GRAINS, PULSES AND OILSEEDS
Australia supplies food manufacturers and buyers around the world with a wide range of high performing and functional grains, pulses and oilseeds. Grading specifications, export contract standards and highly effective traceability systems ensure that consumers everywhere can trust the quality and safety of Australian products.

QUALITY, SAFETY AND INNOVATION

The industry’s long history of export success has been built on highly efficient, high-quality production for bulk agricultural commodity markets. A growing number of specialised exporters are now working directly with international customers seeking long-term supply of bulk foods tailored to specific requirements. In addition, Australian research and technical expertise across broadacre cropping is being applied around the world to improve food security and nutritional outcomes.

The Australian Government and industry are working together to meet the future needs of international markets through continuous research and development. Customer-driven innovation is supported by production and technical advice to keep millers, traders and food producers informed of the latest varieties’ functionality and suitability for different production processes.

INDUSTRY OVERVIEW

The grains, oilseeds and pulses industry is one of the most productive and efficient sectors of the Australian agriculture sector, comprising 24 per cent of total agricultural exports. The sector is strongly supported and promoted by the Australian Government, industry and research agencies.

Australia is one of the top five exporters in the world across many staple food categories, supplying over 50 international markets. Total exports of grains, oilseeds and pulses were worth A$10.3 billion in 2014-15, with wheat exports comprising A$5.4 billion and oilseeds around A$1.3 billion.

In addition to being a trusted global supplier of customised, traceable and safe inputs for food production and consumer uses, Australia is working with many countries to improve their domestic production systems and capabilities.

Australia’s grain production expertise has been developed over more than 200 years of challenging growing conditions, including low rainfall, variable quality soils and climatic extremes. These variables have been managed through continuous investment in research and development (R&D), technology and skills. This knowledge has transformed the productivity and profitability of the Australian industry and has been exported to many countries, providing solutions to common challenges of global grain production and distribution.

Australia’s capability to assist international grain production spans the entire supply chain, from R&D, plant breeding, on-farm equipment and technology through to innovative storage, handling and logistics systems. Australian education and training service providers play a key role in helping international students, government agencies and industry to promote and implement world-class innovation and education.
The following are some of the major export products:

**Wheat**
Wheat is Australia’s primary crop, accounting for more than half of national grain production, and Australia is the world’s fifth largest wheat exporter by volume. The Australian wheat industry supplies eight major classes of Australian wheat to international end-users. Classes are defined by varieties, based on inherent grain hardness, quality and suitability for specific purposes.

Australian wheat is the first choice of many international buyers as it produces a superior product to competitors. Attributes such as higher HLW (hectolitre weight), a lower percentage of screening and a better appearance (lower percentage of black points) are highly valued by bread producers in European and Middle East/North African markets and noodle producers across Asia. The white colour of wheat varieties such as Australian Hard (AH), Australian Premium White (APW) and Australian Standard White (ASW) means they are versatile and well suited to the production of traditional Asian foods like noodles, steamed buns, dumplings and flatbreads.

The low moisture content of Australian wheat is a significant advantage for many buyers, especially in Southeast Asia, as it offers safer storage under warm and humid conditions.

**Barley**
Australia is the world’s second largest exporter of barley. Annual barley exports in 2015-16 totalled 6.2 megatonnes, with Asia, predominantly China, the main export destination. Australia is known as a reliable supplier of high-quality, contaminant-free barley that is sought after by the malting, brewing, distilling, shochu and feed industries. A dark malting barley variety is preferred by buyers and Australia achieves the highest malting selection rate of the world’s barley exporting nations.
Sorghum
Sorghum is one of the world’s five most important cereals and Australia is a leading exporter, exporting 1.1 kilotonnes in 2015-16. Sorghum’s predominant role to date has been as a feed grain for the beef, dairy, pig and poultry industries. Now demand for the crop is growing as it is a key ingredient in the popular Chinese alcoholic beverage baijiu. Australian producers and research organisations are working to develop sorghum varieties with attributes that match the requirements for baijiu production.

Oats
Australia has earned a reputation as a leading exporter of high-quality, safe, food grade milling oats. Australian oats are becoming increasingly popular amongst international consumers for their taste, health and nutritional benefits. International producers of health foods, snacks and breakfast cereals select Australian milling oats for attributes like high milling yield and groat percentage, low moisture levels and ease of processing.

