barley, canola, pulses, sorghum and cotton				✓	
GrainLink	Grain and hay marketer; established in 1999				✓	
Plum Grove	Grain accumulation and export business; accumulates cargos for major end users Salim Group, Mitsui and Seaboard; operations in NSW via major stake in Agrigrain				✓	

Source: various published articles; company annual reports; Coriolis interviews and analysis

Canola port terminals and processing facilities

GrainCorp operates the largest canola oil refinery in Western Australia, the Riverlands Oilseeds facility

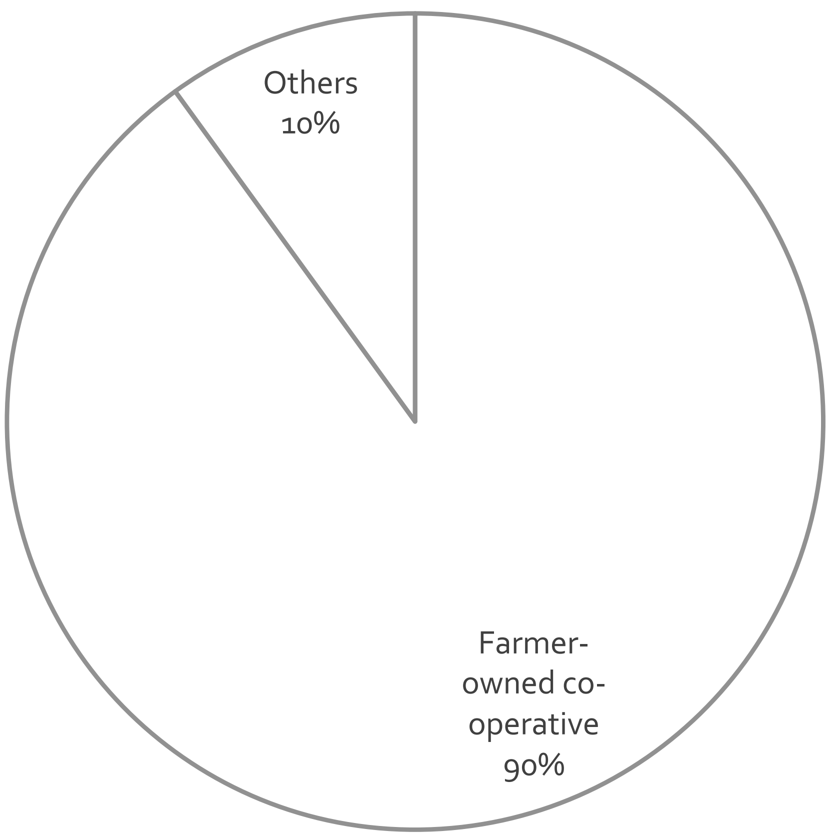


Source: modified from AEGIC; Coriolis analysis

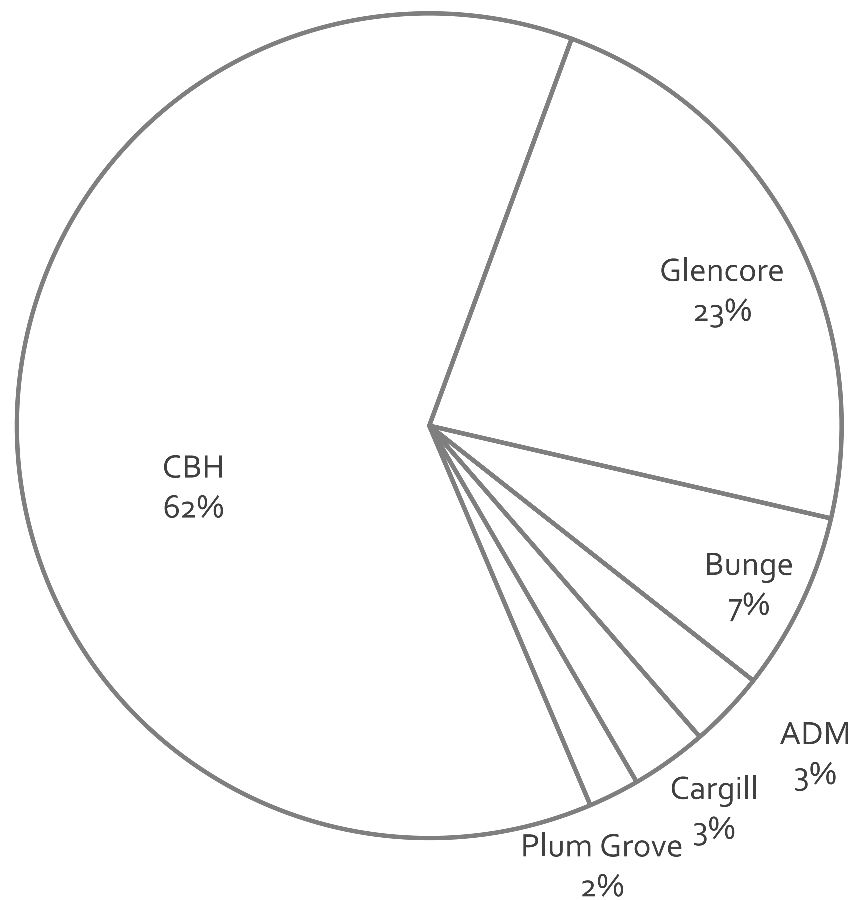
Bulk handling consolidated; wide range of exporters

The collection, distribution and storage of canola is primarily conducted by CBH, a grower-owned cooperative; a number of firms export canola from WA, with most key global canola traders present

Canola bulk handling volume share (2016)



Share of WA export canola volume by exporter (% of t; 2017)



Source: CBH; Australian Crop Forecasters; interviews

Western Australia oilseed sector continues to invest

On the back of growing demand for quality oil and feed products, the oilseed industry continues to invest across the supply chain

Aus-Oils

- 2014 Aus-Oils invests in new cold press canola crusher, doubling capacity and increasing quality
- 2015 Upgrades crusher facility 2016 3 new cold press machines 4x crush to 120t/day ~ 30,000t 2016
- Produce degummed canola oil expeller canola meal

DRIVER

- Increase scale for efficiencies
- Demand for high quality oils
- Increasing demand for animal feed

Alba Edible Oils

- 2009 Moves into custom-built facility
- 2010 Invests in clean energy and automation, expanding capacity by 50%
- 2015 Plant upgrades spending investing in additional packaging automation
- Significant investment

DRIVER

- Scale and efficiencies
- Remaining price competitive

On-farm

- On-farm investment in silos and storage by growers
- Capacity increasing across Australia

DRIVER

- Expand marketing options
- Cater to different transport modes
- Adjust to seasons
- Increase control and returns

Source: DAFWA; annual reports; company interviews; press articles; Photo credit: DAFWA; Map data: Google

Investment or acquisition targets

There is a number of potential investment or acquisition targets in the Western Australian canola industry

Potential to acquire key Western Australian canola operations

Firm	Current Owner	Operations	Product	Potential for outside investment?
Premium Grain Handlers	Orr	Grain growing Grain cleaning, storage, exporting (Fremantle, Kellerberrin, Wandering)	Grains Oilseeds	Low; recent expansion
Alba Edible Oils	Slee, Young, Palmer	1 plant (Hamilton Hill)	Canola oil	Low; recent investment; integrated business
AusOils	Slee, Young, Palmer	1 plant (Kojonup)	Canola oil	Low; recent investment; integrated business
Demeter Cormack	Oates	Grain trader	Grains Oilseeds Pulses Animal feed	Medium
Grain Link	Goyder	Grain trader	Hay Grains Oilseeds	Medium
GrainCorp	Public	1 plant (Pinjarra)	Canola oil	Medium; public company; Australia's largest agribusiness; unclear commitment to WA canola oil operation; recently closed South Australia oil plant
Esperance Quality Grains	Wandel	Grain cleaning and handling; container exports	Grains Oilseeds	Medium; integrated operations; expanding into container exports

8. Animal Feeds

This report is designed to flow from the high level "big picture" (macroeconomic) through to market and product details (microeconomic) and then to details about specific companies and specific transactions (firm). Both the total document and individual products sections are organised this way.

page 5	page 15	page 45	page 75	page 100
1. Core Opportunity	2. Current Industry Situation	3. Emerging Investment Themes	4. Wheat	5. Barley
page 125	page 150	page 176	page 200	page 210
6. Oats	7. Canola	8. Animal Feeds	9. Pulses & Other Grains	10. Key Firms Profiled

8.1 Global animal feeds market situation

Animal feeds - and the wider foods for animal feeding – industry has an attractive global markets with solid fundamentals

- High level macro drivers support growing demand for animal feeds in importing countries

MARKETS

- East & South-East Asia have been growing production of dairy, meat and eggs at around 5% per annum for the past four decades; growth is significantly faster than the rest of the world
- East & South-East Asia now produce a significant amount of global dairy (7%), meat (36%) and eggs (50%) and relies on imported feedstuffs
- This growth in dairy and protein production has drawn in three broad classes of animal feeds

TRADE

- The global trade in products that can be fed to animals is expanding, driven by greater volumes (10y CAGR 4.8%) and growing average prices (10y CAGR 5.1%) leading to increasing trade value (10y CAGR 10.1%)
- Pure animal feeds account for 22% of global trade volume; beyond grains and oilseeds, Western Australia mainly exports hay and similar, which accounts for 7% of animal feeds
- Limited variability in global market share for hay and related products, but with markets shifting to East Asia and the Arabian Gulf states

Macro drivers support market growth

High level macro drivers support growing demand for animal feeds in importing countries

- E/SE Asia dairy production growth — 5-6%pa
- E/SE Asia meat production growth — 5%pa
- E/SE Asia egg production growth — 4-5%pa
- E/SE Asia aquaculture production growth — 4-5%pa

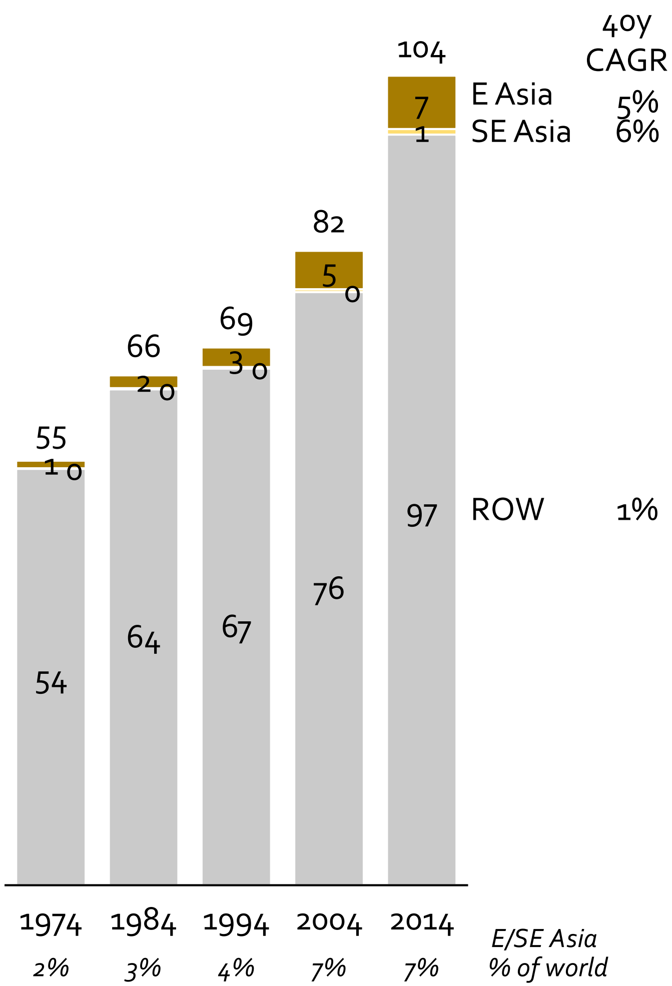
Demand

	Global trade volume growth	X	Global trade price growth	=	Global trade value growth
Grains	4.5%pa	X	4.4%pa	=	9.1%pa
Soya Beans	6.8%pa	X	4.9%pa	=	11.8%pa
Other Oilseeds	7.2%pa	X	4.6%pa	=	12.1%pa
Animal Feeds	3.6%pa	X	6.0%pa	=	9.9%pa

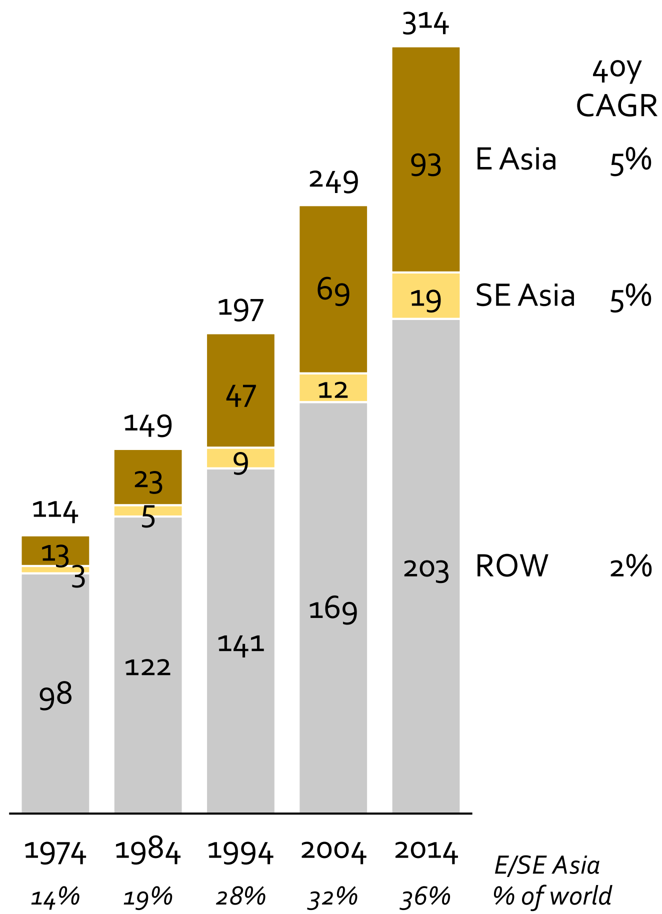
Growing market for animal feed

East & South-East Asia have been growing production of dairy, meat and eggs at around 5% per annum for the past four decades; growth is significantly faster than the rest of the world

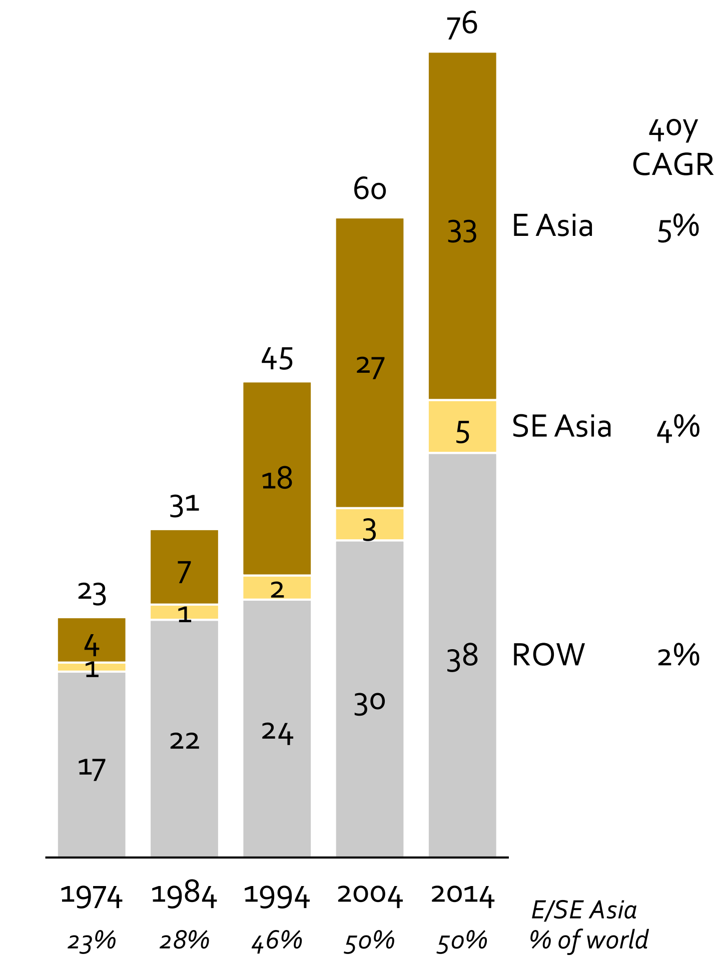
Global dairy production* (t; m; 74-14)



Global meat production (t; m; 74-14)



Global egg production (t; m; 74-14)

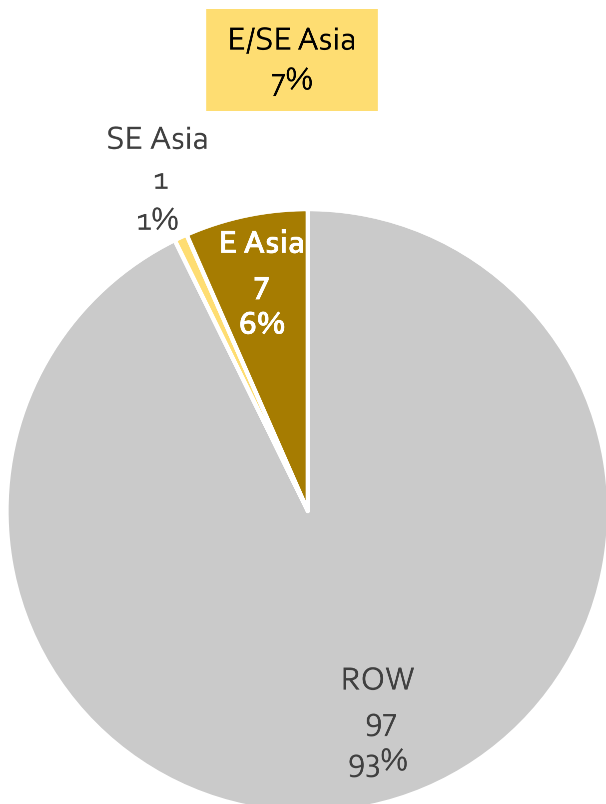


Note: aquaculture not shown; * dry milk equivalent (using 13%); Source: FAO; Coriolis analysis

Large market for animal feed

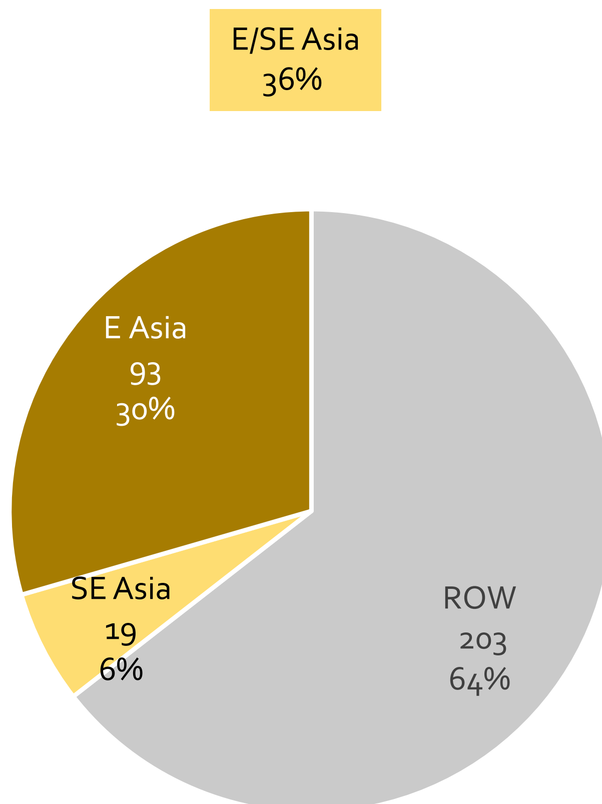
East & South-East Asia now produce a significant amount of global dairy (7%), meat (36%) and eggs (50%) and relies on imported feedstuffs

Global dairy production* (t; m; 2014)



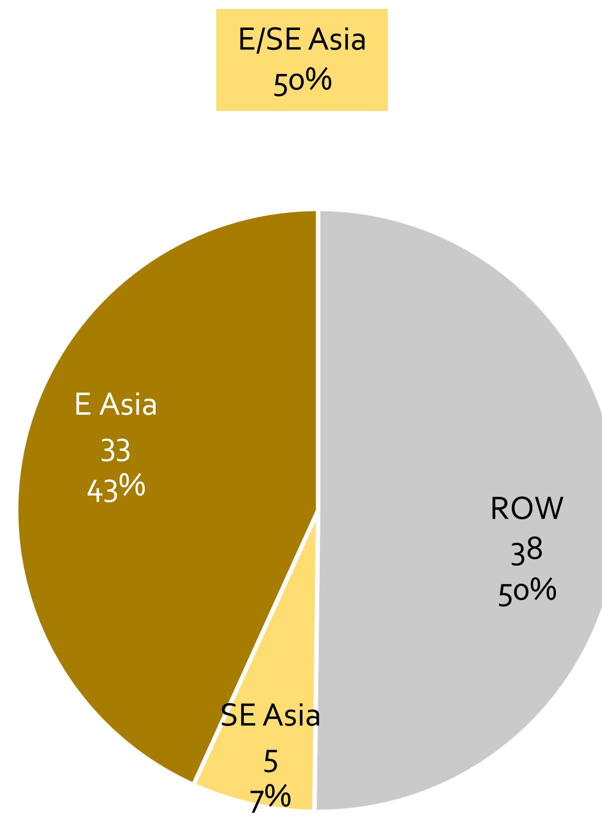
TOTAL = 104m

Global meat production (t; m; 2014)



TOTAL = 314m

Global egg production (t; m; 2014)



TOTAL = 76m

* dry milk equivalent (using 13%); Source: FAO; Coriolis analysis

Three broad feed streams

This growth in dairy and protein production has drawn in three broad classes of animal feeds

