



FINAL REPORT

Drivers of demand for Australian agricultural products

*Prepared for
Australian Council of Learned Academies
January 2015*

The Centre for International Economics is a private economic research agency that provides professional, independent and timely analysis of international and domestic events and policies.

The CIE's professional staff arrange, undertake and publish commissioned economic research and analysis for industry, corporations, governments, international agencies and individuals.

© Centre for International Economics 2015

This work is copyright. Individuals, agencies and corporations wishing to reproduce this material should contact the Centre for International Economics at one of the following addresses.

CANBERRA

Centre for International Economics
Ground Floor, 11 Lancaster Place
Canberra Airport ACT 2609

GPO Box 2203
Canberra ACT Australia 2601

Telephone +61 2 6245 7800
Facsimile +61 2 6245 7888
Email cie@TheCIE.com.au
Website www.TheCIE.com.au

SYDNEY

Centre for International Economics
Suite 1, Level 16, 1 York Street
Sydney NSW 2000

GPO Box 397
Sydney NSW Australia 2001

Telephone +61 2 9250 0800
Facsimile +61 2 9250 0888
Email ciesyd@TheCIE.com.au
Website www.TheCIE.com.au

DISCLAIMER

While the CIE endeavours to provide reliable analysis and believes the material it presents is accurate, it will not be liable for any party acting on such information.

Contents

Abbreviations	1
Summary	2
1 Setting the scene	7
Context for this report	7
The reality: international population and income growth	8
Global growth	8
Trade, food security, food self-sufficiency	10
2 External influences on demand for Australian agriculture	14
Macroeconomic policy influences	14
Consumer driven demand disruptions	17
International biofuels policies	18
3 Changing international consumer preferences	21
Communication with consumers	21
Demand for new products	25
The role of technology and telecommunications	27
Domestic consumer preferences	28
4 Positioning Australia in the international market	32
Expected trade patterns	33
Bulk commodities and specialised products	35
Accessing the markets	38
Australia's clean and green reputation	41
5 Conclusion	43
References	44
BOXES, CHARTS AND TABLES	
1 Positioning Australia in international markets	5
1.1 Population growth by region	9
1.2 Growth in per person GDP for key regions	10
1.3 Summary of self sufficiency policies for key regions	11
3.1 Profile of product attributes for agricultural products	22
3.2 Distribution channel is also important (in order)	23
3.3 Organic retail sales by region	26
3.4 Sources of food consumed in Australia	29
3.5 The spectrum of domestic demand by price, convenience and attributes	31

Abbreviations

ACOLA	Australian Council of Learned Academies
BSE	Bovine spongiform encephalopathy
CIE	Centre for International Economics
FDI	Foreign Direct Investment
GFC	Global Financial Crisis
SAF	Securing Australia's Future
WPI	World Price Index

Summary

This report

The Australian Council of Learned Academies (ACOLA) has commissioned the Centre for International Economics (CIE) to identify the key drivers of, and barriers to, demand for Australian agricultural products in the medium term, over next two decades.

The potential for increased global demand for agricultural products as a result of global growth in population and incomes, especially from the Asian region, is well known and has been quantified. It is understood that:

- global population growth accompanied by increasing incomes, in particular a large emerging middle class in many developing countries, will drive demand for agricultural products over the next 20 years; however
- these high level-trends are composed of detailed compositional changes that result from government policies, rural-urban demographic shifts and dynamics in consumer behaviour.

Governments and consumers will always have dominant roles

Translating global population and income growth into opportunities for Australian producers, in Australian and overseas markets, depends on a number of factors including:

- food self-sufficiency rather than food security policies — where developing economies target self-sufficiency, price volatility and trade restrictions result, food security policies on the other hand are likely to promote domestic producers as well as promote trade relations
- growing domestic processing industries — it has been observed for many years that developing countries are targeting investment on domestic processing industries which has the effect of focusing trade on raw or minimally transformed commodities as well as increasing international competition in processed goods
- market specific product quality demands — where consumers in different markets are known to demand specific attributes in products that are best supplied through domestic processing and blending of imports from different countries/sources, competition for access to these markets is predominantly on price for quality specifications on ingredients with limited brand recognition in the final processed product.