Pulses
Australia is an active exporter of pulse crops, with approximately 98 per cent of production destined for export markets, mainly the Middle East and North Africa. Australian pulse products such as faba beans offer a number of advantages including clean and dry beans and freedom from many common pests. Pulses like chickpeas and lentils can be supplied to meet specific international market requirements around traits such as size, uniformity, colour, splitting quality and cooking characteristics.

Lupins
Australia is the largest exporter of lupins and lupins represent the largest pulse crop domestically. Australian sweet lupins are high in protein, dietary fibre, and antioxidants, very low in starch, and like all legumes, gluten-free. Lupins are highly valued for feed and fodder for livestock and in aquaculture for fish meal. There is growing recognition of the potential of lupins for human consumption, particularly as an ingredient in processed foods.

Canola
Canola is Australia’s largest oilseed crop. Australia is recognised as a producer of high-quality non-GMO canola oil, which is increasingly in demand throughout the EU and North Asia.

Improved varieties of canola, containing higher levels of components such as tocopherols, sinapine, fibre and energy and reduced amounts of undesirable substances like erucic acid in the oil, are highly valued by consumers in Southeast Asia.

CASE STUDY
FRPG WINS PREMIUM OPPORTUNITIES OVERSEAS
A carefully tailored market strategy is paying off internationally for a South Australian grain company.

Founded by four farming families in the Flinders Ranges region of South Australia, Flinders Ranges Premium Grain (FRPG) made an early decision to move out of the commodities market to focus on marketing premium, single-origin wheat, grown using sustainable environmental practices. The company has been exporting to the hospitality industry in India since 2006 and is now seeing its products gaining new customers in the Middle East.

FRPG’s wheat produces a high-protein, extensible flour ideal for western-style bread and frozen dough items used in quick-service restaurants. Through its Indian trading partner, flour manufacturer Bakers Circle India, which supplies major chains such as Subway, FRPG recently won a contract with the company’s new dough manufacturing plant in Dubai.

The wheat flour is also suitable for high-end artisan style breads, laminated pastry products, high protein noodles and pasta style products. FRPG’s single-origin wheat is gaining popularity with the growing artisan baking sector in eastern Australia for use in sponge and dough baking.

Peter Barrie, FRPG CEO, says ‘it is a point of pride that Flinders Ranges Premium Grain is becoming recognised as a premium food company rather than a soft commodity supplier. Increasingly in Australian wheat, growers have an opportunity to value-add their product by producing premium flour, which can more than double its value when exported’.

flindersgrain.com.au
PROXIMITY TO MARKET

Australia’s geographic location and proximity to key markets represents important cost advantages for many international buyers. Australia has a competitive shipping advantage in Asia, especially Southeast Asia. As an example, sea transit time to Indonesia, a major buyer of Australian wheat, is 6.5 days from Western Australia and 13.5 days from New South Wales. This is approximately 25-50 per cent of the transit time from many other major wheat exporting countries such as the US, Canada and Ukraine. As a result, Australian bulk freight rates are a third to half those of the US, which equates to a current cost advantage of about US$15–22/tonne.10,11

CUSTOMISED PURCHASING OPTIONS

Deregulation of Australian wheat exports, greater investment across the supply chain and growth in export market demand has led to an increase in the number of Australian exporters of grain, pulses and oilseeds. International customers can now deal with a wider variety of Australian suppliers, meaning greater flexibility and availability of differentiated, bulk and containerised products. These changes also mean that growers, exporters and customers can now work more closely together.

TAILORED PRODUCT INFORMATION AND TECHNICAL SUPPORT SERVICES

International customers benefit from crop production information and technical support services provided by Australian exporters, industry associations and government.

These firms and agencies deliver in-market educational seminars and one-on-one consultations, providing specific information about production and product functionality relevant to local market and buyer requirements. Support services in over 20 countries provide new and established buyers with the information they need to select Australian products with the attributes that will yield higher quality and more profitable final products.

The industry also produces a number of publications that are distributed globally. Australian Export Grains Innovation Centre (AEGIC) assists international customers with information on the wheat, oats and flour properties of major Australian wheat grades in each season, as well as other grain varieties such as malting barley.

BREEDING PROGRAMS, RESEARCH AND INNOVATION

Plant breeding is an important tool in global food security, offering the potential for development of new crop varieties with higher yields, pest and disease resistance, drought resistance or adaptation to different regions, environments and growing conditions.