HUMAN & ANIMAL FEED STREAM

GRAINS & OILSEEDS

Wide range of grains suitable for animal feeding

Soybeans
Wheat
Maize
Canola seeds
Grain sorghum
Barley
Oats
Other grains & oilseeds

ANIMAL FEED ONLY STREAMS

PROCESSING BY-PRODUCTS

Secondary waste streams from food processing activities

Soybean oilcake
Brewing dregs
Beet pulp/sugar waste
Cereal residues
Wine lees
Palm processing by-products
Vegetable by-products
Other

ANIMAL-SPECIFIC FEEDS

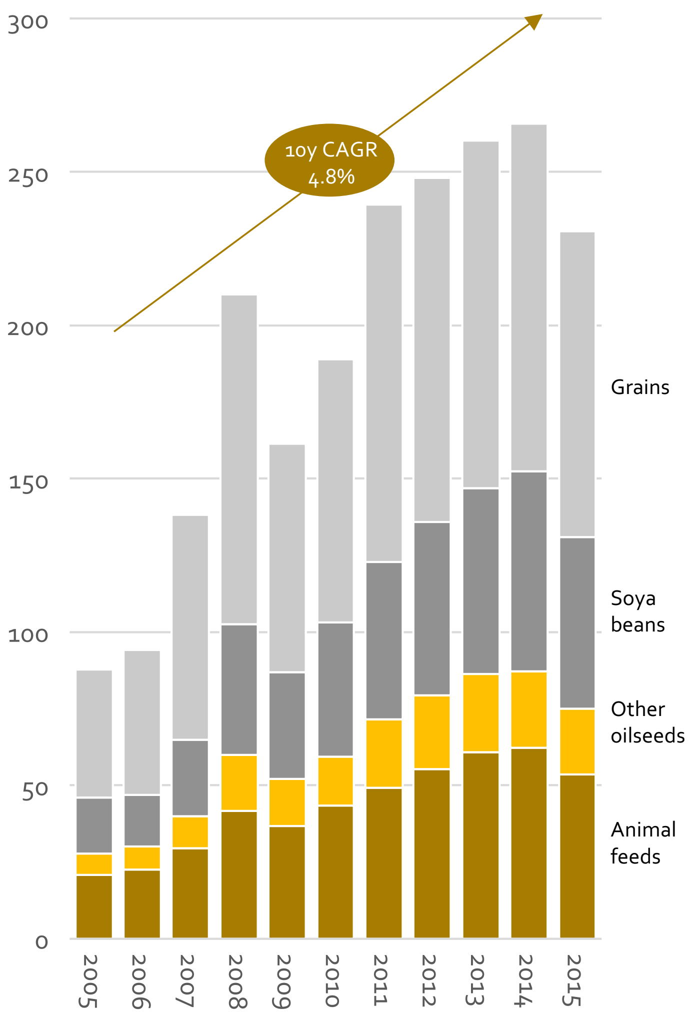
Products grown or produced specifically for animal feeding

Lucerne/alfalfa hay
Oaten hay
Prepared animal feeds
Straw
Other

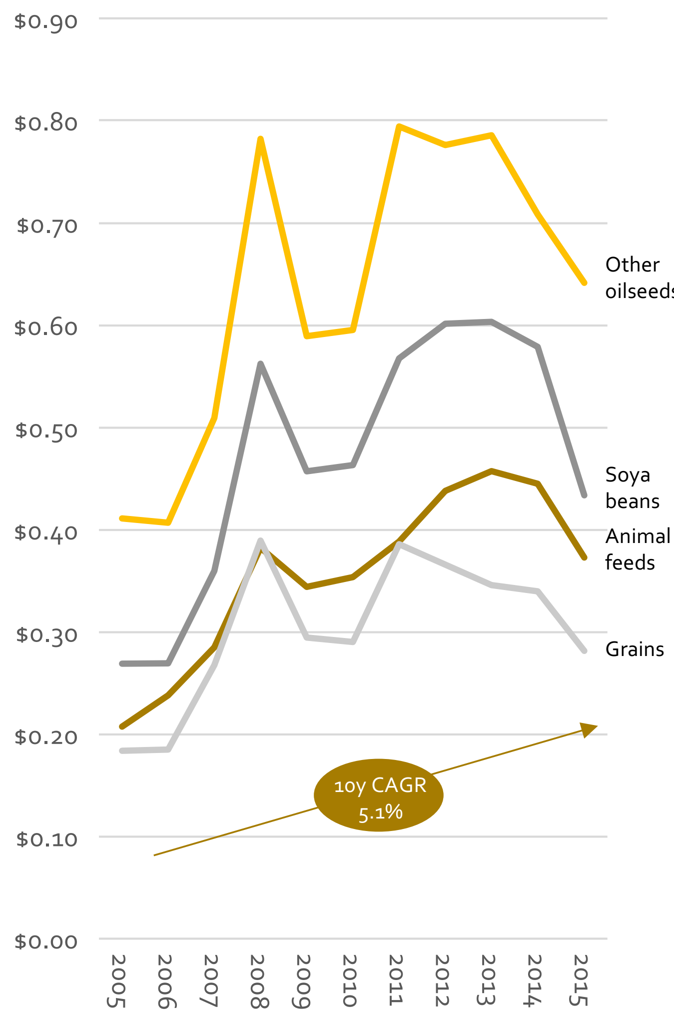
Growing trade

The global trade in products that can be fed to animals is expanding, driven by greater volumes (10y CAGR 4.8%) and growing average prices (10y CAGR 5.1%) leading to increasing trade value (10y CAGR 10.1%)

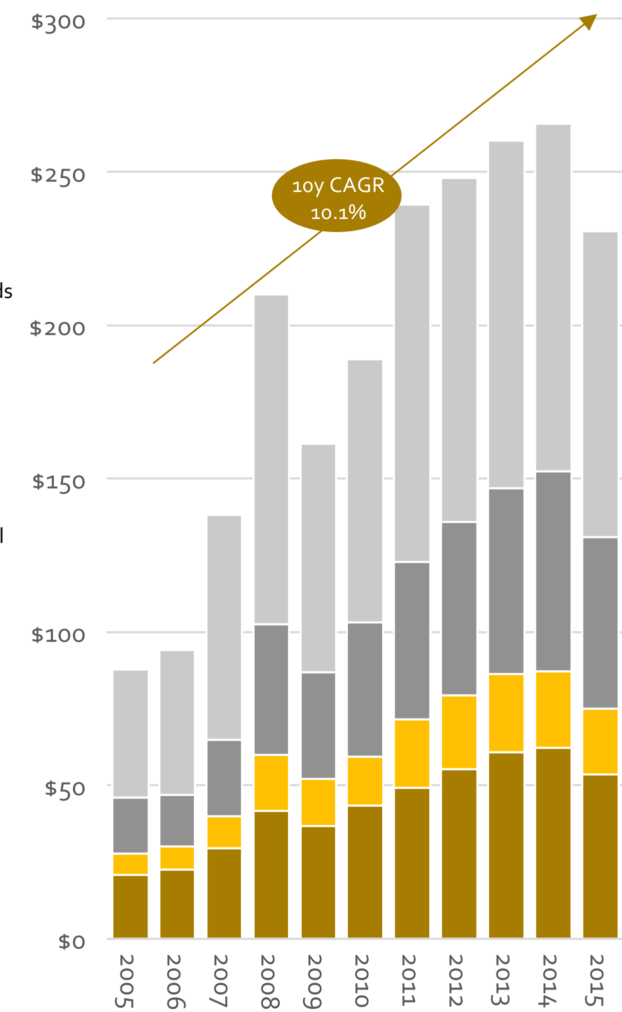
Global export volume (t; m; 05-15)



Global average price (US$/kg; 05-15)



Global export value (US$; b; 05-15)



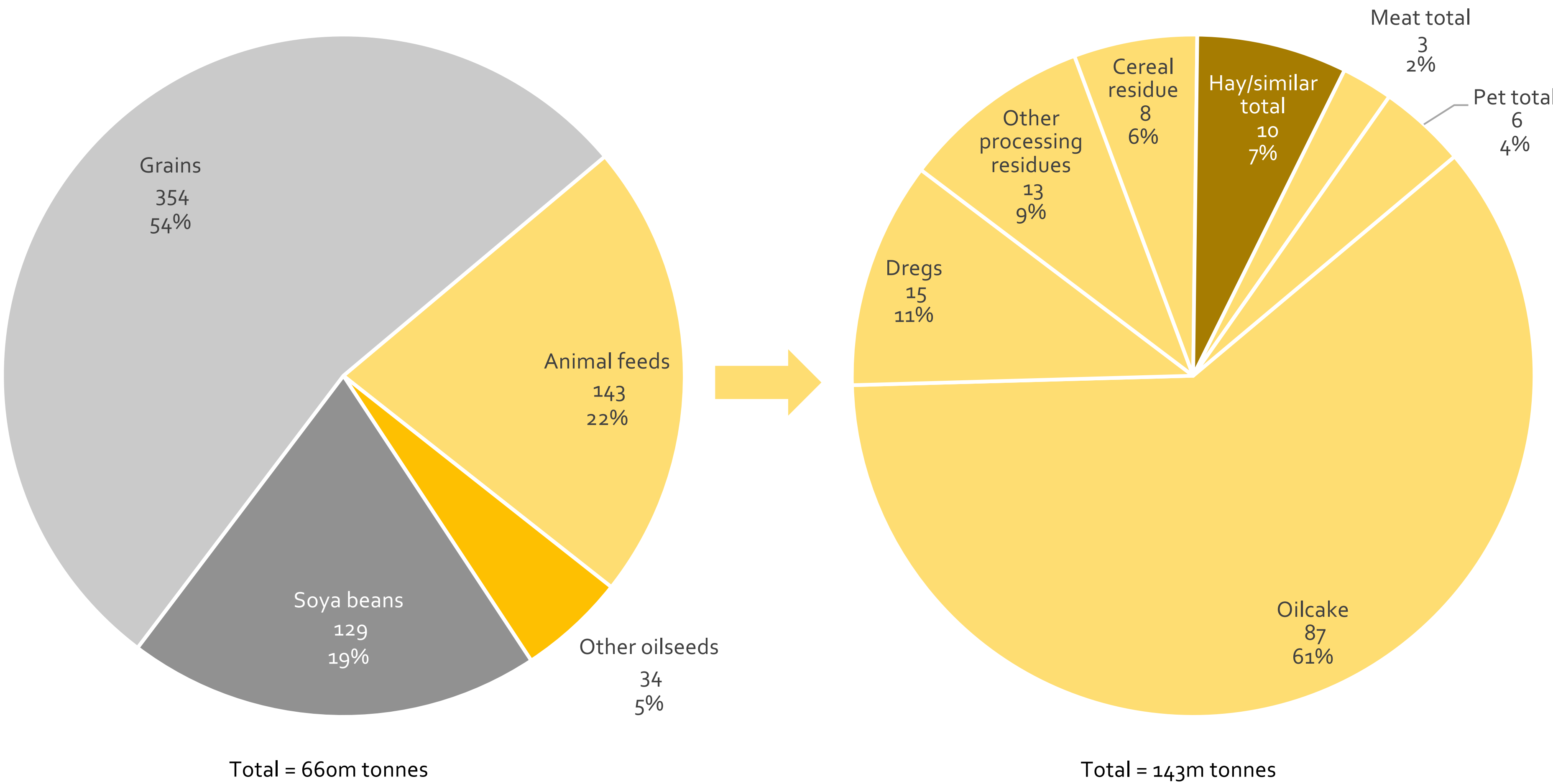
Note: data is total trade; cannot be separated into human and animal streams (at source); Source: FAO

Leading Australian exporter

Pure animal feeds account for 22% of global trade volume; beyond grains and oilseeds, Western Australia mainly exports hay and similar, which accounts for 7% of animal feeds

Potential animal feeds global export volume (t; m; 2015)

Specifically animal feeds global export volume (t; m; 2015)

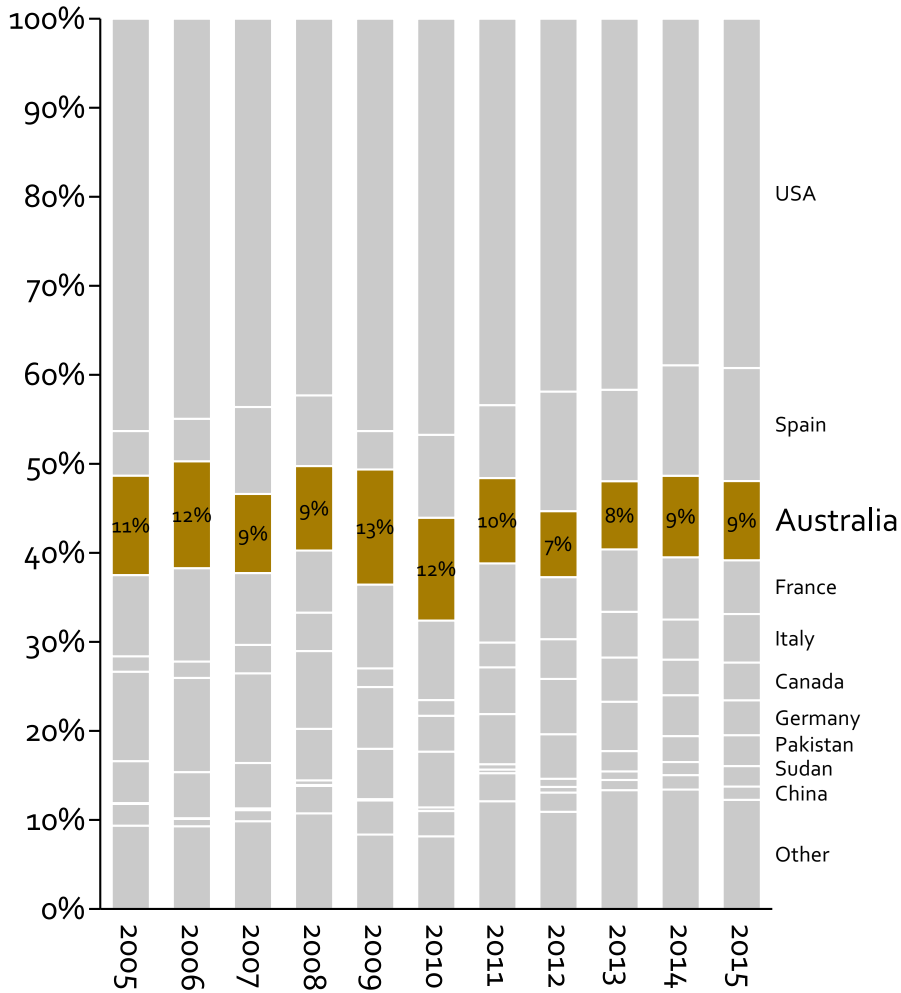


Note: dregs includes brewing and wine; Source: FAO; Coriolis analysis

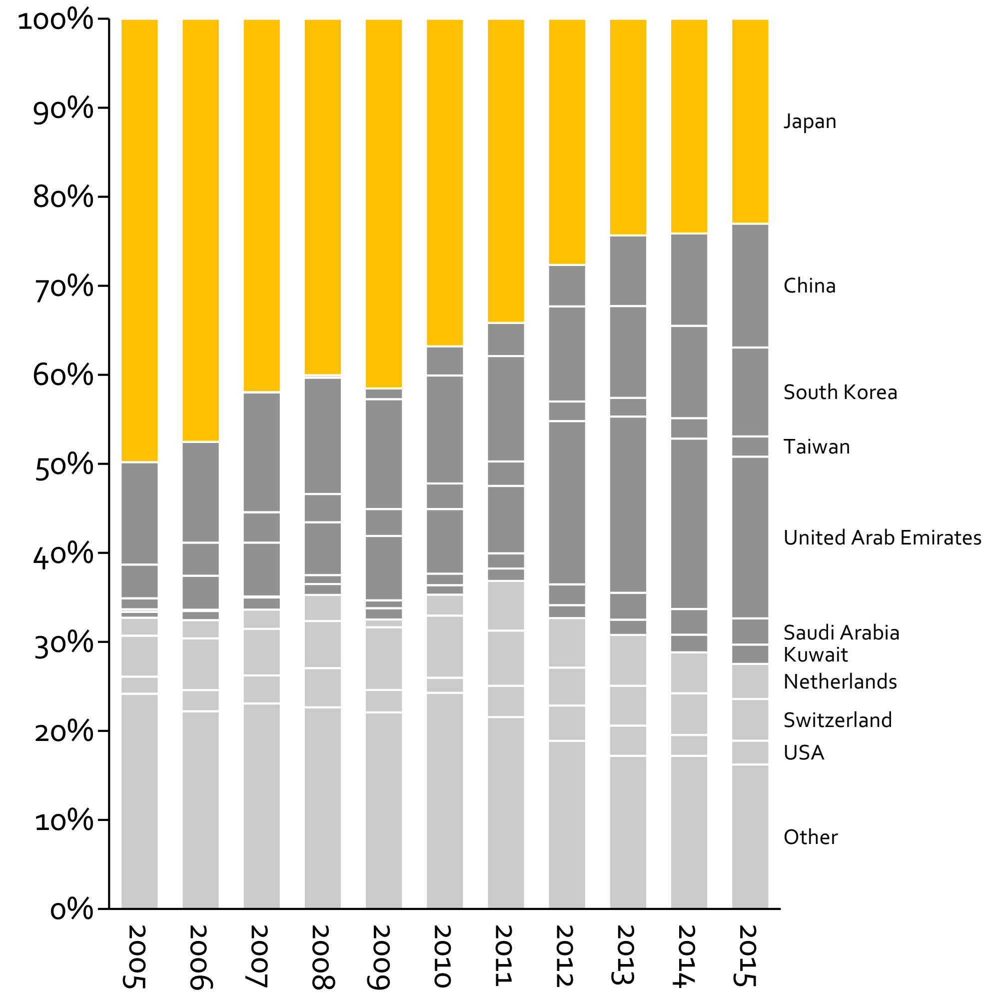
Global shares stable

Limited variability in global market share for hay and related products, but with markets shifting to East Asia and the Arabian Gulf states

Share of global hay/similar export volume (% of t; 2005-2015)



Share of global hay/similar import volume (% of t; 2005-2015)



Source: Comtrade; Coriolis analysis

8.2 Western Australia animal feed situation

Western Australia is a long-term producer and exporter of animal feeds that can meet market demand

- Macro drivers for WA animal feeds industry present a moderate growth environment going forward

HAY & SIMILAR

- Western Australia has a relatively stable hay and green crop area
- Western Australia has achieved moderate, consistent hay yield growth since the 1950's
- Western Australia can increase forage yields per hectare through a range of strategies
- Western Australia can continue to increase hay production going forward

ANIMAL GRAINS

- Beyond hay, Western Australia has growing production of wheat, barley and oats; increasing amount flows into animal feed

- Grain and hay feed supports a variety of animals in Western Australia

MARKETS

- Western Australia exported A$220m worth of animal feeds (YE Mar 17), representing 20% of total Australian production, and exports are growing
- Western Australian animal feeds exports go predominantly to Japan (40%), South Korea (18%), China (15%) and other Asian countries

Macro drivers support moderate growth

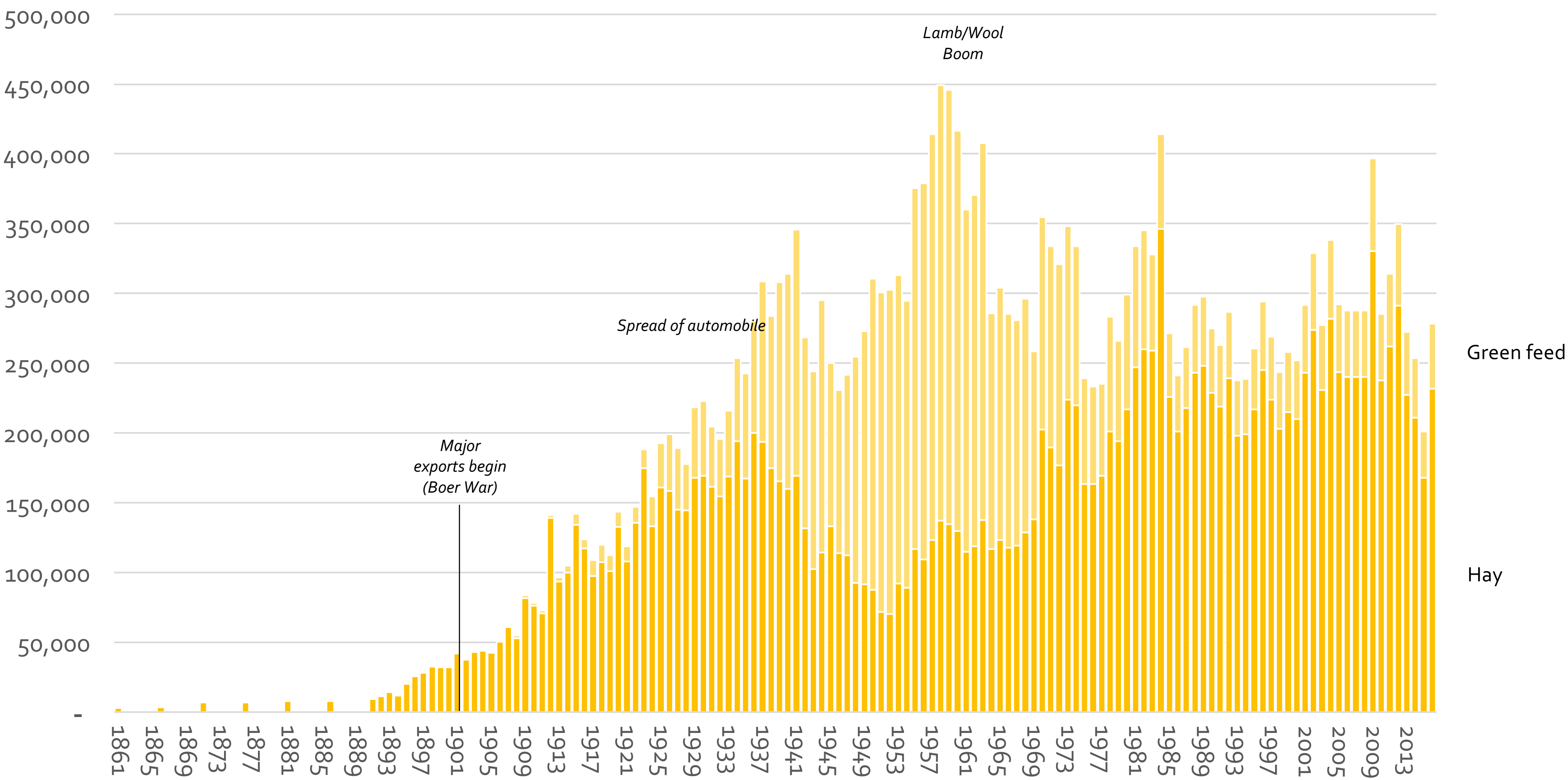
Macro drivers for WA animal feeds industry present a moderate growth environment going forward