Similarly, macroeconomic influences on our trading partners and competitors remain critical to demand for Australian agricultural products. Key current examples include:

- the hurdles India is facing to ensure economic development continues and the middle class is allowed to ‘emerge’ with the understanding that where development and

income growth is constrained, this may have a dampening effect on the growth in demand for agricultural products

- centralised Chinese government policies affecting the rate of domestic demand growth
- protectionist policies of Argentina reducing exports and increasing domestic price variability.

Taking a global perspective, the emergence of biofuels has been a significant contributor to increased prices of all agricultural commodities, market observers indicate that these demands will effectively underwrite world prices at those higher levels established after the Global Financial Crisis (GFC).

Developments in biofuels policy, in concert with increased speculation in commodity markets, have resulted in highly correlated prices between oil and across all agricultural commodities.

- We also expect that biofuels demand will add to greater variability in all agricultural prices over time, because government policies result in biofuels demand being unresponsive to changes in feedstock prices.
- Over the next 20 years, with increasing concerns for food security, there will be greater pressure on the development of alternative technology and feedstock sources including greater use of by-products and cellulosic fibres to mitigate this impact.

Responding to changing consumer preferences will be critical...

Rising global income levels is resulting in large shifts in consumer preferences. Consumers are more connected with communications technologies, are increasingly more educated in environmental issues and are seeking convenience and status in consumption. These factors are combining to create a consumer market that is demanding not only more products, but also more information. In the future, having a good product will not be enough — targeted marketing, packaging and a carefully managed distribution strategy will be critical to getting consumers to purchase a product.

Understanding the distribution channels that consumers use in purchasing products is also a key driver to ensuring product demand is maintained. Where economic development and income growth will likely change shopping patterns, driven by changing product demand, these changes may be limited in the short to medium term by factors such as a growing use of servants and assistants.

... as will innovative new products

Demand for innovation and novelty in products is also growing in line with income growth. However, while new product categories will provide short to medium term profitability, all products will be subject to increasing market competition. Like traditional agricultural products, products with new attributes that are attractive to consumers are unlikely to be able to maintain premiums for sustained periods.

Demand for organics is a key example where even with a very small international market penetration; profit margins are beginning to be compressed.

Australian consumers are not a special case

The domestic market for Australian agricultural products can be viewed on the spectrum of the international market. Consumers are looking for increased convenience, information and price competitiveness. To promote demand for Australian agricultural products, suppliers must target these demand characteristics through careful selection of packaging size and composition, labelling information and distribution channels.

However, in trying to target the domestic consumer, Australian producers are increasingly facing competition in price sensitive markets. Australian products need to be able to identify their target market of domestic consumer — trading off either ‘price and convenience’, ‘price and product attributes’ or ‘product attributes and convenience’. International competition is likely to be greatest in the market segments where price is a dominant factor.

Acquiring and maintaining legal market access is a priority...

The increasing prevalence of preferential trade deals (or free trade agreements) provides increased market access to Australian agricultural products. However, Australian producers still need to clear the hurdles to meet consumer demand from these markets.

- Increasingly, strategic partnerships between Australian producers and international producers, marketing agencies and distributors are driving increased market access and consumer awareness of Australian products.
- Foreign direct investment is likely to provide an advantage in sourcing international finance for expansion of Australian production while providing supply chain surety to our investing trading partners.

..so is building on Australia’s clean and green image

Reassuring consumers of the superior quality of Australian products is a key factor in successful export market activities. This represents a joint responsibility between government authorities and industry (gaining market access) and exporters (promoting and marketing of products).

- Australia’s clean and green reputation can help to build and maintain a market presence for both bulk commodities and high value, highly transformed final products.

What we can expect looking forward

Drawing together international trends in population and income growth, changing consumer characteristics and government policies, the dominant trends expected in agricultural trade in coming years include:

- developing countries boosting domestic processing capacity and increasing demand for raw or minimally transformed products;
- increased supply of minimally processed and fully processed food products from these developing countries;

- Australia maintaining a strong international presence exporting bulk, minimally transformed agricultural commodities with these commodities likely to continue to account for a large proportion of the value and volume of Australian agricultural exports;
- Australian producers making use of the strong potential demand for high value, highly transformed Australian agricultural products that can attract a premium even in the face of exchange rate movements;
- Australia, in general, being unable to compete on price internationally in markets for processed intermediate products;
- Australian expertise and technology, such as genetic material, to play an important role in Australia's agricultural exports.