Australia’s plant breeding and seed industry has a long history of exporting to growers around the world. Australia has developed many new varieties to deliver improved quality, agronomic fit, and demonstrated benefits to growers in different climate zones. Industry and government investment in R&D supports a number of breeding programs which aim to maximise sustainable production, accelerate the adoption of superior grain varieties and improve the overall quality of seed available to growers.

Innovation in plant breeding is supported by breeding and quality programs like those of Pulse Breeding Australia and the National Oat Breeding Program.
ON-FARM PRODUCTION AND QUALITY IMPROVEMENT

In response to growing global food demands and food security priorities, agricultural producers around the world are looking to implement more efficient production techniques, improve soil quality, minimise water use, improve productivity, achieve cost savings, maximise product quality and add value.

Australia has been a pioneer in the development and early adoption of on-farm production technologies such as precision agriculture techniques that assist and improve the efficiency of planting, spraying and harvesting. Sensing technology (including satellite, drone, ground-based and soil-implanted applications) is now being used on a routine basis to monitor crop health and to time crop inputs. Australian knowledge and technology is also being adopted by many international producers to manage the challenges of climatic volatility and production in remote regions and to improve traceability and quality assurance systems.

STORAGE, HANDLING AND EQUIPMENT

Grain producers, importers and exporters around the world are constantly seeking solutions to minimise product wastage and safeguard the integrity and quality of grain through the global supply chain.

Australia’s warm and humid conditions and long ‘paddock to port’ distances have led to organisations such as CSIRO, Grains Development and Research Corporation (GRDC) and industry pursuing innovation in storage, handling, distribution and testing technologies.

This investment is assisting international growers to manage and control storage pests and leverage the best aspects of chemical and non-chemical controls. Australian aeration and drying equipment is used internationally to minimise moisture, and many companies use Australian grain handling systems, storage structures, silo design and fabrication solutions, particularly in the warm climates of South America, South Africa, the Pacific Islands, the Middle East, South and Southeast Asia.

CASE STUDY

STORING UP SUCCESS: AGRIDRY WINS BUSINESS AROUND THE WORLD

From its base in Toowoomba, Queensland, manufacturing company Agridry has been supplying dryers and aeration products to the agricultural and food processing industries for four decades.

Focusing its design and manufacturing strengths on grain dryers, aeration systems and food processing dryers, the company has established a global reputation for the quality of its Australian-made products. Its range of portable self-contained units designed for heavy duty use in extreme conditions and isolated locations has helped Agridry gain customers across Australia, New Zealand, Asia and Africa.

Agridry produces a range of continuous flow, stationary and mobile dryers and mobile batch for feed and food products like corn (maize), wheat, barley, sorghum, rice, oilseeds like canola (rapeseed), sunflower, and nuts like peanuts, macadamia nuts, almonds and pistachio nuts. The dryers are particularly suited to all types of grains, seeds and pulses, and can also be adapted and customised for products like wood chip, leaves, bark, proteins, coffee and cassava. Agridry’s machines can be used to cool many products that will flow in an even manner under the influence of gravity.

Agridry also produces controlled aeration systems that facilitate effective cooling of products in storage, allowing grain to be stored at higher moisture levels and reducing moisture and temperature fluctuations. This in turn helps to extend storage time by reducing mould and insect activity.

agridrydryers.com.au
FOOD SAFETY, TRACEABILITY, QUALITY ACCREDITATION AND BIOSECURITY

Australia has a rigorous regulatory environment, supported by a government and industry framework that underpins the reputation of Australian agricultural exports for quality and safety. This framework has been a model for many countries around the world.

Control of chemical residues is a high priority for domestic buyers as well as for importers. The Australian Pesticide and Veterinary Medicines Authority (APVMA) is the Australian Government statutory authority responsible for assessing and registering all agricultural and veterinary chemical products into the Australian marketplace. The Australian Government’s National Residue Survey (NRS) analyses export grain samples for chemicals and environmental contaminants to ensure grain is safe for consumption. Testing is conducted on a random basis and also as part of the requirements of specific testing protocols.

Australia actively contributes to developing international science-based food standards through the Codex Alimentarius Commission and its subsidiary bodies. CODEX Australia, working with other key government agencies through the National Working Party on Grain Protection, ensures that Australian grain is delivered to end users free of grain insects.