	Area Growth		Yield Growth		Production Growth
Hay & Similar	1% (0-3%pa)	X	0.8%pa	=	2% (1-3%pa)
Arable Grains	3% (2-4%pa)	X	2%pa	=	5% (4-6%pa)

Stable hay area

Western Australia has a relatively stable hay and green crop area

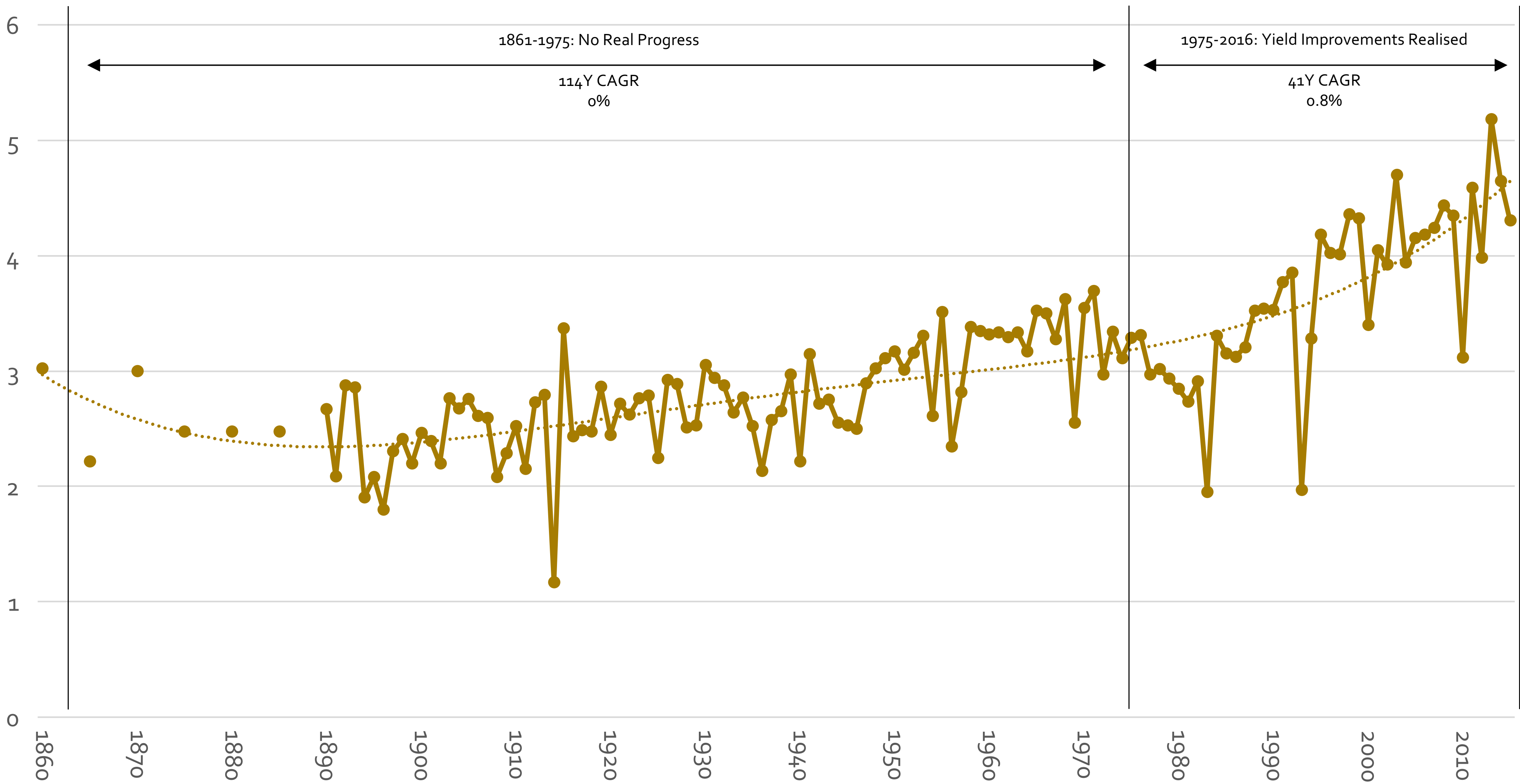
Hay & green crop area in Western Australia (ha; 1861-2015a; 2016e)



Note: green crop area 1985+ an estimate/modelled; Source: various ABS publications and reports; Coriolis estimates and modelling

Western Australia has achieved moderate, consistent hay yield growth since the 1950's

Hay yield in Western Australia (t/ha; 1861-2015a; 2016p)

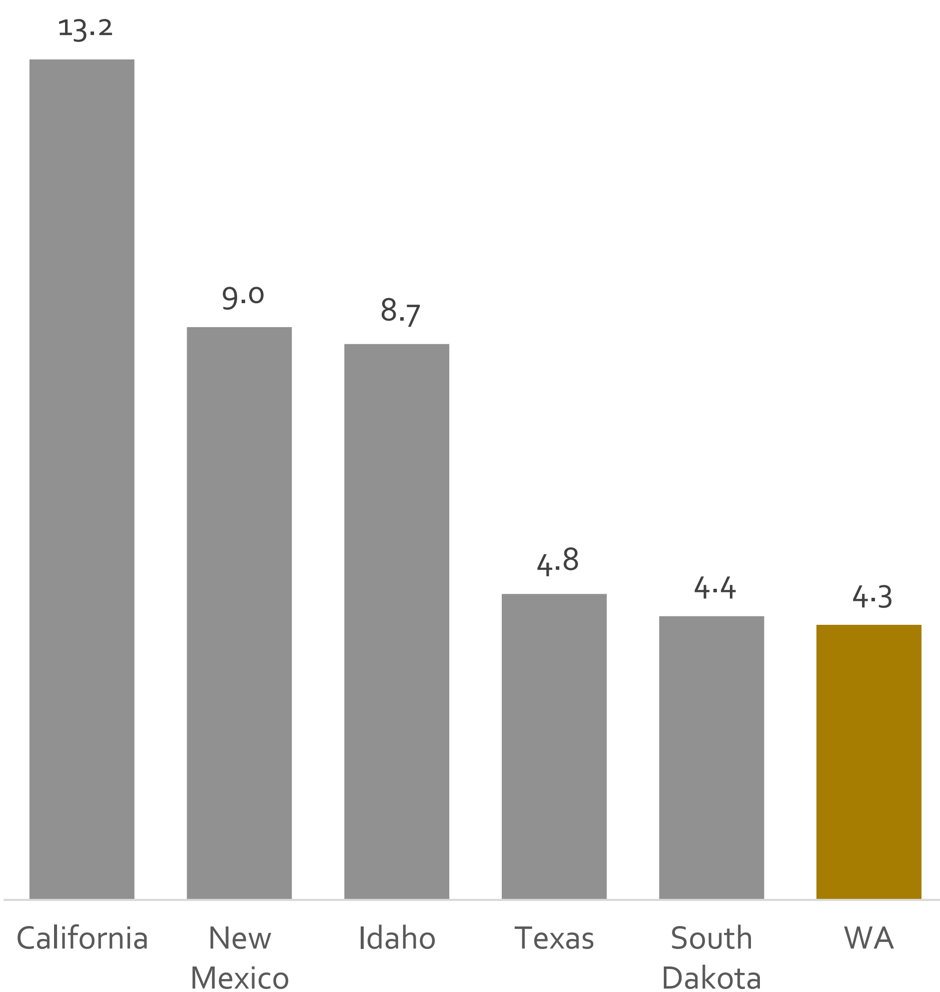


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Further yield improvements possible

Western Australia can increase forage yields per hectare through a range of strategies

Average yield of forage harvested (t/ha; US 2015; WA 2016)



Commentary

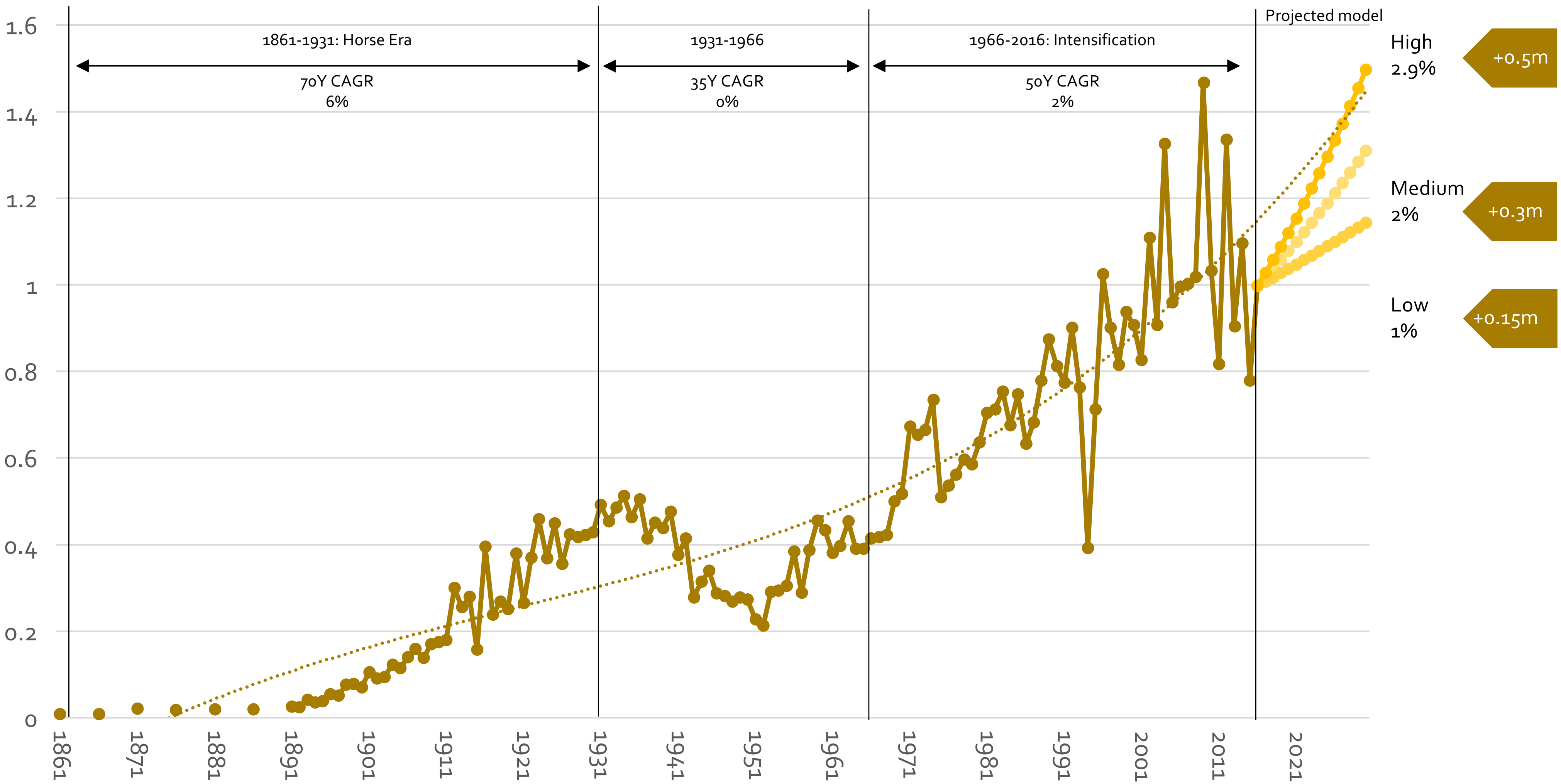
- Forage yield is a function of species mix, genetics, water availability, disease, pests and farm management
- Western Australia performs well relative to primarily rainfed operations (e.g. Texas)
- Primarily pivot irrigated operations (e.g. California) achieve higher yields
- Idaho and New Mexico, both dry states that use a mix of rainfed and irrigated production, appear to hold lessons for Western Australia
- U.S. intensive animal feed producers use alfalfa hay, other hay, corn silage and other feed crops
- WA has long produced small amounts of corn; any scale-up forage/feed operation should evaluate newer corn varieties

Source: USDA Crop Production Report; various ABS publications and reports; Coriolis modelling and estimates

Hay production growing

Western Australia can continue to increase hay production going forward

Hay production in Western Australia (t; m; 1861-2015a; 2016f; 2017-2030p)

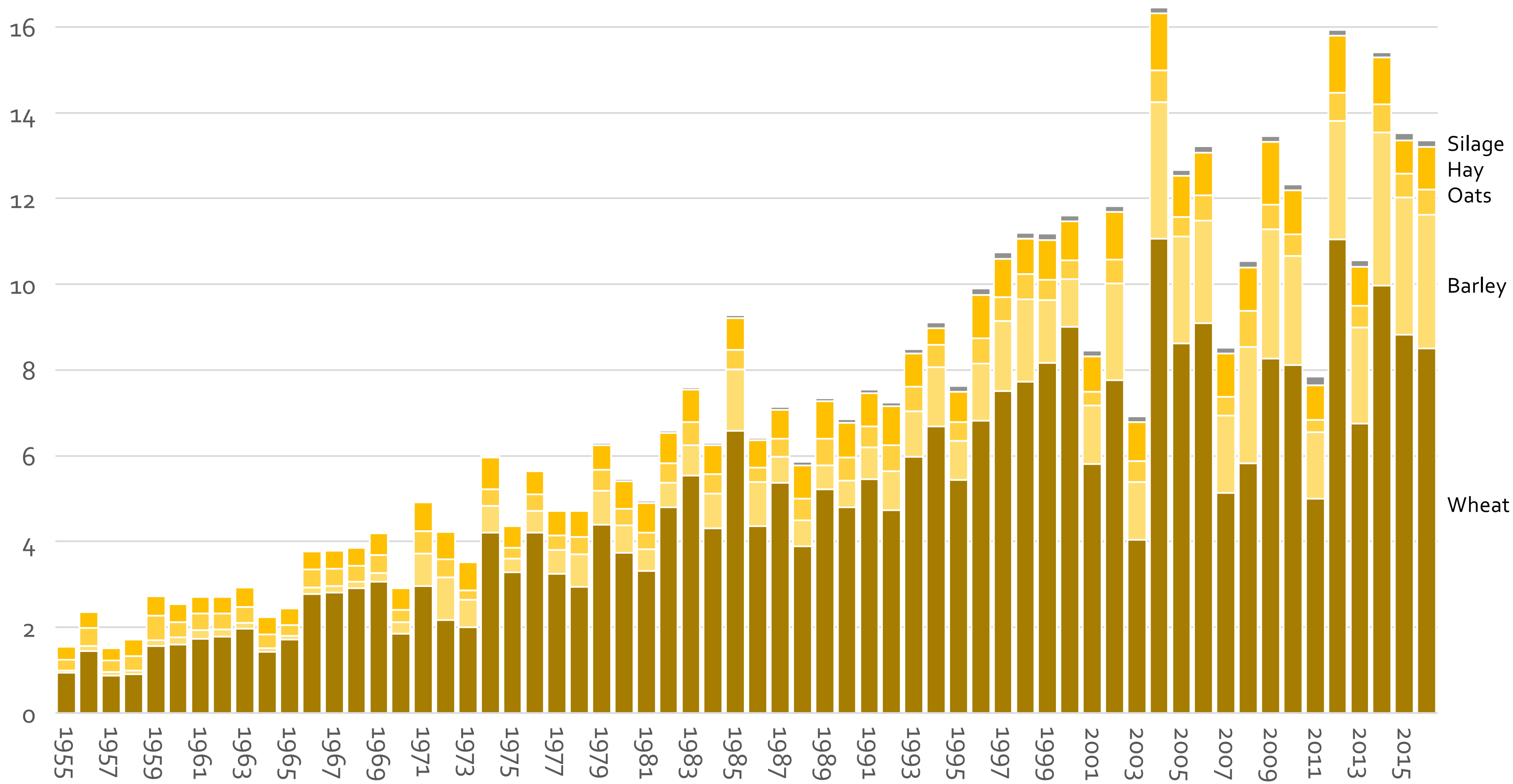


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Grain production growing

Beyond hay, Western Australia has growing production of wheat, barley and oats; increasing amount flows into animal feed

Grain production in Western Australia (t; m; 1955-2015a; 2016f)

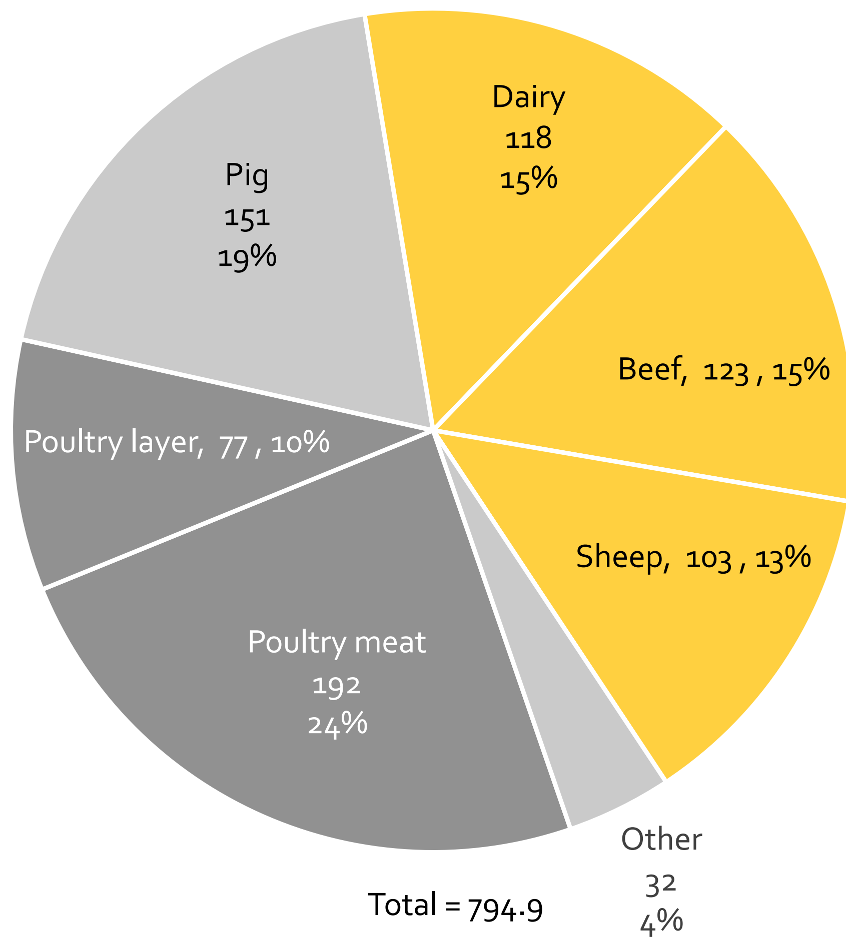


Note: includes estimation of missing data in some earlier years; Source: various ABS publications and reports; Coriolis analysis

Use of animal feed

Grain and hay feed supports a variety of animals in Western Australia

Western Australian animal feed use by sector (t; 000; 2014)



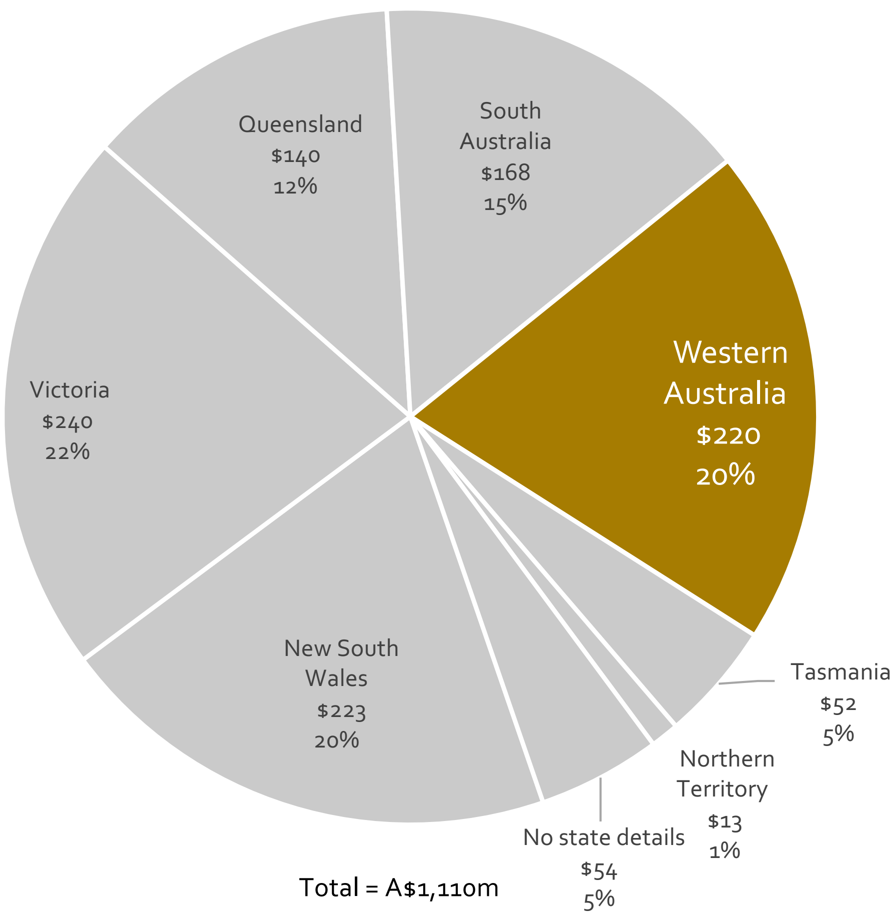
Source: Grain Growers adapted from JCS Solutions