A strategic approach for the future

Drawing together the findings of this report, table 1 summarises the activities that need to be undertaken to support Australia to capitalise on growing international demand for agricultural products.

1 Positioning Australia in international markets

	Capabilities required			
	Information systems	Strategic alliances	Enabling R&D capacity	Government support
Themes to compete in global markets				
Understanding consumers	x	x		
Understanding competitors	x	x		
Maintaining and improving productivity			x	
Innovation in product offering	x		x	
Maintain and improve market access	x	x	x	x
Maintain and improve Australia's clean and green image			x	x
How these can be achieved				
Increase business scale and integration	x	x	x	
Collaborate and compete models	x	x	x	

Source: CIE.

For Australian agriculture to capitalise on growing international demand there is a strong need for information. This information requirement is a multifaceted puzzle for producers, exporters, competitors and consumers. On the one hand, consumers are demanding more and more information from producers in terms of production processes. At the same time, to ensure marketing is targeted efficiently, producers need to

understand the way consumers are approaching product choices in each of the countries in which they operate.

Further, recognising that across the range of traditional and potential exports Australian exporters are relatively small players indicates the importance of market research to identify strengths and weaknesses of competitors. For fresh products especially, this would include information on specific product lines sourced from competitors and the timing windows of competitor products and Australian products. Opportunities exist where there are gaps in the product offering or seasonal windows of other suppliers. Developing strategic alliances with domestic distributors, market research organisations or even competitors within these markets can often provide significant gains.

The role of government should be clearly defined in terms of maintaining and improving market access and managing Australia's wider 'clean and green' image. The benefits from these government actions are public and are required at a scale that cannot generally be achieved by agricultural producers.

Critical mass and reliability of supply are key components of achieving broad success in these agricultural markets over time. That is, economies of scale are likely to be key components of successful agricultural operations in a world of growing demand. The options available to producers to achieve these economies of scale are to either increase business scale and supply chain integration within an operation, or to participate in a collaborate and compete type environment, leveraging off the experience of other businesses to gain market position and then compete on a product level once established.

1 *Setting the scene*

Context for this report

In June 2012, the Australian Government announced Securing Australia's Future (SAF), a \$10 million investment in a series of strategic research programs delivered to the Australian Chief Scientist. Coordinated by ACOLA, Australia's four Learned Academies are working together to deliver research-based evidence to support policy development in areas of importance to Australia's future.

Agriculture is rightly seen as an important part of the Australian economy and an area of significant comparative advantage. SAF project seven, *Australia's Agricultural Future* commenced in July 2014 and is seeking to provide a bold insight into the future of Australia's agriculture. As part of this research program, a body of research has already been assembled by ACOLA including:

- Food and Fibre, Australia's Opportunities¹
- Australia's Comparative Advantage²

The key findings of these documents identified:

- the need for a long term strategy to be developed, focussing on export growth and high value-add products;
- the positive role that 'Brand Australia' could play in furthering Australia's competitive advantage in safe and high quality products;
- the need to continually innovate to maintain a competitive presence, furthering technological advances in production processes, product attributes and trading partnerships; and,
- the important role that collaboration and cooperation between producers, politicians, researchers and marketers can have in reinforcing growth.

ACOLA has commissioned the CIE to prepare an issues based report that identifies the drivers of, and barriers to, demand for Australian agricultural products over the medium term (over the next two decades). Two separate reports commissioned by ACOLA parallel to this one consider:

- Drivers and barriers to Agricultural Supply in Australia
- Australian Agriculture's Social and Political Context.

¹ ATSE (2014) Food and Fibre: Australia's Opportunities

² ACIL Allen Consulting (2014) Australia's Comparative Advantage in Agriculture

The reality: international population and income growth

With well documented and anticipated global population growth over the coming decades, global demand for agricultural products is also increasing. Agricultural products are required to both feed the growing populations, as well as providing fibre and infrastructure through other development based agricultural commodities such as timber and timber products.