Biosecurity implementation in the grains industry is being achieved through the Grains Farm Biosecurity Program, which is delivered by Plant Health Australia (PHA) and funded by growers through Grain Producers Australia together with the New South Wales and Queensland state governments. PHA plays a national coordinating role in plant biosecurity in Australia, working with federal, state and territory governments and industry to minimise plant pest impacts on Australia and support international market access.

The Australian wheat variety classification system ensures that buyers can be confident of receiving grain of consistent physical quality, processing performance and end-product quality, whether for human consumption or for animal feeds. Another benefit of the system is that it provides customers with reliable information about the processing and end-product qualities (such as dough strength, baking performance and extensibility) of new varieties to best meet market requirements.12

Wheat Quality Australia is a not-for-profit organisation responsible for national wheat variety classification and related activities. Each delivery of wheat from a farm is awarded a commercial grade after it has been sampled and tested according to the Australian wheat standards, including variety declaration, protein content, test weight, screenings and grain defects. Grain Trade Australia publishes wheat receival standards for commercial grades of wheat in Australia.

The Australian Grain Industry Code, established through Grain Trade Australia, ensures grain trading contracts and trade rules reflect customer requirements and brings legal rigour to commercial grain trading activities. Australia is the only exporting nation with this type of code of practice.

CASE STUDY
TEAMING UP TO TACKLE KHAPRA BEETLE

Australian and Indian researchers are working together on new ways to detect and control khapra beetle. Rated as the world’s most serious pest of stored grain, khapra beetle can cause losses of up to 70 per cent. It is particularly difficult to control due to its ability to go long periods without food and to withstand many chemical treatments. The main chemical control, methyl bromine, has been banned since 2015 under the Montreal Protocol.

Australia’s khapra-free status is important for access to valuable international markets, and an infestation could potentially cause huge losses for Australian agribusiness. Improved detection and control methods offer the potential to reduce this risk and help safeguard Australia’s access to premium markets. For the Indian grain industry, better management and control options can potentially reduce grain losses and assist export market development.

The research collaboration involves Murdoch University’s Biosecurity and Food Safety Laboratory, the Indian Agricultural Research Institute and the National Institute of Biotic Stress Management (India). Its goals are to develop a rapid, effective and cheap diagnostic tool, as well as safe, effective and cheap eradication methods.

Work began in 2012 with preliminary research conducted in Australia by a visiting research scientist from India. Because khapra beetle is a quarantine pest in Australia, the warehouse beetle was used for this preliminary research, and trials with khapra beetle occurred in India. The initial work yielded encouraging results using the new-generation chemicals ethyl formate and ethanedinitrile and modified atmosphere (high nitrogen, low oxygen) conditions. This was then replicated in India using khapra beetles.

The project is scheduled to continue for two years and aims to deliver a data package to industry, including bulk handlers and quarantine authorities.
EDUCATION, TRAINING, SKILLS AND RESEARCH

The future of food and agricultural production in many countries will be built on local agricultural skills and education, the transfer and adoption of the latest technologies, and the sharing of best-practice knowledge and advisory services.

Australia has a distinguished history of international collaboration and investment in R&D involving government, academic and research centres and industry bodies. This has contributed to improvements in international grain industry production through lowered production costs, increased yields, improved sustainability and more efficient resource allocation.

Australia is a recognised leader in agricultural R&D across areas such as cereal pre-breeding, diagnostics, genomics, transgenics, bioinformatics and biosecurity. The work of CSIRO and universities has played a critical role in preventing and responding to pests and diseases which pose a hazard to grain production.

Tertiary, vocational education and registered training organisations (RTOs) throughout Australia deliver courses at bachelor and postgraduate level to international students specialising in fields such as agronomy. Australia’s education sector also delivers courses to international agricultural companies and government agencies, tailored to local market conditions and the issues of their domestic production systems. An additional cost-effective solution for many international students is transnational course delivery in their home countries.

CASE STUDY
AUSTRALIAN RESEARCH LEADS THE WAY TOWARDS OMEGA-3 CANOLA

World-leading research underway in Australia aims to develop a new generation of canola by shifting production of omega-3 oils from marine plants to a land-based crop.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Australian Grains Research and Development Corporation (GRDC) and Nuseed (a wholly owned subsidiary of Nufarm Ltd) have joined forces to develop long chain omega-3 canola. The omega-3 technology has the potential to open up new opportunities for canola growers around the world, including in Australia.