Major Australian exporter

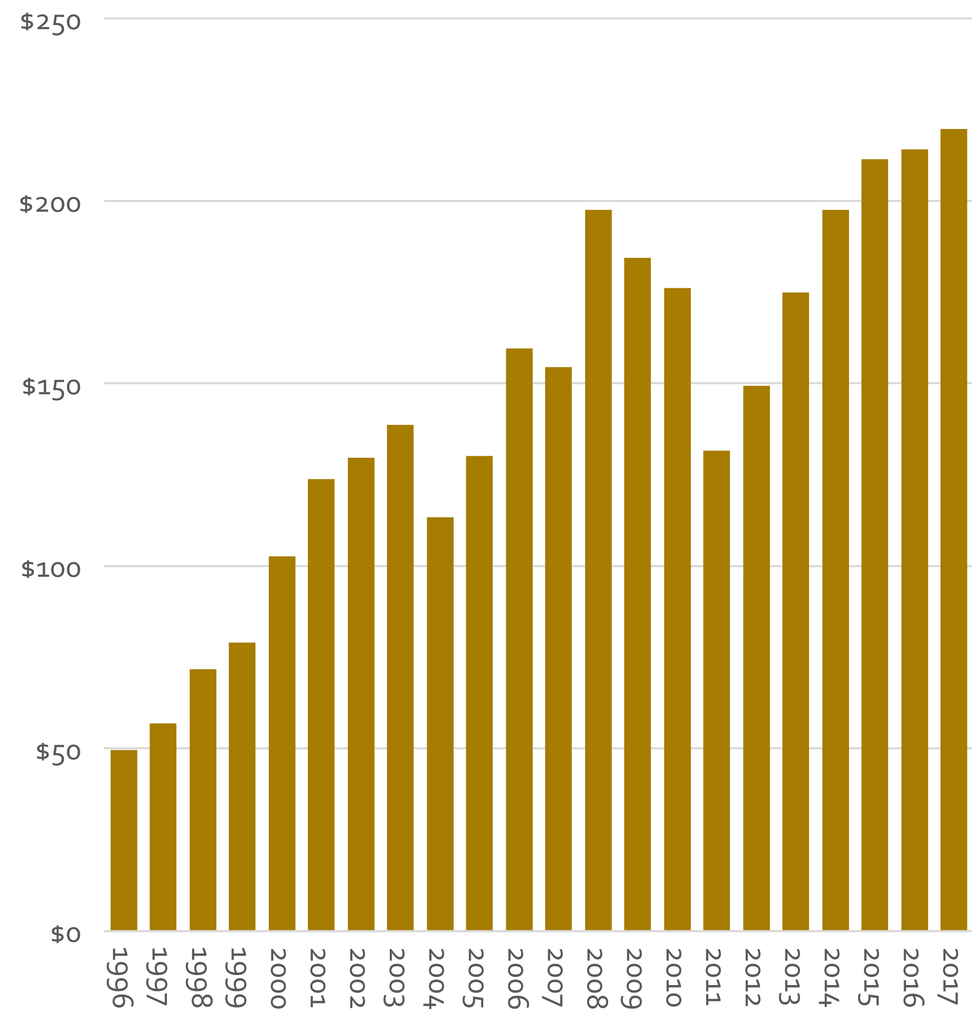
Western Australia exported A$220m worth of animal feeds (YE Mar 17), representing 20% of total Australian production, and exports are growing

Australian animal feed export value by state (A$m; YE Mar 17)

Excluding un-milled cereals



WA animal feed export value (A$; m; FOB; CY; 96-17*)

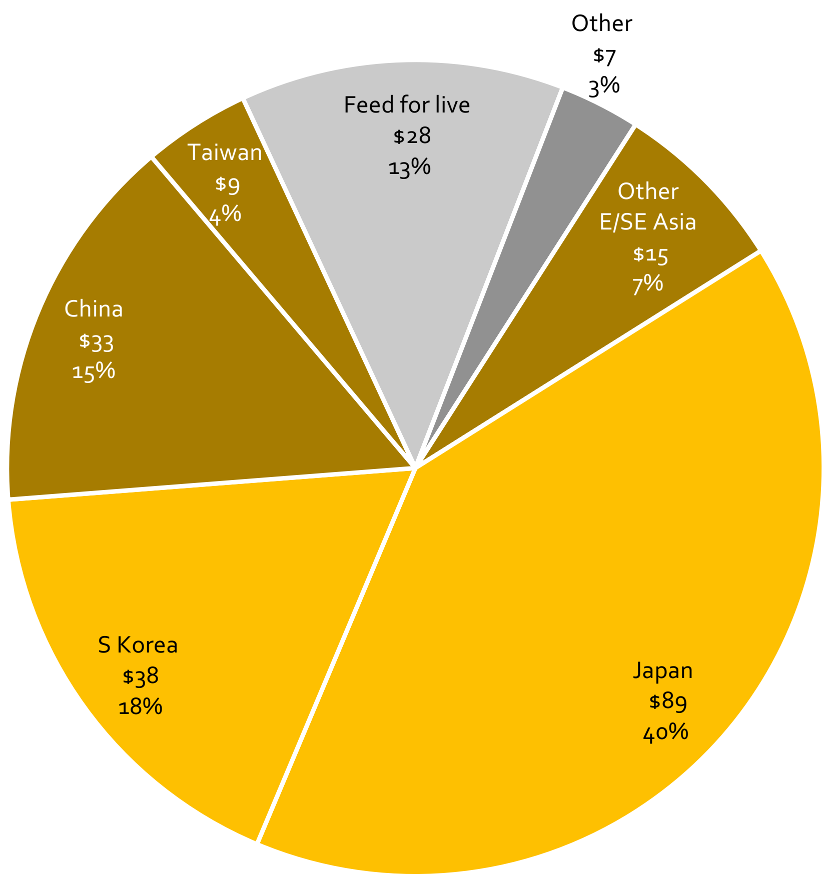


*TTM 3/17; Source: ABS; Coriolis analysis

East & South East Asian markets

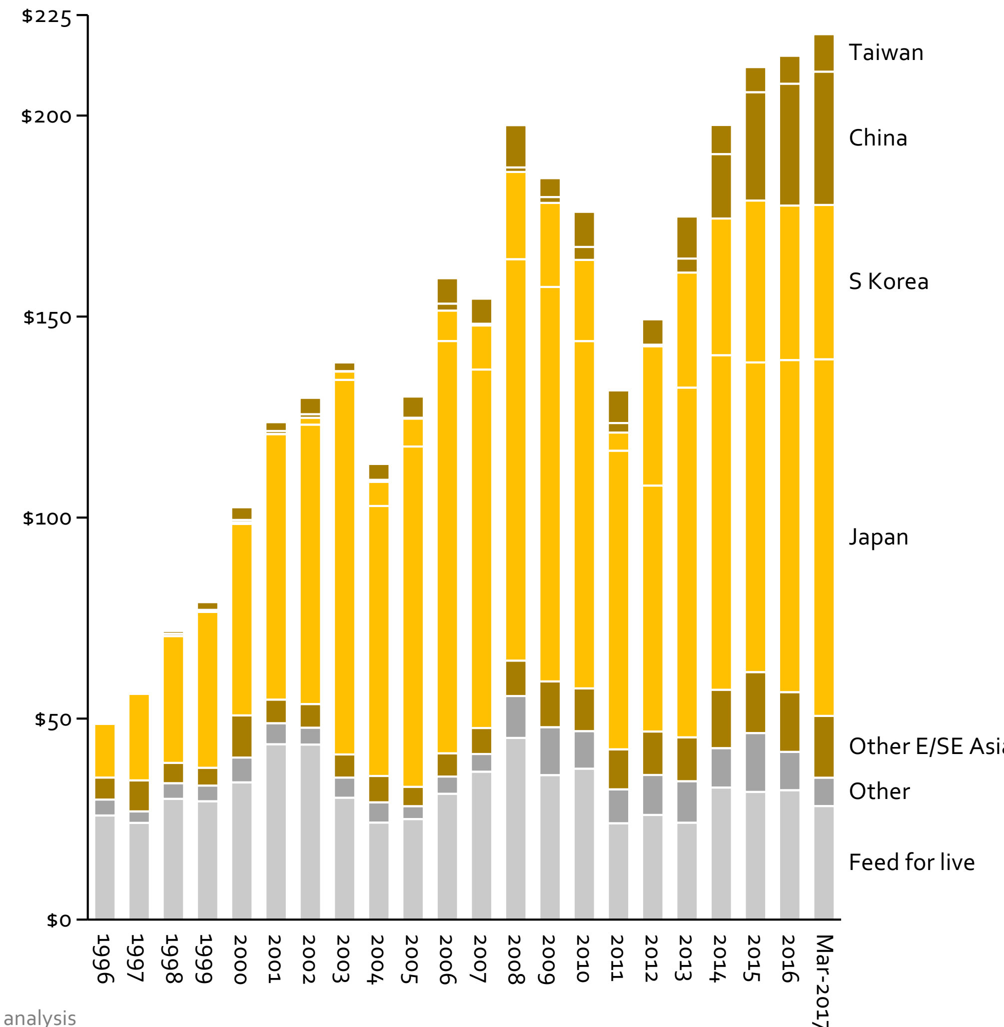
Western Australian animal feeds exports go predominantly to Japan (40%), South Korea (18%), China (15%) and other Asian countries

WA animal feed exports by destination (A$; m; YE Mar 17)



Total = A$220m

WA animal feed exports by destination (A$; m; 96-17*)



*TTM 3/17; Note: "feed for live" is animal feed used on-ship during live animal exports; Source: ABS; Coriolis analysis

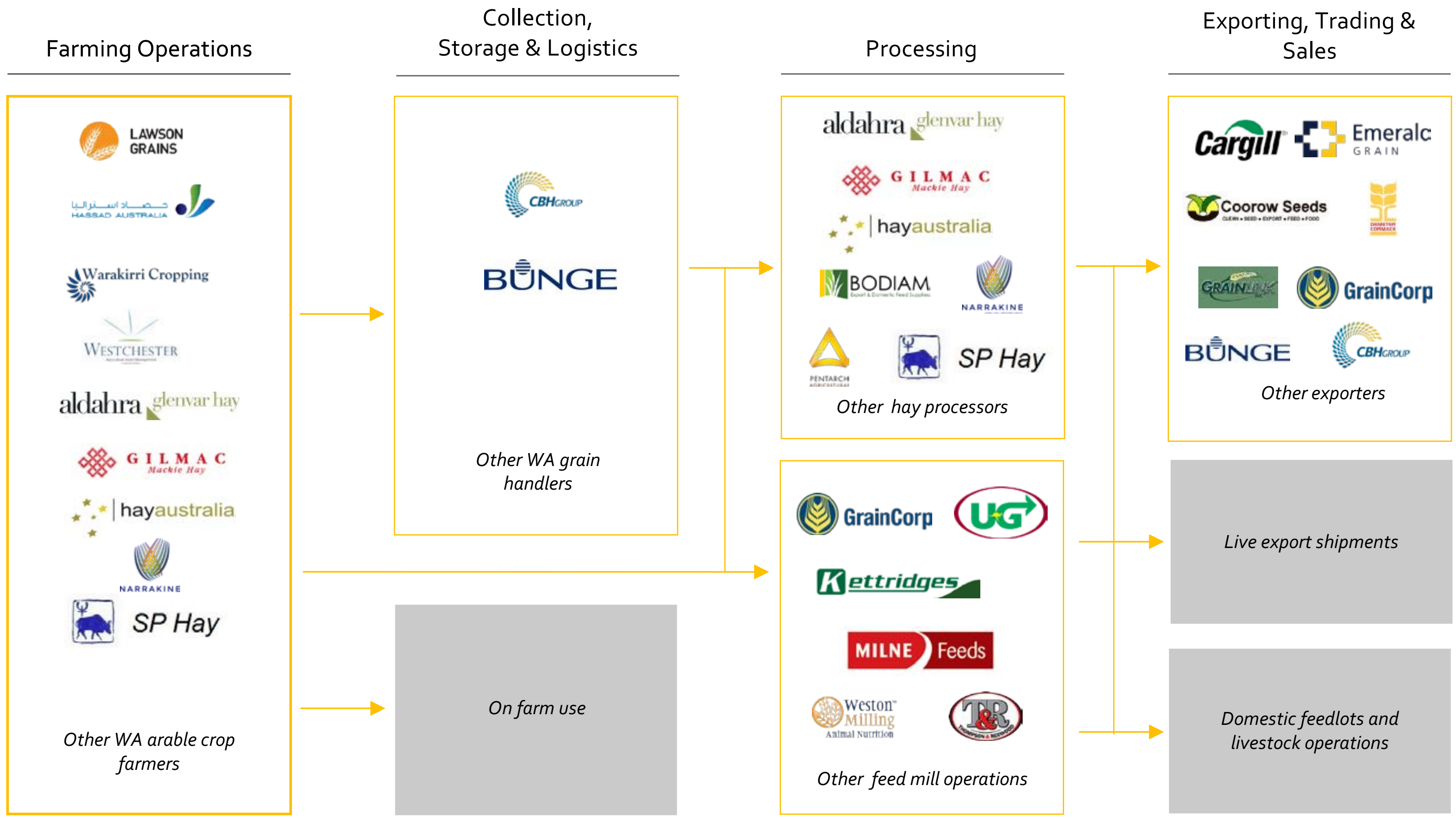
8.3 Western Australia animal feed situation

Western Australia has a robust animal feed industry

- Animal feed, in the present context, consists of hay or pelleted feed; used on farm, domestically or exported (including for live trade shipments)
- Major animal feed firms are operating in Western Australia producing hay and pellets for the domestic and international markets
- Investment is occurring across the animal feed supply chain
- There are limited potential acquisition targets in the Western Australian animal feed industry; majority are family businesses

Animal feed – a multistage supply chain

Animal feed, in the present context, consists of hay or pelleted feed; used on farm, domestically or exported (including for live trade shipments)



Note: Significant overlap between operations; Source: industry interviews; Coriolis analysis

Firms across the supply chain

Major animal feed firms are operating in Western Australia producing hay and pellets for the domestic and international markets

	Description	Farming	Bulk handling	Processing	Exporting/ marketing
aldahra glenvar hay	Processing and exporting hay operations; exports to Korea, Japan, ME; based in WA	✓	✓	✓	✓
GILMAC Mackie Hay	#1 exporter of fodder in AU; pellet and fodder for domestic and export; establishing canola processing; farming operations; WA and VIC and SA	✓	✓	✓	✓
hayaustralia	Hay processing and exporting company; operations in WA and VIC; exports 98% of production	✓	✓	✓	✓
NARRAKINE	Family owned farming enterprise; hay, straw, grain processing and direct export	✓		✓	✓
SP Hay	SA and WA based grower, processor and exporter of hay and grain	✓	✓	✓	✓
BODIAM	Warehouses, processes and markets oaten hay and straw for AU and export; Asia & ME		✓	✓	✓
GrainCorp	Australia's largest integrated edible oils business and supplier of edible flour; storage and logistics, grain marketing, malt and oils, animal feeds		✓	✓	✓
PENTARCH	Narrogin Hay JV with Wilson Stockfeeds; accumulation, storage and pressing of hay for export		✓	✓	✓
Kettridges	Livestock feed manufacturer; WA based; plant in Picton			✓	
MILNE Feeds	Animal nutrition division of Milne Agrigroup; leading producer of pelleted animal feed in WA; largest ruminant mill in WA			✓	
Weston Milling Animal Nutrition	Animal nutrition manufacturer in AU and NZ; largest monogastric feed mill in WA; compound feeds, concentrates, balancers, nutritional services; formerly Wesfeeds			✓	
T&R	Producer and exporter of stock feed; established in 1985; exports to over 10 countries in Asia and ME			✓	✓
Cargill	Grain and oilseed origination, storage and handling, grain and cotton trading and export, malt and oilseed processing, JV in beef processing; established 1967			✓	✓
UG	Leading food and agribusiness specialising in the manufacture of oat cereal and pulse based food and food ingredients, and animal nutrition products; WA and VIC			✓	✓
Emerald Grain	One of the largest grain marketing and supply chain businesses in Australia				✓
Coorow Seeds	Cleans grain, sells seed, exports grain and value added lupin products, supplies feed grain products domestically				✓
	Animal feed, grains, pulses and oilseeds exporter; focus on Asian and Indian sub-continental markers				✓
GRAINLINK	Grain and hay marketer; established in 1999				✓

Animal feed sector continues to invest

Investment is occurring across the animal feed supply chain

Hay Australia

- 2017 New oaten hay baling facility added to existing WA plant tripling capacity
- Capacity increased to 100,000t

DRIVER

- High demand for oaten hay into China, Middle East

Gilmac Hay

- 2015 Invested in new facility in Wagin increasing capacity to 50,000t
- 5th plant across AU, 3 located in WA
- Plans for pilot canola processing plant in York

DRIVER

- Meet supply of hay from Wagin
- Wagin close proximity to hay supply and workforce
- Attractive break crop and weed suppressant

Ingham's

- 2017 Announced moving chicken operations north and investing in farming, milling and processing capacity; selling Wanneroo and building new milling operation near Muchea, WA
- Contract partners and Ingham's investing $70m over three years

DRIVER

- Reduce reliance on imported chicken
- Requirement for modern chicken production facilities

Source: interviews; company website; press articles; Photo credit: Map Data: Google; courtesy Hay Australia

Investment or acquisition targets

There are limited potential investment or acquisition targets in the Western Australian animal feed industry; majority are family businesses

Potential to invest in or acquire key Western Australian animal feed processors

Firm	Current Owner	Operations	Product	Potential for outside investment?
Al Dahra Glenvar Hay*	Al Dahra, others	1 plant (New Norcia)	Hay	Low; recently sold stake to UAE agribusiness, Al Dahra
Gilmac	Mackie family	5 plants (3 in WA, 1 VIC, 1 SA)	Hay Pellets	Low; long established family business; recently invested in new facility at Wagin; #1 exporter of hay and straw in Australia; plans for canola processing
Hay Australia	Andrew Bolt, others	2 plants (WA, VIC)	Hay	Low; recent investments in VIC and WA
Narrakine	Harding family	1 plant (Williams)	Hay Grains	Low; vertically integrated family business; moving into processing
Bodiam	Wells, Gillett families	1 plant (Northam)	Hay	Low; family business
Kettridges	Huisman family	1 plant (Picton)	Pellets	Low; family business
Milne Agrigroup	Graham Laitt	1 plant (Welshpool) 14 bulk depots (WA)	Pellets	Low; family firm; vertically integrated, low capital structured diversified agribusiness; #1 ruminant mill in WA
Thompson & Redwood*	John Orr, others	1 plant (Upper Swan)	Pellets Bird seed Muesli	Low; one of a group of agribusiness operations
Unigrain	Costa, May families	2 plants (WA, VIC)	Oats Pellets	Low; family business; recently invested in Wagin operations
Balco Australia	Shanghai Yanhua Hi-Tech (China), Lawson, others	2 plants (SA, WA)	Hay	Medium; public unlisted company; recent fire at SA operations; invested in railway with local government in SA

* some common ownership

9. Pulses & Other Grains

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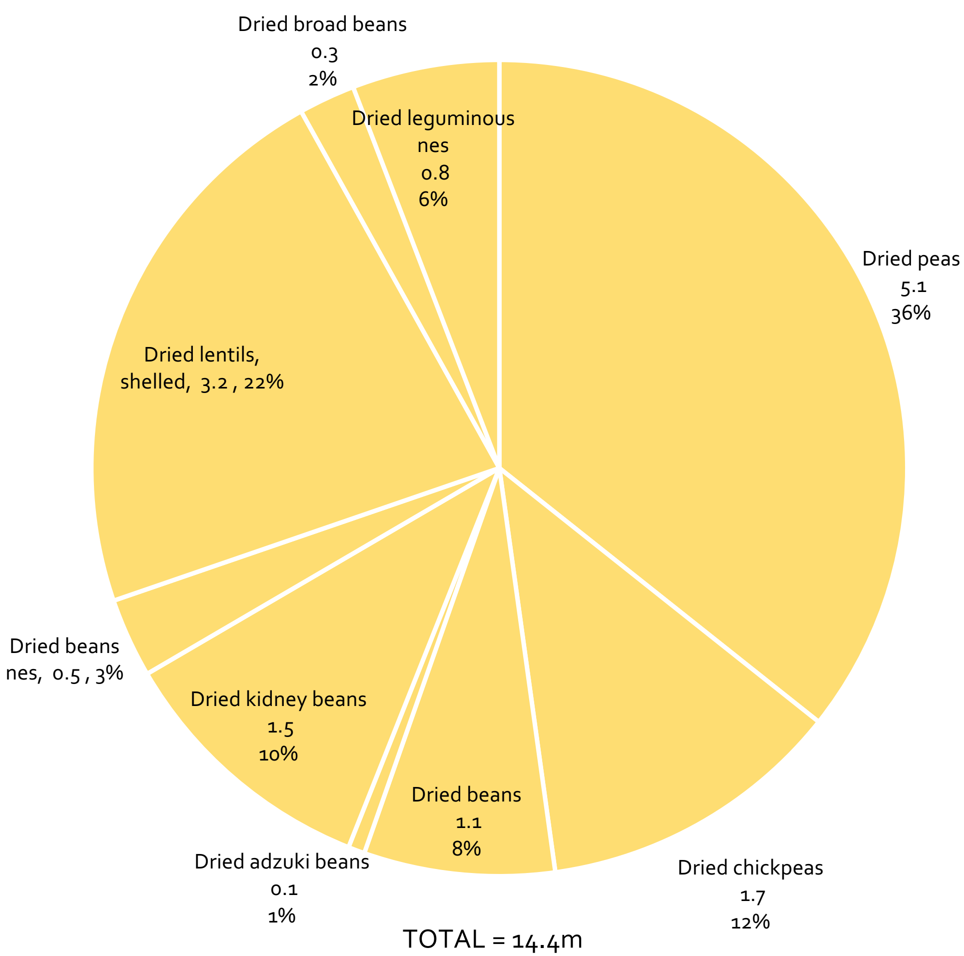
page **200** — 9. Pulses & Other Grains

page **210** — 10. Key Firms Profiled

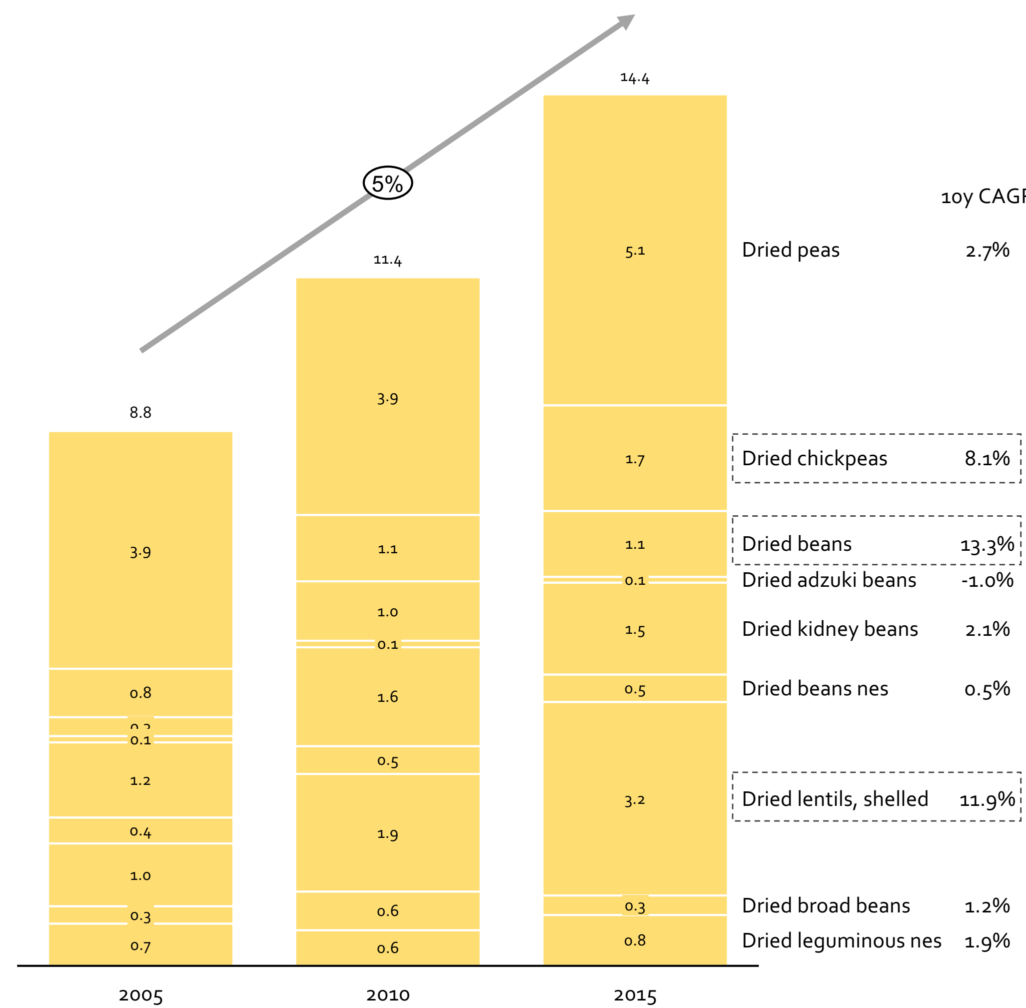
Pulse trade large and growing

Dry pulses have a large and growing global market

Global dry pulses trade by product (t; m; 2015)



Global dry pulses trade by product (t; m; 2005-2015)

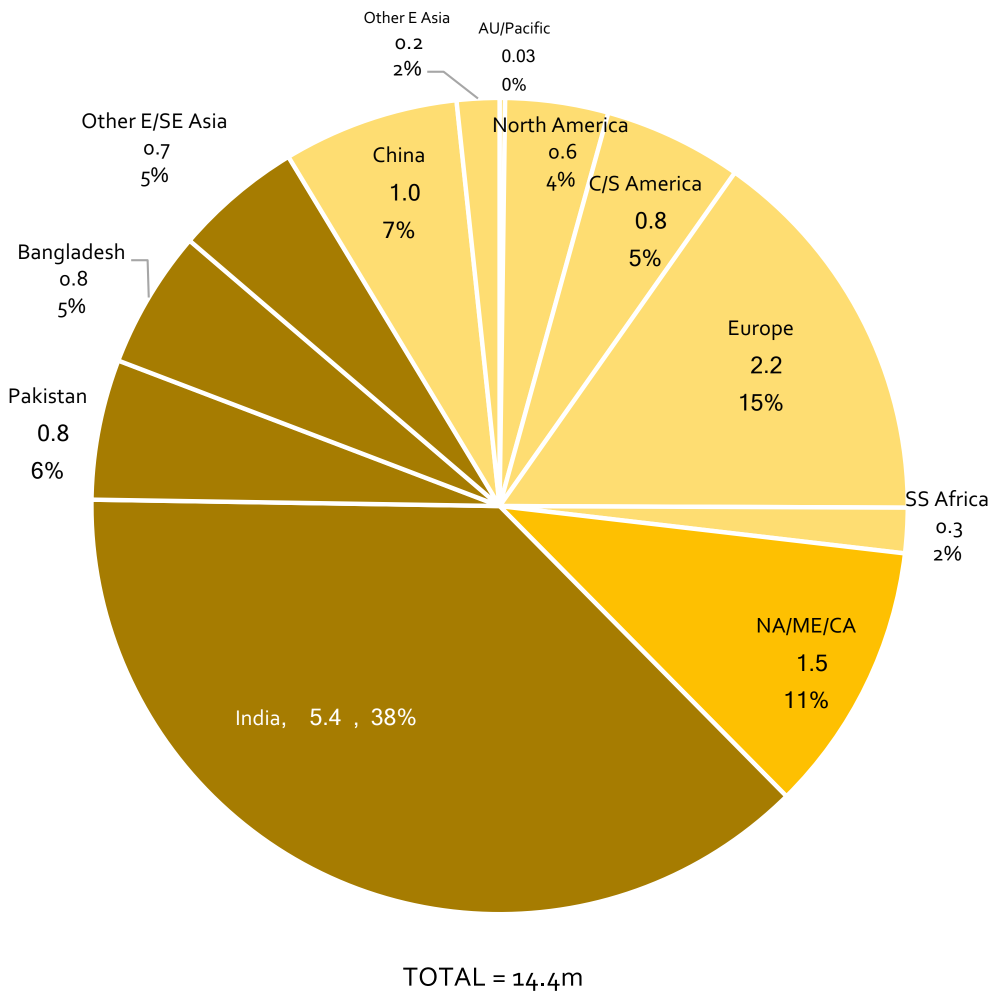


Source: UN Comtrade; Coriolis analysis

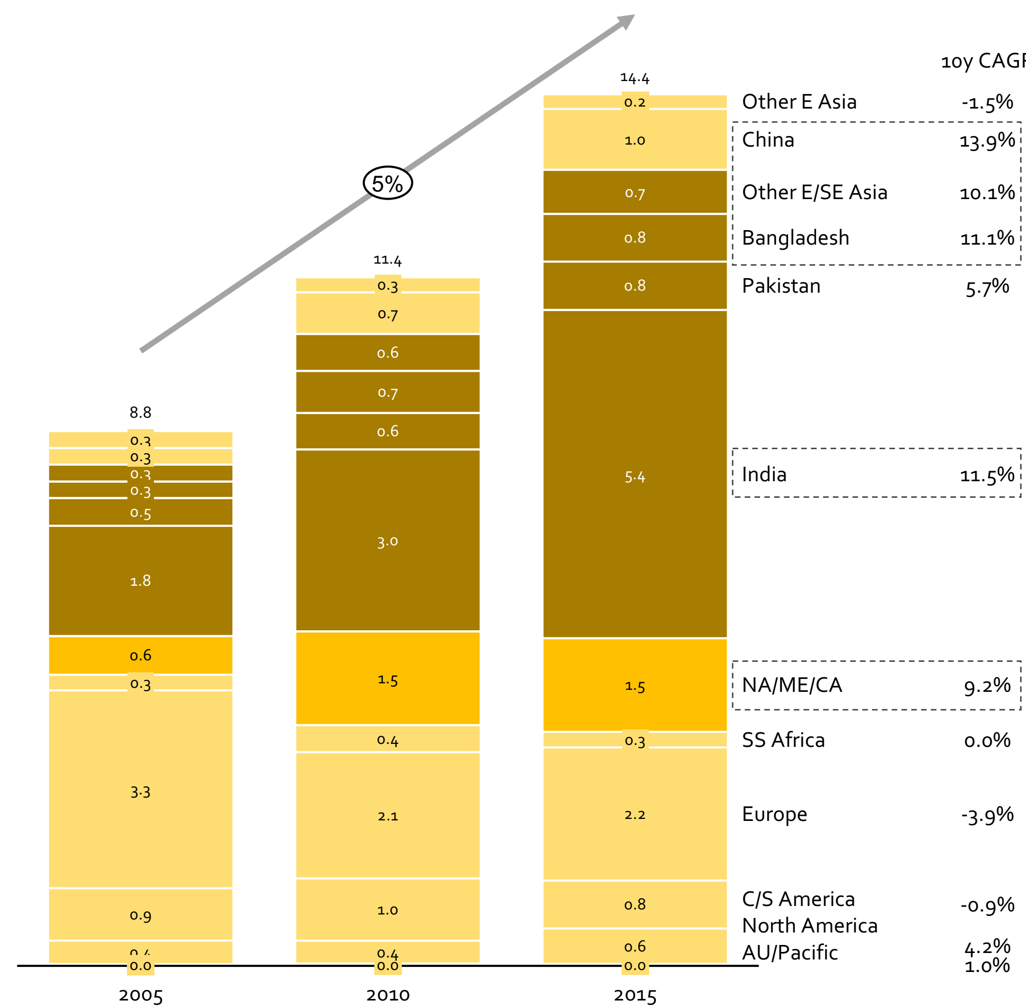
Pulse trade growth focused in select regions

Dry pulses trade growth is coming from Indian Subcontinent, China & the Middle-East

Global dry pulses trade by market (t; m; 2015)



Global dry pulses trade by market (t; m; 2005-2015)

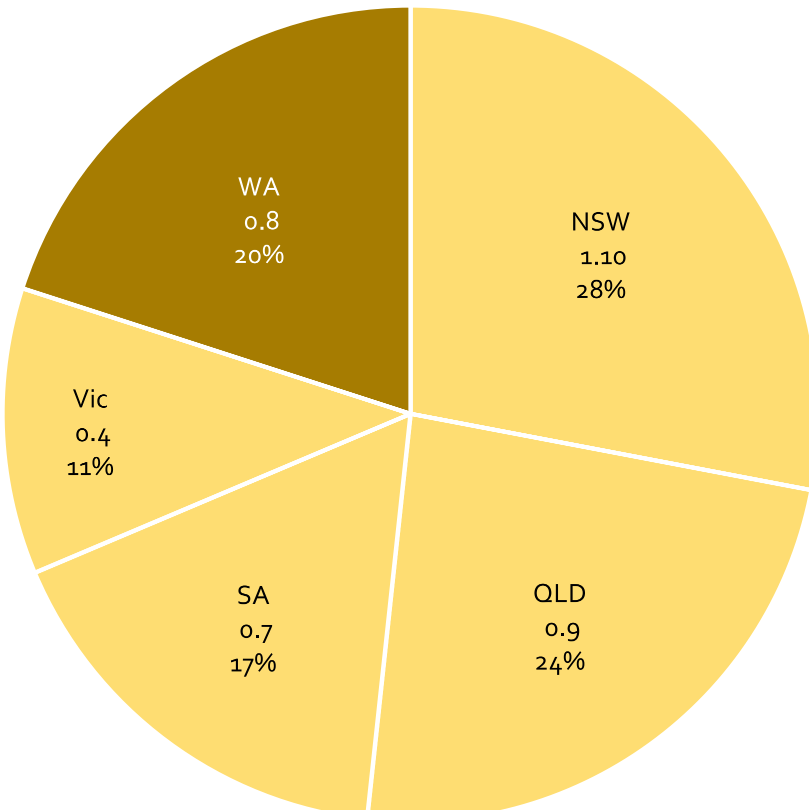


Source: UN Comtrade; Coriolis analysis

Range of pulses produced across Australia

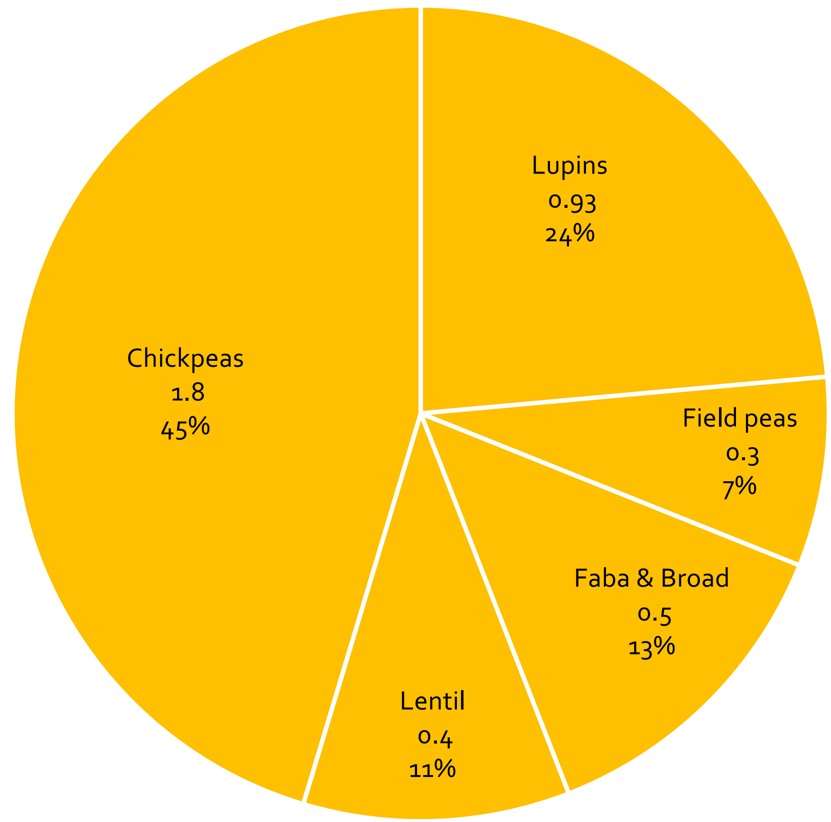
A range of pulses are produced across Australia; Western Australia accounts for 20% of the national crop

Total Australian pulse crop by state (t; m; 2016)



TOTAL = 3.9m

Total Australian pulse crop by product (t; m; 2016)



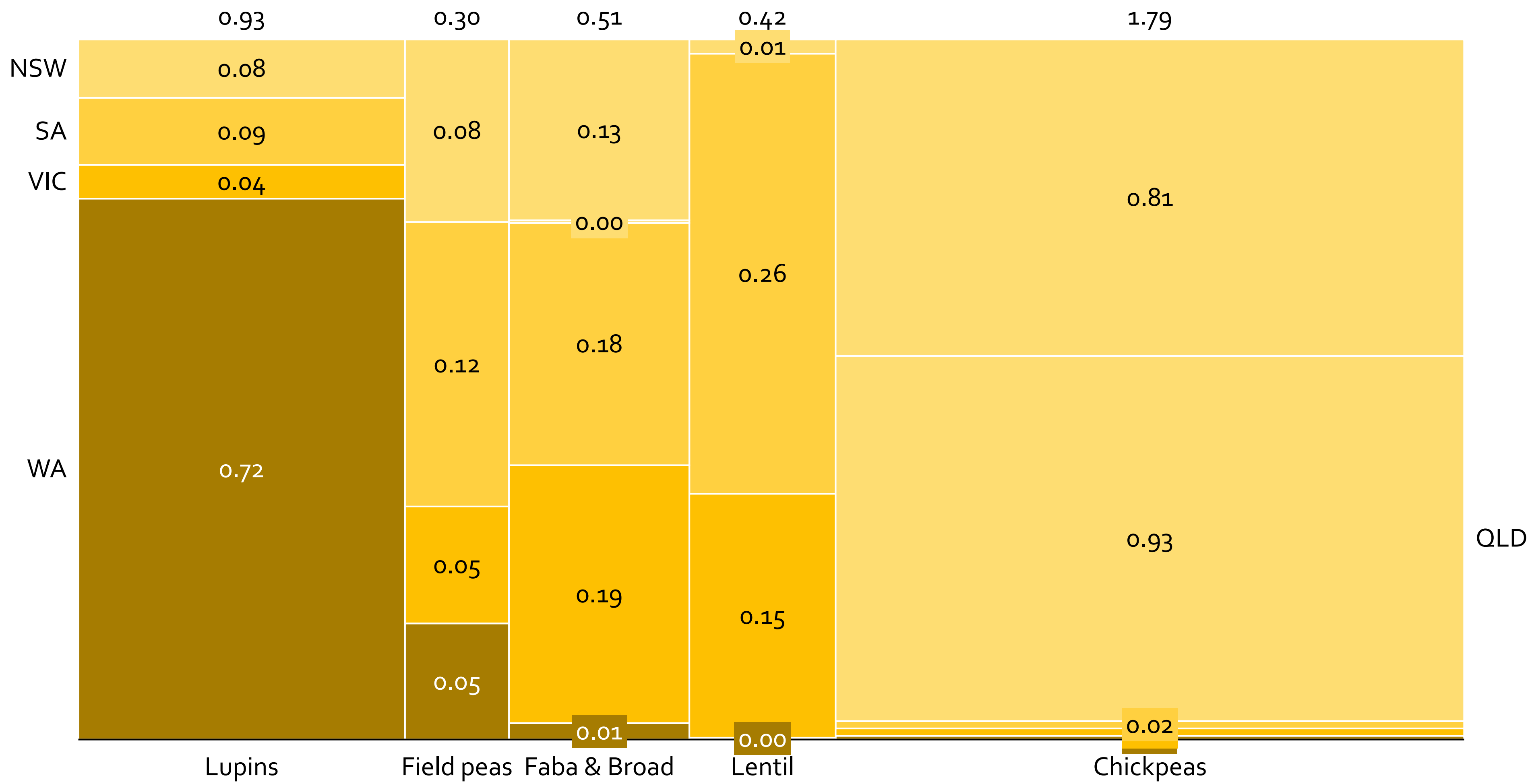
TOTAL = 3.9m

Source: ABS; Pulse Australia; Coriolis analysis

WA focused on lupins

Western Australia leads Australia in lupin production and produces a smaller amount of other pulses

Total Australian pulse crop by product by state (t; m; 2016)

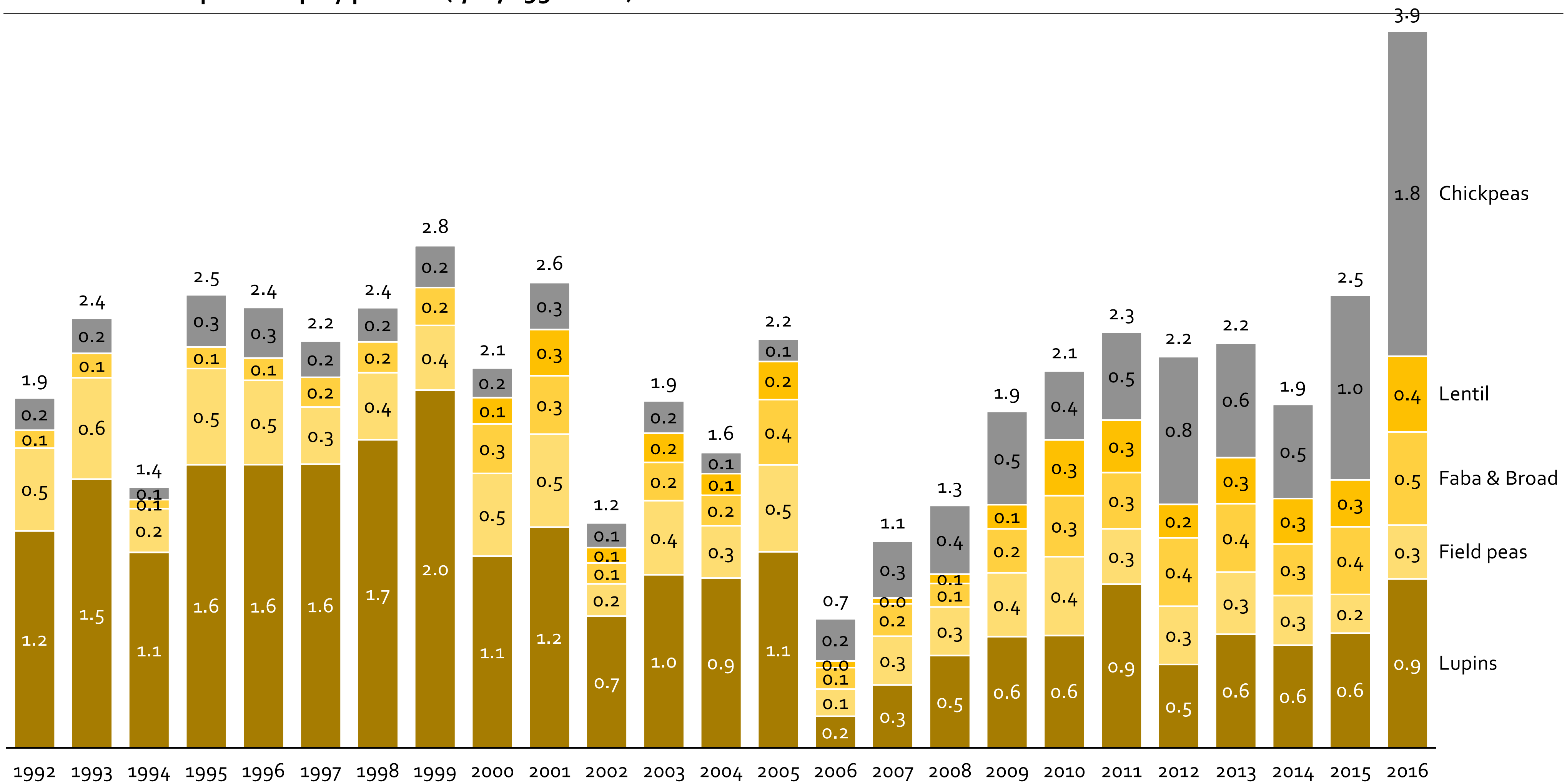


Source: ABS; Pulse Australia; Coriolis analysis

Shifting production mix

The Australian pulse production mix is shifting driven by market demand

Total Australian pulse crop by product (t; m; 1992-2016)