Omega-3 oils have been recognised as having important health benefits, particularly for brain and eye development and for early childhood growth. One such oil, docosahexaenoic acid (DHA), is also linked to reduction of blood pressure and the risk of coronary heart disease, as well as stroke, type 2 diabetes, Alzheimer’s disease, inflammatory disease and asthma. Because of these human health benefits, omega-3 oils are in increasing demand as well as having a role as a feed additive in the world’s rapidly growing fish-farming industries. The research by CSIRO, GRDC and Nuseed aims to support future production of canola oil that offers the beneficial health outcomes associated with omega-3, while easing heavy worldwide pressure on fish stocks.
INDUSTRY AND RESEARCH ORGANISATIONS

The following are some of the organisations involved in the Australian grains sector. Contact your local Austrade representative about connecting and partnering with the Australian grains sector.

**Australian Export Grains Innovation Centre (AEGIC)**
Based in Perth, Western Australia, AEGIC supports the trade and use of Australian grains around the world through cutting-edge grain quality and processing technology and market research innovation. [aegic.org.au](http://aegic.org.au)

**Australian Grains Exporters Association (AGEA)**
is an independent, autonomous and not-for-profit association of Australian grain export organisations. AGEA represents its members to facilitate an efficient and effective export industry, and support Australian grains and oilseeds in domestic and export markets. [agea.com.au](http://agea.com.au)

**Australian Oilseed Federation (AOF)** was established to represent the common interests of all Australian oilseed industry participants and to promote the development, expansion and improvement of Australian oilseed production. [australianoilseeds.com](http://australianoilseeds.com)

**Barley Australia** is the peak industry body for the Australian barley industry, increasing recognition and international competitiveness of quality Australian barley through accreditation of malting barley varieties grown in Australia, supply chain integrity programs, and management of R&D projects. [barleyaustralia.com.au](http://barleyaustralia.com.au)

**Grain Industry Market Access Forum (GIMAF)** is a forum of peak industry bodies in the grains, seed and fodder sectors. It represents members and works with government to develop and implement market access plans for the industry. It also builds upon the strong market positioning of the grains industry and ensures Australia proactively responds to changing market conditions. [gimaf.com.au](http://gimaf.com.au)

**Grain Growers** is Australia’s only national, independent, member based grain producers organisation. Its objective is to make a more efficient, sustainable and profitable grains industry for all Australian grain producers. [graingrowers.com.au](http://graingrowers.com.au)

**Grains & Legumes Nutrition Council** is a not-for-profit company and recognised health promotion charity that promotes the health and nutrition benefits of grains, grain-based foods and legumes as part of a balanced diet through evidence-based information. [gln.org.au](http://gln.org.au)

**Grains Research and Development Corporation (GRDC)** is one of the world’s leading grains research organisations, responsible for planning, investing in and overseeing Research, Development and Extension (RDE) to deliver improvements in production, sustainability and profitability across the Australian grains industry. [grdc.com.au](http://grdc.com.au)

**Grain Producers Australia (GPA)** is the national representative body of Australia’s broadacre, grain, pulse and oilseed producers. GPA engages all sectors of the Australian grains industry to ensure the most efficient and profitable grain supply chain and facilitate a strategic approach to RDE to deliver sound commercial outcomes from industry research. [grainproducers.com.au](http://grainproducers.com.au)

**Grain Trade Australia (GTA)** is the focal point for the commercial grains industry within Australia and acts to ensure there is an efficient, equitable and open trading environment. GTA is non-political, industry-driven and managed, and its primary focus is to provide the commercial rules and grain trading standards that are used across the entire Australian grain industry. [graintrade.org.au](http://graintrade.org.au)

**Pulse Australia** is the peak industry body that represents all sectors of the pulse industry in Australia, from growers and agronomists through to researchers, merchants, traders and exporters. [pulseaus.com.au](http://pulseaus.com.au)
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ABOUT AUSTRADE

The Australian Trade and Investment Commission – Austrade – contributes to Australia's economic prosperity by helping Australian businesses, education institutions, tourism operators, governments and citizens as they:

- develop international markets
- win productive foreign direct investment
- promote international education
- strengthen Australia’s tourism industry
- seek consular and passport services.

Austrade helps companies around the world to identify and take up investment opportunities in Australia as well as to source Australian goods and services.

Our assistance includes:

- providing insight on Australian capabilities
- identifying potential investment projects and strategic alliance partners
- helping you to identify and contact Australian suppliers

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