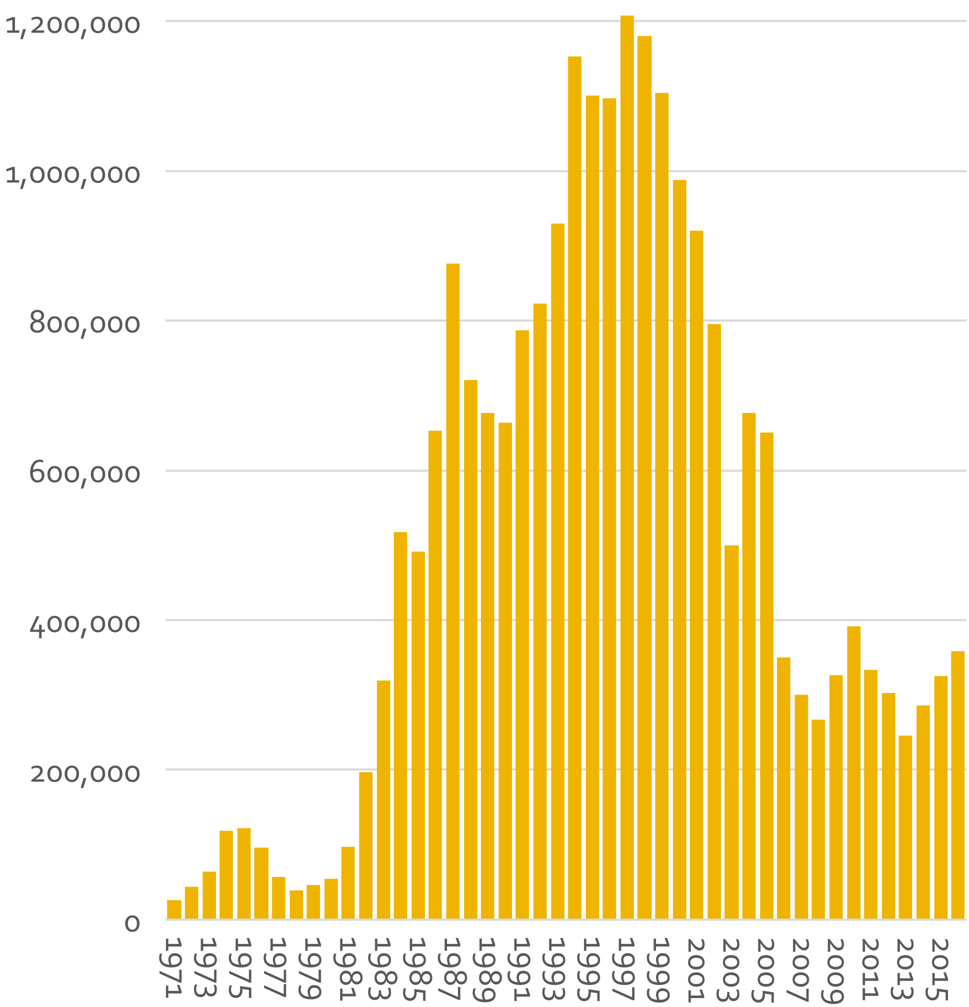


Source: ABS; Pulse Australia; Coriolis analysis

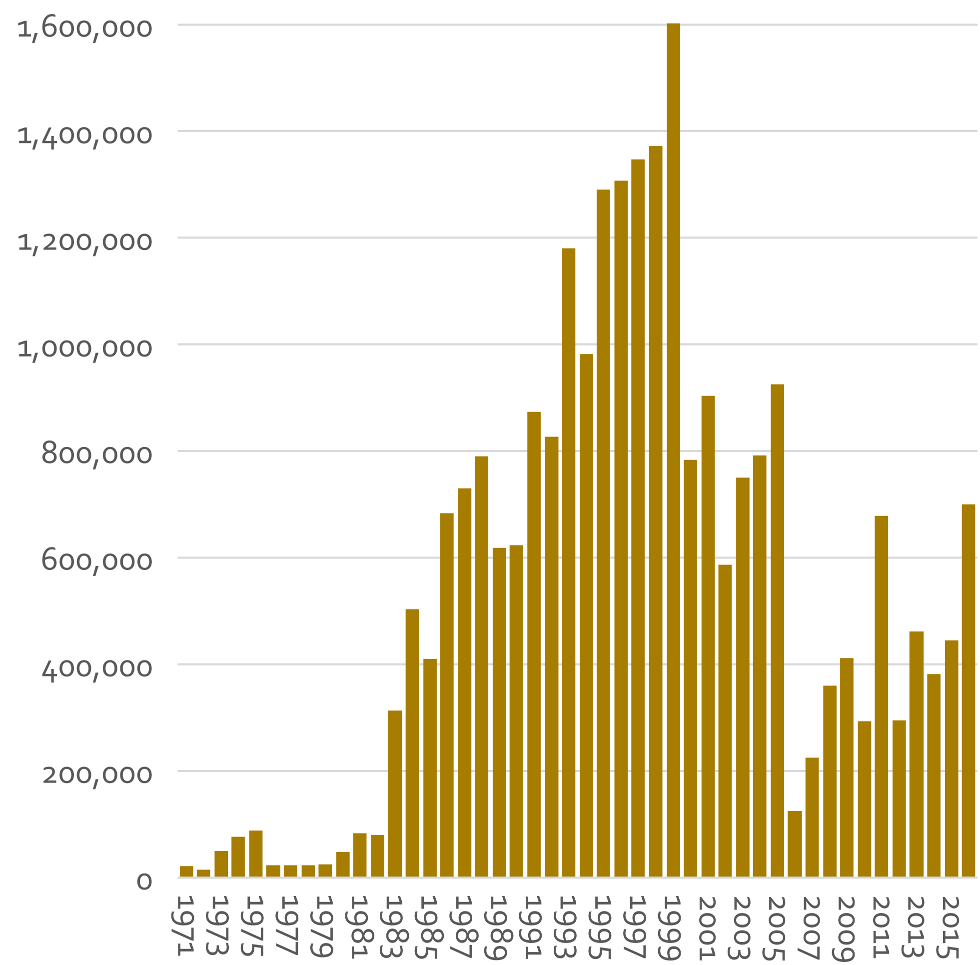
WA has stabilised area and production

Western Australia appears to have stabilised pulses area and pulse production

Western Australian area in pulses (Hectare; 1971-2016)



Western Australian pulse production (Tonnes; 1971-2016)

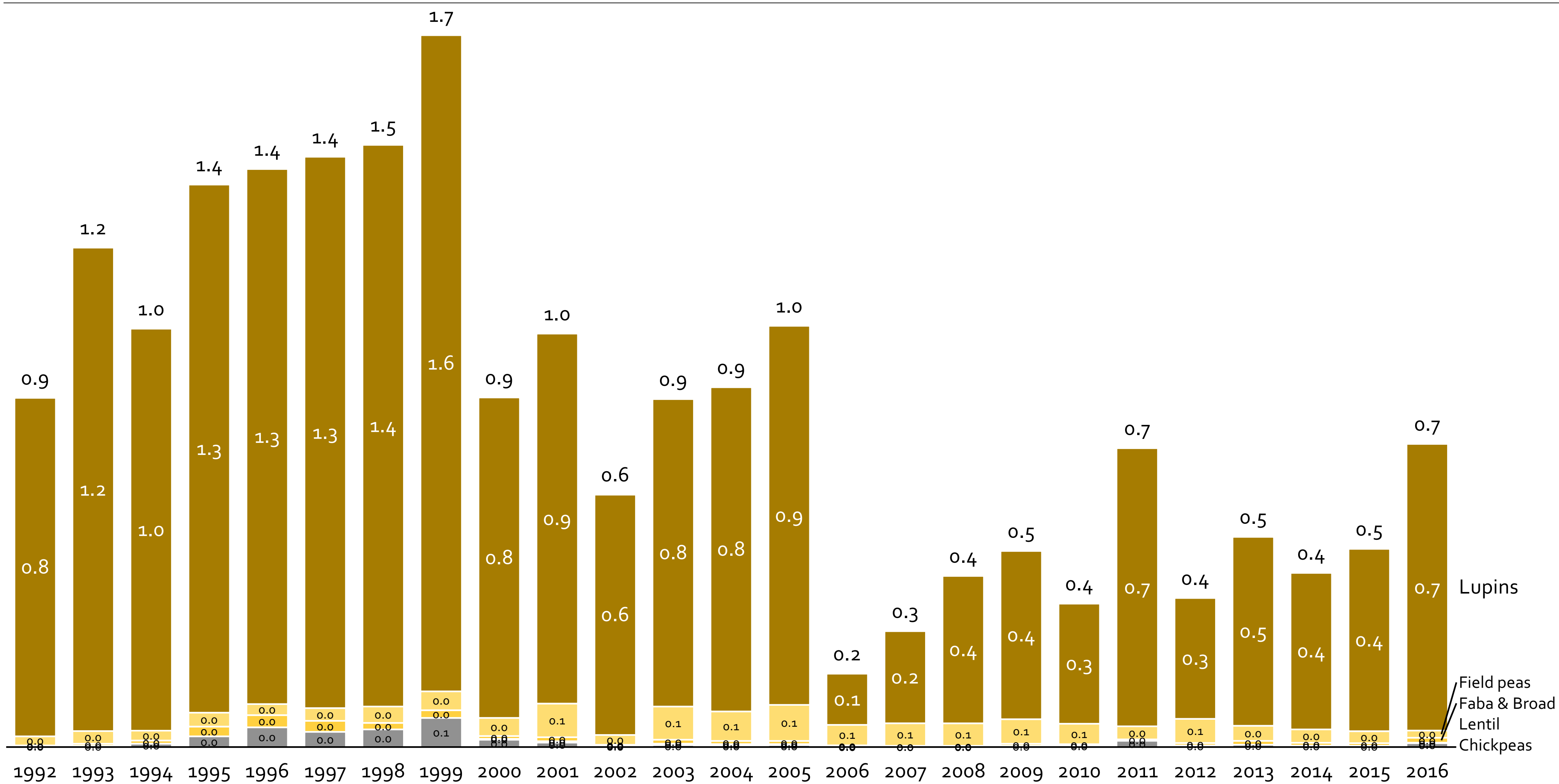


Source: ABS; DAFWA; Pulse Australia; Coriolis analysis

Shifting production mix

Western Australian pulse production is still predominantly lupins

Total Western Australian pulse crop by product (t; m; 1992-2016)



Source: ABS; DAFWA; Pulse Australia; Coriolis analysis

Industry believes pulses can grow

The Western Australian arable crops industry believes pulse production can grow in the state

"Between strong international demand and a strong appetite for further investment into pulses in Western Australia, there is a value chain gap and an opportunity for growth.

The pulse situation and opportunity can be summarised as follows :

- Pulses are the smallest of WA crops by far and require a considered investment to build a pathway to competiveness
- Historically low production base in WA with the exception of lupins
- Select parts of wheat belt do have appropriate soil types
- WA is world's largest exporter of lupins for stockfeed
- WA recently migrated the oat crop from feed to food and tripled production in less than a decade, driven by Chinese and Indian demand, so we should dare to think big with lupins and pulses
- Small scale boutique production activity would benefit from further agronomic packages & logistics investment (e.g. in field peas and red lentils with containerisation; PASE/SEPWA Esperance & Esperance Seed & Grain; chickpeas with containerisation by the Ord River Coop; lupins for food in the Mingenew/Coorow area)
- More translation of market customer insight back to growers is required, especially from non-traditional markets (e.g. Indian subcontinent & MENA markets)
- More targeted production development activity required through strong local grower group networks
- Experiment, don't be afraid to fail, international market demand is growing and becoming more sophisticated (human food, meat protein alternatives, plant based protein for aquaculture, stock food)"

Larissa Taylor
Chief Executive Officer
Grains Industry Association of WA

Emerging/potential crops

Beyond pulses, Western Australia has a range of emerging or potential crops

Chia

Quinoa

Sorghum

Sesame

Teff
Millet
Khorasan Wheat
Qaniwa
Buckwheat
Sunflower/Safflower
Fonio
Amaranth

Others

Photo credit: (fair use; low resolution; complete product/brand for illustrative purposes); under license from Shutterstock.com

Pulses & other grain sectors continue to invest

Investment is occurring across niche pulses, seeds and grains

The Chia Co.

- 2003 Founded in Western Australia to produce chia seed products
- 2010 Launch iconic orange packaging
- 2012 Investment from US private equity firms VO2 Partners & Arlon
- 2013 Launch Chia Pod snack packs
- 2015 Turnover estimated at $100m

DRIVER

- Innovation
- Growing consumer interest in Health & Wellness
- Superfood trend

Australian Grown Superfood

- 2010 Invested in growing and primary processing quinoa
- 2015 $1.5m plant commissioned; assistance from Coles Nurture Grant
- 2016 Launched branded products and developing new products

DRIVER

- Superfood trend
- Strategy to add value and process in WA

The Lupin Co

- 2016 Commissioned lupin manufacturing plant to manufacture lupin flakes and lupinola

DRIVER

- Adding value to lupins
- Lupins high protein content for human consumption

Source: interviews; company website; press articles; photo credit (fair use; low resolution; complete product/brand for illustrative purposes or supplied by firms)

10. Key Firms Profiled

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CO-OPERATIVE BULK HANDLING LIMITED

Andrew Crane* – Chief Executive Officer

METRICS

Turnover: $3.3b [AR16]
Profit: $68.4m

# of emp: 1,100 - 1,800 [company website]

DESCRIPTION

Grain storage, handling, processing, shipping and processing; AU's largest Co-op (4,200 grain growers); handle 13.6mt; 30% of AU bulk grain exports (7mt)

CATEGORIES

- Wheat (exported 1.2mt Albany, 3.6mt Kwinana)
- Barley
- Oats

DETAILS

Address: 30 Delhi St, West Perth, WA 6005

Phone: +61 8 9237 9600

ABN: 29 256 604 947

Year est: 1933

Website(s): www.cbh.com.au
www.bluelakemilling.com.au

OPERATIONS

- 90% grain receival and storage market share in WA
- 30% of grain bulk exports sales in WA
- A$2.1 billion assets 195 receival locations, 4 port terminals (Kwinana, Geraldton, Esperance and Albany); own rail fleet
- 50% ownership of Australian Bulk Stevedoring
- 50% stake Interflour Group (7 flour mills in Asia)
- Granary operations in Russia (200,000t)
- Blue Lake Milling 60,000t finished products from 90,000t oats
- South Australia export operations

BRANDS

OWNERSHIP

Type: Co-op

Country: Australia

Owner: 4,200 growers

ACTIVITIES

- 2008 Bulk wheat exports deregulation
- 2015 Invested $177m in capital investments
- 2015 Acquired Blue Lake Milling; oat processor
- 2016 Voted against corporatisation proposal from Australian Grains Champion Pty (incl. GrainCorp)
- 2016 Exited Lupin Foods Australia
- 2016 Invested $92m in capital works in s&h
- 2016 CBH Fertiliser sold 50,000t of product first year
- 2016 Constructed InterMalt facility Vietnam; 110,000t
- 2017 Proposed new receival site at Bunbury
- 2017 Building new oat processing at Metro Grain

MARKETS

- Global
- 31% South Asia
- 19% North Asia
- 19% ME and Africa
- 13% EU & Americas
- 8% Japan
- 10% other

*announced stepping down; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

BUNGE AGRIBUSINESS AUSTRALIA

Chris Aucote – General Manager Australia

METRICS

Turnover:	US$42.7b [AR16] AU $518.5m Profit: US$1,143m (EBIT) [AR16]; $12.3m (AU) $2.1m (WA) [AR15]
# of emp:	30 AU [co. website]/ 12 WA*

DETAILS

Address:	Lot 962, Berth 5 Bunbury Port, Bunbury, WA 6233
Phone:	+61 3 9275 6555
ABN:	46 097 843 582
Year est:	1923/2007
Website(s):	www.bunge.com.au www.bunge.com

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Bunge (Public: USA; NYSE: BG)

DESCRIPTION

- Leading global agribusiness and food company operating ~400 facilities in over 40 countries with approximately 35,000 employees; leading marketer of Australian grains focusing on exporting Australian grains to global destinations; commodity trader and food ingredients manufacturer

OPERATIONS

- Operates terminal at Bunbury port (wheat, barley, canola, oats); throughput model
- Two receival points Kukerin (120,000t capacity expansion space for 250,000) and Arthur River (160,000t expansion space for 250,000)
- 450,000m t through new facility (750,000t capacity)
- Suppliers option of on-farm storage or direct delivery to port

ACTIVITIES

- 2000s Increased activity in AU post deregulation
- 2014 Commissioned new terminal in Bunbury (wheat, barley) $40m
- 2015 Built two new grain receival facilities at Kukerin and Arthur River

CATEGORIES

- Grain – wheat (APW1, APW2, H1, H2, ASW1, AGP, FED1, AUH2)
- barley (all malt var., F1)
- Oil seeds (canola)
- Bunge (parent) grains, oilseeds, edible oil, animal feed, sugar, ethanol, milling, fertiliser

BRANDS

MARKETS

- Asia
- Middle East

*Coriolis interview; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

CARGILL AUSTRALIA LTD

Penne Kehl – Managing Director

METRICS

Turnover:	$2b (AU) [AR16]; $173m storage, $1,088m wholesale [IBIS 15-16] $120b (Group) [AR15] Profit:-A$17m [AR16] PPE: $410m
# of emp:	600 AU, 25 WA

DETAILS

Address:	11/28 Freshwater Place, Southbank, VIC 3006
Phone:	+61 3 9268 7200
ABN:	42 004 684 173
Year est:	1967
Website(s):	www.cargill.com.au www.teysaust.com.au www.awb.com.au www.cargill.com

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Cargill (Private: USA; Cargill family)

DESCRIPTION

Large grain exports, grain and oilseed origination, oilseed and malt processing, grain and cotton trading, grain storage and handling, joint ventures in beef processing (Teys Australia) and flour milling

OPERATIONS

- Grain activities (22 grain storage facilities)
- Oilseed processing (AWB procures grain and oilseed)
- Meat processing – Teys Australia JV
- Malt Processing – Joe White Maltings
- WA – Malt and AWB oils

ACTIVITIES

- 1967 established operations in AU
- 1999 Entered Grain storage industry (2 JV's, three gain storage facilities)
- 2009 Accredited wheat exporter
- 2010 Acquired AWB's commodity management business from Agrium (cleared 2011)
- 2017 Sold 40% share in Allied Mills to PEP (Graincorps' 60% also sold)

CATEGORIES

- Grain
- Oilseeds
- Cotton
- Beef
- Processing (flour, malt, food ingredients, refined oils)

BRANDS

JOE WHITE MALTINGS

MARKETS

- Global

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

GRAINCORP

Mark Palmquist – Managing Director & Chief Executive Officer

METRICS

Turnover:	$4.2b [AR16] $2.3b Grains, $923m Oils WA ~$450m* Profit: $255m [AR16]
# of emp:	1,400 AU / WA 50 [co. website]

DETAILS

Address:	47 McDowell Street, Welshpool, WA 6106
Phone:	+61 2 9325 9100
ABN:	84 140 208 680
Year est:	1916
Website(s):	www.graincorp.com.au www.bbmalt.com.au

OWNERSHIP

Type:	Public (ASX: GNC)
Country:	Australia
Owner:	ADM Australia (20%), JP Morgan (17%), others

DESCRIPTION

Australia's largest agribusiness; provides range of storage, handling, processing and logistics services to the grain industry, primarily in the East Coast

OPERATIONS

- Grain storage (170 sites), handling, processing 20m t storage throughout Australia and 4m t freight capacity, 7 ports (Grains throughput 11.6mmt, non-grain 3mmt
- WA 1mmt exported
- Malt, flour and edible oils processing
- WA Barrett Burston Malting in Welshpool – 50,000t annual capacity
- WA Oilseed crushing plant Pinjarra -60,000t capacity; liquid terminal at Fremantle (primarily Chemicals)
- WA Grain Pool

ACTIVITIES

- 2009 Acquired United Malt Holdings (now #1 global malt)
- 2012 Acquired Integro Foods from Goodman Fielder and Gardner Smith for $472m "Graincorp Oils"
- 2013 Rejected Archer Daniels Midland (ADM) $3.4b bid (AU Govt, foreign ownership)
- 2014 Invested $200m over 3yrs to expand storage network and improve efficiencies
- 2016 Invested $100m+ in oilseeds plant in VIC
- 2017 Sold 60% share of Allied Mills (A$190m) (flour operations) to PEP, (Cargill also sold its 40% to PEP)

CATEGORIES

- Grains (wheat, barley, canola)
- Processing (malt, flour, edible oils, canola meal)
- Liquid feeds (molasses based animal feeds)

BRANDS

MARKETS

- Domestic
- Global

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

GLENCORE AGRICULTURE AUSTRALIA

Philip Hughes – General Manager, Trading AU/NZ
Tim Krause – General Manager, Viterra

METRICS

Turnover:	$3.2b (2015) AU [IBIS]
# of emp:	2,700 AU [company website] 80 AU [IBIS] 5-10 WA*

DETAILS

Address:	76 Cantonment Street, Fremantle, WA 6160 (Based in Melbourne, VIC)
Phone:	+61 8 9335 5688
ABN:	29 106 378 885
Year est:	1974/ 2016
Website(s):	www.glencoreagriculture.com.au

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Glencore (Public: Switzerland; LSE: GLEN, SEHK: 0805, JSE: GLN), CPP Investment Board, bcIMC

DESCRIPTION

In Australia, Glencore Agriculture is the national grain accumulation and marketing business and Viterra is the storage and handling business, largely based in SA, with some operations in VIC and NSW; farms and leases 24,000ha of cropping land across SE Australia

OPERATIONS

- Parent Glencore Agriculture has 96,000ha, 274 storage facilities, 23 ports, 36 processing facilities, 180 vessels across 35 countries world wide
- 6 grain port terminals in AU; storage capacity of 10mt; 5 packing and processing facilities

ACTIVITIES

- 2003 Established Glencore Grain in AU
- 2009 Viterra entered AU by acquiring ABB Grain
- 2012 Acquired Viterra Inc; ~$6.1b, sites primarily in SA and VIC; Agrium/Landmark acquired retail stores
- 2016 Glencore Agriculture established following investment by Canada Pension Plan Investment Board and British Colombia Investment Management Corporation

CATEGORIES

- Wheat
- Barley
- Oilseeds
- Pulses
- Meals
- Cotton

BRANDS

MARKETS

- Asia
- Global

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

EMERALD GRAIN

David Johnson– Chief Executive Officer

METRICS

Turnover:	$1.0b AU [AR16] WA $100-130m [Co.]
# of emp:	5 WA [Co.]

DETAILS

Address:	Level 2, 600 Victoria Street, Richmond, VIC 3121
Phone:	+61 3 9274 8888
ABN:	82 109 203 054
Year est:	2004
Website(s):	www.emeraldgrain.com www.sumitomocorp.com.au

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Sumitomo Corp (Public: Japan; TYO, OSE, NSE, FSE: 8053)

DESCRIPTION

Accumulating, storage, bulk handling, marketing and transport of grains, purchasing from 10,000 farming families in AU; export grain from around 17 grain terminals across Australia to 35 countries around the globe.

OPERATIONS

- Operates 9 grain storage facilities in VIC and NSW with 1m t of grain capacity and associated freight services
- Operates port terminal in Melbourne and shareholder in JV port in NSW
- Initiated canola exports from Geraldton – processed into oil in China

ACTIVITIES

- 2004 Established Emerald Grain
- 2010 Sumitomo acquires 50% of Emerald
- 2012 Acquired Australian Bulk Alliance (formerly JV ABB grain and Sumitomo) and changed name to Emerald Grain
- 2013 Acquired Australian Bulk Alliance, EP Grain and Maralong Pty
- 2014 Sumitomo raised stake from 50% to 100%
- 2015 Acquired 100% SQP Grain (VIC)
- 2015 First shipment of canola from Geraldton; 55,000t

CATEGORIES

- Wheat
- Barley
- Canola
- Food grade pulses
- Feed grains (sorghum, maize, feed barley, oats and lupins)

BRANDS

MARKETS

- 35 countries
- SE Asia (Philippines, Vietnam)
- India
- China
- ME
- Africa

Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

PLUM GROVE

Andrew Young – Managing Director

METRICS

Turnover:	$535m AU [AR16] Agrigrain (NSW) $150m* Plum Grove (WA/SA) $380m*
# of emp:	20 WA, 50 Agrigrain (NSW)

DESCRIPTION

Grain accumulation and export business operating primarily in WA, SA and NSW; #1 exporter of wheat to Japan and Korea

CATEGORIES

- Grain storage and accumulation
- Seed and fertliser supplies to AU

DETAILS

Address:	Level 2, 25 Cantonment Street, Fremantle, WA 6160
Phone:	+61 8 9435 1022
ABN:	61 104 516 305
Year est:	2003
Website(s):	www.plumgrove.com.au

OPERATIONS

- Grain accumulation – Plum Grove accumulated1.7mmt, exported1.3mmt
- Accumulates cargo for major end-users Salim Group (Indonesia), Mitsui (Japan and Korea) and Seaboard (Sth Africa, Kenya)
- Agrigrain business in NSW, containerised exports

BRANDS

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Founders (Andrew Young, Tony Smith, Ashley Bacon) 25%, Mitsui & Co 25% (Japan), Salim Group 25% (Indonesia), Seaboard Corporation 25% (Public: USA; NYSE: SEB)

ACTIVITIES

- 2003 Established Plum Grove
- 2010 Salim and Seaboard each take 25% share
- 2013 Acquired Agrigrain (NSW grains business)
- 2013 Mitsui & Co acquired 25% share
- 2015 Agreement with CBH for long term port access at CBH's 4 terminals

MARKETS

- Indonesia
- Japan
- Korea

*Coriolis interview; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

PREMIUM GRAIN HANDLERS

John Orr – Managing Director

METRICS

Turnover: $50-70m*

# of emp: 10-20*

DESCRIPTION

Niche/specialty grain handler and marketer with supply, storage, cleaning, processing, bagging and container packing services for grain, pulse and oilseed products; 3 WA locations

CATEGORIES

- Grains & oilseeds (oats, hulled oats, barley, wheat, einkorn wheat flour, canola)
- Pulses (faba beans, chick peas, dun peas, white peas, vetch, lentils, mung beans, lupins)
- Bird seed

DETAILS

Address: 12 - 14 Sultan Way, Rous Head, North Fremantle, WA 6959

Phone: +61 8 9430 6656

ABN: 21 009 260 520

Year est: 1995

Website(s): www.pgh.com.au

OPERATIONS

- Operates crop production program growing oats, barley, wheat and canola (own production 15,000 acres)
- Grower contracts to supply
- Receival and storage services total 50,000t (storage: Fremantle – 5,000t, Kellerberrin 12,000t and Wandering-30,000t)
- Fremantle - cleaning plant (aspirators, scalpers, screeners, clippers, gravity tables and automatic bagging machinery) plus container packing and handling
- Partner with TRP Grain (VIC) for East coast supply and services (storage 10,000t)

BRANDS

OWNERSHIP

Type: Private

Country: Australia

Owner: John Orr

ACTIVITIES

- 2015 Opened a new oat storage facility at Wandering
- 2017 Expanding Fremantle operations into adjacent property

MARKETS

- SE Asia
- Japan

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Name	ADM Australia
Address	14/45 Ventnor Avenue, West Perth, WA 6005
Phone	+61 459 152 840
ABN	73 057 641 308
Founded	1991
Website	www.adm.com www.admgrain.com.au
Turnover	$1.2b AU (FY15)
Employees	45 AU [company website]
Ownership	Private; Australia (Archer Daniels Midland Company (Public: USA; NYSE: ADM))
Products	Wheat, barley, canola
Markets	Global
Capacity	3% of WA canola exports, 2% WA barley exports by volume
Notes	Grain accumulation in WA

Name	Louis Dreyfus Company Australia
Address	Level 1, 2 Birksgate Road, Rous Head, North Fremantle, WA 6159
Phone	+61 458 904 889
ABN	57 004 088 000
Founded	1913
Website	www.ldcom.com/au/ www.louisdreyfus.com
Turnover	$400 – 450m* AU
Employees	25* AU
Ownership	Private; Australia (Louis Dreyfus Holdings B.V.(Private: Netherlands; Louis-Dreyfus family))
Products	Wheat, barley, fertiliser (Macrofertil)
Markets	Global
Capacity	3% WA wheat exports by volume
Notes	Grain accumulation in WA Macrofertil fertiliser in WA

Name	COFCO Agri Australia
Address	Building 5, Level 1, 658 Church Street, Richmond, VIC 3121
Phone	+61 3 8199 6100
ABN	25 001 069 423
Founded	2000
Website	www.au.cofcoagrigrain.com
Turnover	N/A
Employees	N/A
Ownership	Private; Australia (COFCO (SOE; China))
Products	Grains, sorghum, pulses
Markets	China, Asia, Middle East
Capacity	2% WA wheat exports by volume
Notes	Invested in Port Kembla export terminal; parent owns Nidera and Noble Agri; operations in 35 countries; delivered 100m tonnes of products globally in 2016

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Name	Esperance Quality Grains
Address	626 Beckwith Road, Esperance, WA 6450
Phone	+61 8 9072 0055
ABN	58 009 215 310
Founded	2002
Website	www.members.westnet.com.au/eqg/
Turnover	N/A
Employees	N/A
Ownership	Private; Australia (Wandel family)
Products	Wheat, barley, canola, peas, lupins, oats
Markets	Domestic, export
Capacity	Storage 7,000t; cleaning and drying operations
Notes	Co-owned farming operations; planned containerised exports out of Esperance Port

Name	Grain Link
Address	7 Anvil Close, South Guildford WA 6055
Phone	+61 8 9258 9781
ABN	30 089 314 572
Founded	1999
Website	www.grainlink.com.au
Turnover	N/A
Employees	N/A
Ownership	Private; Australia (Goyder)
Products	Hay, wheat, barley, oats, lupins, canola, triticale
Markets	Domestic, export
Capacity	N/A
Notes	

Name	Demeter Cormack
Address	92 Hope Valley Road, Hope Valley, WA 6165
Phone	+61 8 9410 5800
ABN	77 134 279 977
Founded	1986
Website	www.demetercormack.com
Turnover	N/A
Employees	N/A
Ownership	Private; Australia (Oates)
Products	Animal feed, grains, pulses, oilseeds
Markets	Asia, Indian sub-continent
Capacity	N/A
Notes	

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

QUAKER OATS AUSTRALIA

Chris Maughan – Supply Chain Manager, Quaker Oats Australia

METRICS

Turnover: $1.3b AU business [IBIS]

# of emp: 40

DESCRIPTION

Oat milling plant in Forrestfield, Perth; supplies to Quaker Oats processing facilities in SE Asia

CATEGORIES

- Oats (milled, rolled, quick, instant, kiln dried)

DETAILS

Address: 12 Carolyn Way,
Forrestfield,
WA 6058

Phone: +61 8 9454 8166

ABN: 73 065 540 865

Year est: 1994

Website(s): www.quakeroats.com.au
www.pepsico.com

OPERATIONS

- Oat mill operation supplying 25kg PE Film Bags and bulk container loads; vision for 250,000t/yr
- Receives oats direct from contracted producers and from CBH network
- Mills in WA, China, North America (servicing Americas), and Scotland (servicing Europe, ME and Africa)

BRANDS

OWNERSHIP

Type: Private

Country: Australia

Owner: PepsiCo (Public: USA; NYSE: PEP)

ACTIVITIES

- 1989 Started milling in Forrestfield site, WA
- 2010 Invested in new oat cleaning facility
- 2014 Commissioned new oat mill in WA
- 2014 Commissioned new Quaker Oat mill in China
- 2015 PepsiCo's (parent) Smiths factory closed in Canning Vale; 300 jobs loss; 12,000t of potatoes used

MARKETS

- Asia

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

UNIGRAIN

Bill May – Managing Director

METRICS

Turnover:	$117m [AR16] $50m* WA
# of emp:	115 AU/ 50 WA

DETAILS

Address:	31 Stewart Road, Wagin, WA 6315 (based in VIC)
Phone:	+61 8 9418 6126
ABN:	67 120 061 841
Year est:	1978
Website(s):	www.unigrain.com.au

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Costa family (50%), May family (50%)

DESCRIPTION

Unigrain is a leading privately owned food and agribusiness specialising in the manufacture of oat cereal and pulse based food and food ingredients, as well as animal nutrition products for the domestic and international markets

OPERATIONS

- Source directly from a large nationwide customer base
- WA Wagin site includes oat cereal mill (120,000t capacity) and animal nutrition mill using oat husk base for ruminant pellets (25,000t capacity- domestic use); export 95% of oat production
- VIC Smeaton Mill – includes an oat cereal mill (130,000mt capacity), pulse and seed/grain processing and an animal nutrition mill

ACTIVITIES

- 2007 Built new mill in VIC
- 2012 Started manufacturing stock feed (utilising byproduct)
- 2014 Acquired Morton's Seed & Grain, WA
- 2015 Processed 120,000t oats in WA
- 2016 Invested in new roller mill at Wagin, installed a steam operated boiler in Wagin to generate 90% of the plants energy ($6m)
- 2016 Built a desalination plant to for fresh water

CATEGORIES

- Rolled oats, quick cooking oats, instant oats, kiln oat bran, oat flour (1MT bulk bag, 25kg form fill and seal)
- Dried hulled oats, groats – bulk containers
- Seed oats for SEA (grazing, hay, silage)
- Animal nutrition WA range – pellets for cattle, sheep, dairy, horses
- Pulse products - yellow split peas, split faba beans, broad beans, dun beans (20, 25, 40kg bags)
- Potato crisping for SEA and AU (#1 AU marketer)

BRANDS

MARKETS

- Global exporter of quality seeds, grains, pulses, oat cereal products and potatoes, supplying customers in over 45 countries

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

AUSTRALIAN GROWN SUPERFOODS

Ashley Wiese – Director

METRICS

Turnover: $1-5m* (2016)

# of emp: 6

DESCRIPTION

Quinoa and oats producer; manufacturing of branded quinoa and oat products, specialising in bulk production

CATEGORIES

- Golden Quinoa
- Quinoa flakes
- Quinoa flour
- Rolled Oats

DETAILS

Address: 4 Fortune Street,
Narrogin,
WA 6312

Phone: +61 428 859 031

ABN: 44 154 773 154

Year est: 2010

Website(s): www.threefarmersquinoa.com.au

OPERATIONS

- Quinoa growing across WA
- Oat growing on Narrogin property
- Dedicated quinoa processing facility in Narrogin, WA (3000t capacity)
- Further processing and packaging in Melbourne (flouring, flaking and rolling)
- Supply domestic market with 25,000 kg of quinoa a month

BRANDS

OWNERSHIP

Type: Private

Country: Australia

Owner: Wiese, Gooding, Knell

ACTIVITIES

- 2010 Started growing quinoa
- 2015 Commissioned plant
- 2016 Launched quinoa brand
- 2017 Launched oats and flaked products

MARKETS

- Domestic
- Taiwan
- Singapore

*Coriolis interview; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

THE LUPIN CO

David Fienberg – Managing Director

METRICS

Turnover: $2-5m*

# of emp: 5

DETAILS

Address: Level 1, Suite 6,1-5 Point Street,
Fremantle,
WA 6160

Phone: +61 8 6263 1140

ABN: 69 611 053 902

Year est: 2016

Website(s): www.thelupinnco.com.au

OWNERSHIP

Type: Private

Country: Australia

Owner: Grower consortium

DESCRIPTION

Manufacturing company producing lupin based ingredients and products

OPERATIONS

- New manufacturing facility at Bullsbrook, WA

ACTIVITIES

- 1960s Developed commercial lupin variety at UWA
- 1980s Centre for Food and Genomic Medicine research
- 2013 CBH established Lupin Foods Australia dehulling plant
- 2016 CBH exited industry
- 2016 Established Lupin Co
- 2016 Commissioned manufacturing plant; $10-20m

CATEGORIES

- Lupin flakes

BRANDS

MARKETS

- Domestic focus

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

ALBA EDIBLE OILS

Jon Slee – General Manager

METRICS

Turnover:	$30-50m* (consolidated – 50:50 WA & VIC)
# of emp:	25

DETAILS

Address:	2 Emplacement Crescent, Hamilton Hill, WA 6163
Phone:	+61 8 9432 7200
ABN:	28 165 017 659
Year est:	1996
Website(s):	www.albaoil.com.au www.ausoils.com.au

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Slee, Young, Palmer

DESCRIPTION

Crusher, refiner, marketer and distributor of vegetable oils and fats; catering to the foodservice sector; based in WA with operations in VIC

OPERATIONS

- AusOils Kojonup – crush seeds and cold press
- Alba Oils – refine at Hamilton Hill site; solid and liquid oils packed in boxes, tins or cans (fully automated, filling, packing wrapping storage)
- Oil2U marketing and distribution based in WA
- Manufacturing of animal fats/byproducts (tallow) in Melbourne, VIC (sheep, beef, chicken)

ACTIVITIES

- 1997 Palmer acquired AlbaOils
- 2008 Changed Kojonup Oils name to AusOils
- 2008 Installed deodorising system, increases quality standards
- 2009 Moved into custom built facility Hamilton Hill
- 2014 Sister Co. Aus Oils invested in new coldpress canola crusher, doubling capacity and increasing quality
- 2015 Upgraded crusher facility, automation investment
- 2016 Invested in three new cold-press machines, 100% cold; quadruple crush to 120t/day

CATEGORIES

- Liquid oils
- Solid oils
- Animal fat
- Bulk oil in 1,000l Intermediate Bulk Containers (IBC), 20t ISO containers and flexi containers and tankers 10-50t

BRANDS

MARKETS

- Domestic
- East Coast
- Asia

*Coriolis interview; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Allied Mills

Name	Allied Mills Australia
Address	111 Stirling Highway, North Fremantle, WA 6159
Phone	+61 8 9432 0700
ABN	61 101 262 588
Founded	2002
Website	www.alliedmills.com.au
Turnover	$550m* AU
Employees	600 AU [company website]
Ownership	Private; Australia (Pacific Equity Partners)
Products	Flour, pre-mixes
Markets	Internal
Capacity	Milling and mixing plant in North Fremantle; ~80,000t of flour, 40,000t of bakery pre-mixes per annum; $10m upgrade announced 2015
Notes	Distribution centre for frozen, par-baked bread products in Kewdale; Allied Mills sold by Cargill and GrainCorp to PEP in 2017

Weston Milling

Name	Weston Milling (Mauri anz/GWF)
Address	340 Fitzgerald Street, Northam, WA 6401
Phone	+61 8 9622 1322
ABN	45 008 429 632
Founded	1962
Website	www.maurianz.com www.gwf.com.au
Turnover	~$2b (GWF AU)
Employees	75 WA (includes WesFeeds)
Ownership	Private; Australia (Associated British Foods (UK))
Products	Flours, pre-mixes
Markets	Internal, domestic
Capacity	Flour milling and batch mixing Wesfeed animal nutrition 200,000t/yr (supply Baiada, CMG)
Notes	Distribution facility in Kewdale

Millers Foods

Name	Millers Foods
Address	7 Michael Street, Byford, WA 6122
Phone	+61 8 9550 6666
ABN	88 088 015 123
Founded	1999
Website	www.byfordflour.com.au
Turnover	$10-20m*
Employees	25 Mill; 40+ Bakery [article]
Ownership	Private; Australia (Dunkley, Davies)
Products	Flours, meals, pre-mixes, baking ingredients, pizza flours
Markets	Domestic
Capacity	4.5t wheat per hour processing capacity
Notes	Management buy out of Defiance flour mill; Bovell's Bakery

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Name	Golden West Foods
Address	1797 Erangy Springs Road, Nangetty, WA 6522
Phone	+61 899 291 074
ABN	14 164 787 508
Founded	2013
Website	www.goldenwestfoods.com
Turnover	N/A
Employees	N/A
Ownership	Private; Australia (Kitto family)
Products	Lupin products
Markets	Domestic
Capacity	8,000 ha farm
Notes	My Provincial Kitchen brand

Name	The Chia Co.
Address	262 -276 Lorimer Street, Port Melbourne, VIC 3207
Phone	+61 3 9646 8002
ABN	95 123 746 743
Founded	2003
Website	www.thechiaco.com
Turnover	$100m*
Employees	45*
Ownership	Private; Australia (Foss, Arlon Group (PE: USA); VO2 Partners (PE:USA)
Products	Chia seeds, breakfast cereals, pods, oils
Markets	US, UK, Hong Kong, Taiwan South Korea, Japan, others
Capacity	N/A
Notes	Grown in Kimberley, WA, processed in Melbourne, VIC

*article; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

WESTON MILLING ANIMAL NUTRITION

David Wallace – Managing Director (Mauri anz)

METRICS

Turnover:	$2m* WA
# of emp:	18*

DETAILS

Address:	31 Sevenoaks Street, Bentley, WA 6102 (based in NSW)
Phone:	+61 8 9350 7000
ABN:	45 008 429 632
Year est:	1939
Website(s):	www.westonanimalnutrition.com.au www.weston.westonmilling.com.au

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Associated British Foods (Public: UK; LON: ABF) via GWF

DESCRIPTION

Animal nutrition manufacturer in Australia and New Zealand; largest monogastric feed mill in WA; supplying feed to chicken and pork industry

OPERATIONS

- Animal nutrition plant in WA (WesFeeds) supplying monogastric industry (e.g. Baiada, CMG);
- 200,000t/yr production*

ACTIVITIES

- 2014 GWF merged Weston Milling and AB Mauri operations to form Mauri anz; wholly owned subsidiary of Associated British Foods

CATEGORIES

- Compound feeds
- Concentrates
- Balancers
- Nutritional services

BRANDS

MARKETS

- Domestic
- Export

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

MILNE FEEDS

Graham Laitt – Chief Executive Officer

METRICS

Turnover: $146m [AR16] (Milne AgriGroup)

# of emp: 130 (Milne AgriGroup)

DESCRIPTION

Milne Feeds is the animal nutrition division of Milne AgriGroup; leading producer of pelleted animal feed in WA

CATEGORIES

- Horse feed
- Sheep feed
- Dairy cattle feed
- Beef cattle feed

DETAILS

Address: 103-105 Welshpool Road, Welshpool, WA 6106

Phone: +61 8 9351 0700

ABN: 92 008 919 579

Year est: 1911

Website(s): www.milne.com.au

OPERATIONS

- Animal feed operation # 1 ruminant mill in WA;
- 130,000t/yr production*
- Milling operations in Welshpool, Perth
- 14 bulk depots throughout WA (reduce feed transport costs)

BRANDS

OWNERSHIP

Type: Private

Country: Australia

Owner: Graham Laitt via Dowford Investments

ACTIVITIES

- 2002 Merged Milne Feeds (including Mt Barker Poultry and AU Natural Pork businesses),Liveringa Pastoral Co and Laitt's wheat/sheep farms to form Milne AgriGroup
- 2014 Sold Welshpool 3ha site with 10yr lease back for $17m to Carter Hall's Core Plus Industrial Fund (CHC); $1.53m return in rental income
- 2017 Planned new southern feed mill

MARKETS

- Middle East
- Korea
- Japan

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

GILMAC

Munro Patchett – General Manager

METRICS

Turnover: $130-150m [supplied]

# of emp: 140 (80 WA) [supplied]

DETAILS

Address: Suite G04, 1 Havelock Street,
West Perth
WA 6005

Phone: +61 8 9429 4900

ABN: 55 059 831 926

Year est: 1987

Website(s): www.gilmac.com.au

OWNERSHIP

Type: Private

Country: Australia

Owner: Mackie Family

DESCRIPTION

Feed pellet and hay pressing, handling, storage and exporting company at five locations (three operations in WA, two in VIC, SA); #1 exporter of hay and straw in Australia

OPERATIONS

- Total 5 fodder pressing plants, 3 in WA
- Total ~400,000 t/yr, ~75% exported
- New Norcia – includes pellet mill; supply live trade and domestic feedlots
- York facility plans for new canola processing plant
- New facility in Wagin (WA) – 50,000t capacity
- Operations in VIC (Goornong) and SA (Balaklava)
- 300 contract growers, track and trace technology
- Farming operations breeding Aberdeen Angus cattle, feed-lotting, growing cereal hay and grain
- Mackie Engineering division; design and build farming equipment

ACTIVITIES

- 1987 Established by Peter Mackie in shed in New Norcia; on grain and hay farm
- 1987 Sent first shipment of hay to Japan
- 1993 Commenced operations in South Australia
- 1998 Commenced operations at York
- 1999 Established pellet mill at New Norcia
- 2001 Established operations in Victoria
- 2015 Built new facility in Wagin, WA
- 2017 Plans for canola processing plant

CATEGORIES

- Oaten hay
- Wheaten hay
- Cereal straw
- Feed ration pellets (ruminants - sheep and cattle)
- Canola meal (planned)

BRANDS

MARKETS

- #1 market is Japan (total AU 400,000t oaten hay, 100,000t straw/yr in '15)
- South Korea (strong growth, 200,000t in '15)
- Taiwan
- China (strong growth, 100,000t in '15)
- Live animal trade (pellets)

Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

HAY AUSTRALIA

Andrew Bolt – Managing Director

METRICS

Turnover:	$30-$50m [supplied]
# of emp:	50 total (27 WA, 20 VIC, 2 CN)

DESCRIPTION

Hay baling production and exporting company based in WA and VIC; primarily oaten hay for dairy, equine and beef customers in the North Asian and Middle Eastern regions

CATEGORIES

- Oat hay bales
- Wheaten hay bales (fibre replacement)
- Wheaten straw
- Bedding straw

DETAILS

Address:	10/473 Beach Road, Duncraig, WA 6023
Phone:	+61 8 9243 0533
ABN:	20 122 089 972
Year est:	2006
Website(s):	www.hayaustralia.com.au

OPERATIONS

- Export 98% production; 120,000t; 24/7 operations
- Hay Australia, 10% from its own supply
- Two hay production facilities producing oaten hay 22-24kg half cut bales and 44-48kg full bales containerised for shipping
  - Yerecoin, Victoria Plains, WA – 100,000t capacity (20,000t storage)
  - Bridgewater, VIC – 100,000t capacity (5,000t storage)
  - Total 200,000t
- Storage capacity on-site and on-farm
- Annual contract with growers, view to long-term supply, payments based on quality standards

BRANDS

hayaustralia

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Bolt, others

ACTIVITIES

- 2013 Suffered fire at WA facility
- 2013 Relocated to Yerecoin, WA
- 2015 Built new facility in Bridgewater, VIC
- 2017 Built new plant, added to existing WA facility, tripling capacity

MARKETS

- China (40% hay exports in 2015)
- Japan
- Korea
- Taiwan
- ME
- Malaysia

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

ALDAHRA GLENVAR HAY

Stephen Lamond – Managing Director

METRICS

Turnover: $10-15m*

# of emp: N/A

DETAILS

Address: 220 Almeria Parade,
Upper Swan,
WA 6069

Phone: +61 8 9296 4767

ABN: 42 118 390 300

Year est: 2006

Website(s): www.glenvarhay.com.au
www.aldahra.com

OWNERSHIP

Type: Private

Country: Australia

Owner: Al Dahra Agriculture (UAE) majority, others

DESCRIPTION

Produce hay products for animal feed for the domestic and international markets, hay plant south of New Norcia, WA

OPERATIONS

- Hay production facility with the latest pressing and baling technologies, an in-house laboratory and storage facilities – 30-50,000t throughput

ACTIVITIES

- 2017 Al Dahra Agriculture acquired majority interest in Glenvar Hay

CATEGORIES

- Oaten hay
- Lucerne hay

BRANDS

MARKETS

- Domestic
- Korea
- Japan
- Middle East

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

BODIAM

David Wells – General Manager

METRICS

Turnover:	$20m* [Co. '16]
# of emp:	30

DESCRIPTION

Supplier of oaten hay to the dairy, beef, equine, sheep, goat, and camel industries across Australia, Asia and Middle East

CATEGORIES

- Oaten hay
- Wheaten hay
- Wheat, barley and oaten straw

DETAILS

Address:	Lot 300 Colebatch Street, Northam, WA 6401
Phone:	+61 8 9622 1632
ABN:	14 009 283 238
Year est:	1988
Website(s):	www.bodiam.com.au

OPERATIONS

- Facility in Northam, provides full traceability from paddock to end user
- 100,000 t/yr* production
- Branded product – 25kg to 600kg
- Ship in 40ft containers in pallet units

BRANDS

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Wells, Gillett families

ACTIVITIES

- 1988 Established Bodiam

MARKETS

- Japan
- South Korea
- China
- Taiwan
- Middle East
- Vietnam

*Company; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

KETTRIDGES

Mark Huisman – Managing Director

METRICS

Turnover: $10-20m*

# of emp: 8 (Management)

DESCRIPTION

Manufacturer of formulated stockfeed for cattle, dairy cows, sheep, alpaca, deer, goat, horses, pigs and chickens

CATEGORIES

- Pellets

DETAILS

Address: Cnr Harris Road & Golding Cresent, Picton, WA 6229

Phone: +61 8 9724 6800

ABN: 38 066 718 027

Year est: 1974

Website(s): www.kettridges.com.au

OPERATIONS

- Plant located at Picton, WA

BRANDS

OWNERSHIP

Type: Private

Country: Australia

Owner: Huisman family

ACTIVITIES

MARKETS

- Domestic

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

COOROW SEEDS

Brian Pover – Managing Director

METRICS

Turnover: $10-20m*

# of emp: 5*

DESCRIPTION

Production, distribution and export of seed, grain and value added products in the Midwest region, WA

CATEGORIES

- Cereals
- Oilseeds
- Pulses
- Pastures
- Lupin seeds, meal bran and splits
- Protein meal for aquaculture

DETAILS

Address:	14 South Street, Coorow, WA 6515
Phone:	+61 8 99521088
ABN:	41 115 404 683
Year est:	1995
Website(s):	www.coorowseeds.com.au

OPERATIONS

- Plant develops grain foods for stock feed markets, aquaculture and human consumption
- 1,000 ha farm

BRANDS

OWNERSHIP

Type:	Private
Country:	Australia
Owner:	Eramill Nominees

ACTIVITIES

MARKETS

- Domestic

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Kalgrains Pty Ltd

Name	Thompson and Redwood
Address	220 Almeria Parade, Upper Swan, WA 6069
Phone	+61 8 9296 4767
ABN	78 099 064 374
Founded	1985
Website	www.thompsonandredwood.com.au
Turnover	$10-15m*
Employees	35*
Ownership	Private; Australia (John Orr, others)
Products	Animal feed; grains, pellets, muesli, bird seed
Markets	Australia, Asia, Middle East
Capacity	Plant in Upper Swan; 30,000t grain and seed/yr; +90 product lines
Notes	Lovitt's domestic pet food at same site

Name	Kalgrains
Address	2069 Great Northern Highway, Bullsbrook, WA 6084
Phone	+61 427 096 085
ABN	84 085 373 333
Founded	1985
Website	www.kalgrains.com.au
Turnover	$5-10m*
Employees	4*
Ownership	Private; Australia (Davies)
Products	Lupin kernel meal for poultry and fish feed
Markets	Domestic
Capacity	Recently upgraded plant
Notes	Specialise in lupin dehulling; largest producer of lupin kernal meal; contract milling

Name	Balco Australia
Address	91 Copping Road, Brookton, WA 6306
Phone	+61 8 9642 0000
ABN	87 082 411 149
Founded	1990
Website	www.balco.com.au
Turnover	$60m AU (2015) [article]
Employees	60 AU [article]
Ownership	Public unlisted; Australia (Shanghai Yanhua Hi-Tech (China), Lawson, others)
Products	Oaten, wheaten, moby barley hay, straw
Markets	China, Japan, Taiwan, Korea, ME, Vietnam, Indonesia
Capacity	152,000t exports ('15)
Notes	Operations in SA and WA; Brookton site purchased in 2005; partnered with local government in SA to build railway to port; recent fire at SA operations

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

SP Hay

Name	SP Hay
Address	LOT 5753 Great Southern Hwy, Brookton, WA 6306
Phone	+61 8 9642 2222
ABN	74 093 703 765
Founded	2000
Website	www.sphay.com.au
Turnover	$5-10m*
Employees	N/A
Ownership	Private; Australia (Price)
Products	Oaten hay, straw
Markets	Japan, China, Taiwan
Capacity	Cropping 5,000ha in WA ('11); 24,000t of hay and straw exported, 30% of WA straw exports in '11
Notes	Based in SA

PENTARCH AGRICULTURAL

Name	Pentarch Narrogin Hay
Address	200 Wanerie Road, Narrogin, WA 6312
Phone	+61 8 9881 5566
ABN	73 104 157 593
Founded	2002
Website	www.pentarch.com.au
Turnover	$50-70m*
Employees	N/A
Ownership	Private; Australia (Pentarch Group)
Products	Oaten and wheaten hay, cereal straw
Markets	China, Japan, South Korea, Taiwan
Capacity	Processing plant in Narrogin; two production lines; 100,000t per annum
Notes	JV with Wilson Stockfeeds (NSW); building new hay export operation in Victoria for commissioning by 2018

NARRAKINE

Name	Narrakine Hay/Narrakine Western Choice
Address	1161 Albany Highway, Williams, WA 6391
Phone	+61 8 9885 6047
ABN	85 622 315 517
Founded	1970's
Website	www.narrakine.com
Turnover	$10-15m*
Employees	N/A
Ownership	Private; Australia (Harding family)
Products	Oaten hay, wheat, barley straw, grain products
Markets	China, Japan, South Korea, Taiwan
Capacity	30,000t hay per annum; 35,000t storage; 12 farmers supply
Notes	Processing and direct export of hay, straw and grain (Western Choice)

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

Name	Ballard Hay
Address	1510 Wagin Wickepin Road, Narrogin, WA 6312
Phone	+61 427 446 152
ABN	57 165 688 853
Founded	2013
Website	-
Turnover	$10-15m*
Employees	N/A
Ownership	Private; Australia (Ballard)
Products	Oaten hay, cereal straw
Markets	Japan, Taiwan, South Korea, China
Capacity	40,000t per annum; $2m invested in new press in 2015
Notes	

Name	Western Hay
Address	8872 Great Northern Highway, Bindoon, WA 6502
Phone	+61 8 9655 9062
ABN	24 639 847 585
Founded	2006
Website	www.westernhay.com.au
Turnover	$5-10m*
Employees	N/A
Ownership	Private; Australia (Rose family)
Products	Oaten and Rhodes hay, chaff
Markets	Domestic equine market; export
Capacity	Chaff mill; own transport fleet
Notes	

*Coriolis estimate; Source: company website; company annual reports; various published articles; Coriolis analysis and estimates

APPENDICES

Scope & project brief

This project was completed following the outlined scope and project brief

BACKGROUND

The Department of Agriculture and Food Western Australia (DAFWA) is committed to growing Western Australia's world class agriculture and food industries through excellence and innovation. DAFWA and industry have established the Agrifood 2025+ initiative, which seeks to double the real term value of sales from the agrifood sector by 2025.

Significant investment into the sector is required to achieve Agrifood 2025+, with estimates of investment needs ranging from $3 – 6 billion. If this level of investment is realised the transformation of the sector could contribute $6 – 12 billion additional value to the State's economy.

Attracting investment into the WA agrifood sector is not without challenges; the Western Australian (WA) agrifood sector is one of a multitude of investment opportunities across the globe, and WA businesses need to compete to gain this investment. To compete WA needs a compelling story which demonstrates why investment in the WA agrifood sector is a good strategy.

The development of comprehensive, investor ready information, which can be provided to prospective investors is a tactic successfully used elsewhere in the sector. The development of a similar package of information for WA agrifood industries will position businesses within the State to compete for this investment.

OUTCOME

The requested outcomes are designed to address the information gap in investment information within the agrifood sector.

The WA Government, through the Royalties for Regions (RfR) Seizing the Opportunity initiative, is investing over $300 million to support the transformation of the agrifood sector.

This investment information will span the gap between the operational aspects of the various RfR projects, and the goal of bringing significant investment into WA businesses.

Specifically, the project will develop an investment guides for the grains industry.

In achieving the above, the project was designed to build on the work of the Target Market Opportunities and Investment Ready Reports under the Asian Market Success RfR Project, and the Pathways to Competitiveness Report under the Agricultural Sciences R&D RfR Project, as well as other work completed by DAFWA.

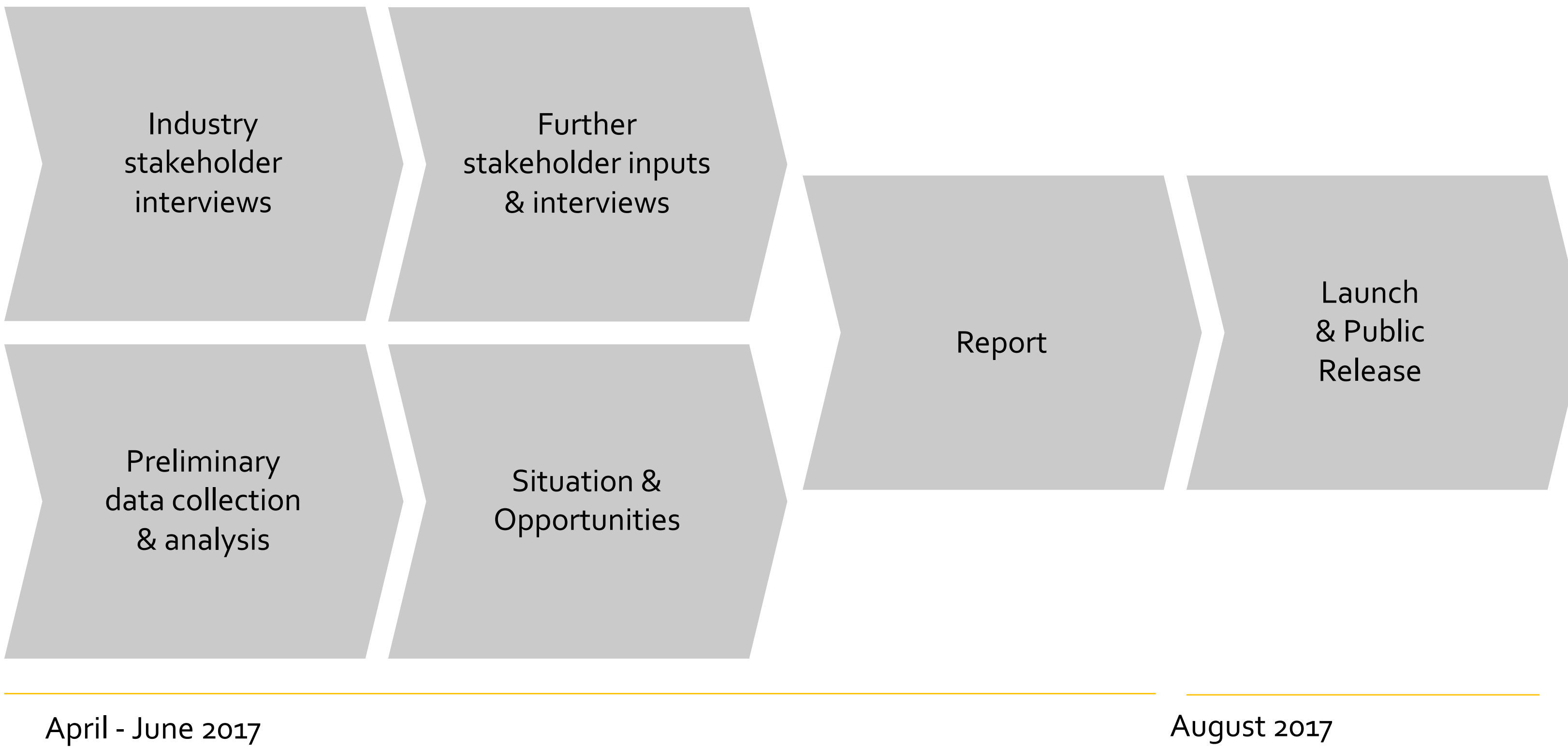
REQUIREMENTS

An investment guide will be developed for the grains industry. The investment guide will be structured as appropriate for their target audience and should address the following:

1. Develop a compelling, evidence based, investment story for the identified industries.
2. Provide an in-depth analysis of the identified industries, including macro-economic, micro-economic and firm level analysis.
3. Undertake analysis of production/processing across the supply chain for the identified industries, including the presentation of the supply chain.
4. At least one case study per industry of recent investment activity (within the previous 18 months).
5. WA firm profiles relevant to the identified industries (key WA companies by sector listed by annual turn-over ($sales/annum)).

Project process

This project combines data analysis with widespread stakeholder engagement



Stakeholder engagement

We thank the stakeholders who kindly provided their time and energy to the project

Stakeholders interviewed

- Andrew Bolt, Managing Director, Hay Australia
- Andrew Clark, State Manager, WA, National Australia Bank
- Angus Trigg, Director, GrainCorp
- Andrew Young, Managing Director, Plum Grove
- Ashley Wiese, Director, Three Farmers Quinoa
- Ben Macnamara, Business Development Manager, CBH
- Bill May, Managing Director, Unigrain
- Chris Tyson, Regional Director, Bunge Agribusiness
- Chris Maughan, Manager, Quaker Oats
- Crawford Taylor, State Manager, WA, Rabobank
- Darren Hughes, General Manager, Farming Systems & Agronomy, GRDC
- David Fienberg, Managing Director, The Lupin Co
- Dick McCagh, General Manager, WA, Emerald Grain
- Graham Laitt, Chief Executive Officer, Milne Agrigroup
- Graeme McConnell, Director, Planfarm
- Ian Longson, Policy and Business Development, GIWA
- John Orr, Managing Director, Premium Grain Handlers
- Jon Slee, Managing Director, Alba Oils + President Australian Oilseeds Federation
- Matt Bull, CEO Australia, Westchester Asset Management
- Munro Patchett, General Manager, Gilmac
- Ross Kingwell, Economics and Business Analysis Manager, AEGIC
- Tony York, Farmer and President, WA Farmers
- Troy Bungey, Regional Asset Manager, Westchester Asset Management
- Prof. Kadambot Siddique, Institute of Agriculture, UWA
- John Caitlin, Regional Director Singapore, DSD
- Alex Edward, DAFWA
- Andrew Duff, DAFWA
- Ian Wilkinson, DAFWA

Project sponsors

- Peter Metcalfe, Executive Director, Grains & Livestock, DPIRD
- Courtney Draper, Director, Food and Industry Development, DPIRD
- Liam O'Connell, General Manager, WA Open For Business

WAOFB – Business Development Managers support

- Susan Hall
- Nijaz Brkich
- Terry Burnage

Interviews & analysis

- Virginia Wilkinson, Research Director, Coriolis
- Tim Morris, Director, Coriolis
- Nicki Hall, Consultant, Coriolis
- Professor David Hughes, "Dr. Food", Imperial College, London

Acronyms

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AEGIC	Australian Export Grains Innovation Centre
AR	Annual Report
b	Billion
CAGR	Compound Annual Growth Rate
DAFWA	Department of Agriculture and Food, Western Australia
DSD	Department of State Development
EU	Europe
FAO	UN Food and Agricultural Services
FOB	Free on Board
FTA	Free Trade Agreement
GIWA	Grains Industry Association of Western Australia
m	Million
mt	Metric tonne
NSW	New South Wales
NT	Northern Territory
pa	Per annum
QLD	Queensland
ROW	Rest of World
SA	South Australia
t	Tonne
USA/US	United States of America
WA	Western Australia
WAOFB	Western Australia Open for Business
YE	Year End