The prospects for global demand for food and beverages, and to a lesser extent natural fibres, has been anticipated and comprehensively documented by a number of forecasting agencies for many years. Typically, these agencies take a macro approach on a commodity-by-region basis. Potential demand going forward is a function of population and income growth and average relationships between food expenditure and income.

The key findings include:

- demand by the emerging middle classes in China, India and Indonesia will ensure strong demand for agricultural products out past 2030;
- world prices and opportunities for suppliers, including Australian exporters, largely depend on supply-side factors that include cost of production and relative exchange rates, market access regimes and the initiatives taken to increase market share through differentiation and marketing.

Australia, and all agricultural producing nations, will share in this demand growth, capitalising on it based on individual supply side constraints.

This section of the report discusses the scale of international growth in demand for agriculture, and domestic policies of developing countries — self-sufficiency and domestic processing — that will either encourage or inhibit demand for traded agricultural products.

Global growth

Global population growth is being accompanied by increasing incomes, in particular a large emerging middle class in many developing countries.

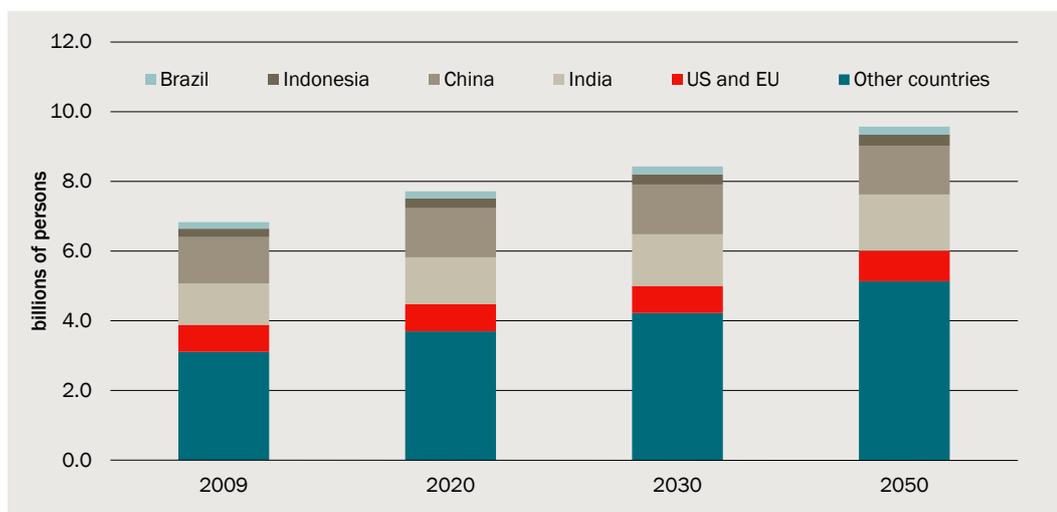
In addition, developing countries are increasing the economic share of services and manufacturing activities while their populations become increasingly urbanised.

These trends are driving both a need to increase capital productivity in domestic agriculture (which may not always be possible based on general rates of economic development) and/or increase trade exposure of agriculture industries. This in turn provides opportunities for countries such as Australia.

Internationally, there is strong and continuing growth in demand for agricultural products. Australia is expected to experience strong demand growth, just as our trading competitors will.

The global population is expected to reach 9.6 billion people by 2050. This is an increase of approximately 2.5 billion people in 40 years (see chart 1.1). This equates to a

1.1 Population growth by region



Data source: UN demographic projections.

minimum 40 per cent increase in demand for food products to sustain the world's population.³

However, increasing demand for food and agricultural products will not be linear, with regional and country specific factors such as economic growth, household income, social demographics and government policy playing a significant role.

Chart 1.2 shows that the key economies in the Asian region are expected to continue to be key drivers of the global economy:

- China is expected to sustain average growth rates in GDP of around 8 per cent out to 2020 and beyond
- while India slowed through 2013, economic growth is expected to pick up to between 6 and 7 per cent out to 2020.

Structural change in the composition of households and their expenditure pattern is expected to accompany income growth in these key markets. Out to 2030, 3 billion people are expected to move into the 'middle class' from the emerging economies and with this socio-economic shift, significant changes in the pattern of international agricultural demand are expected.

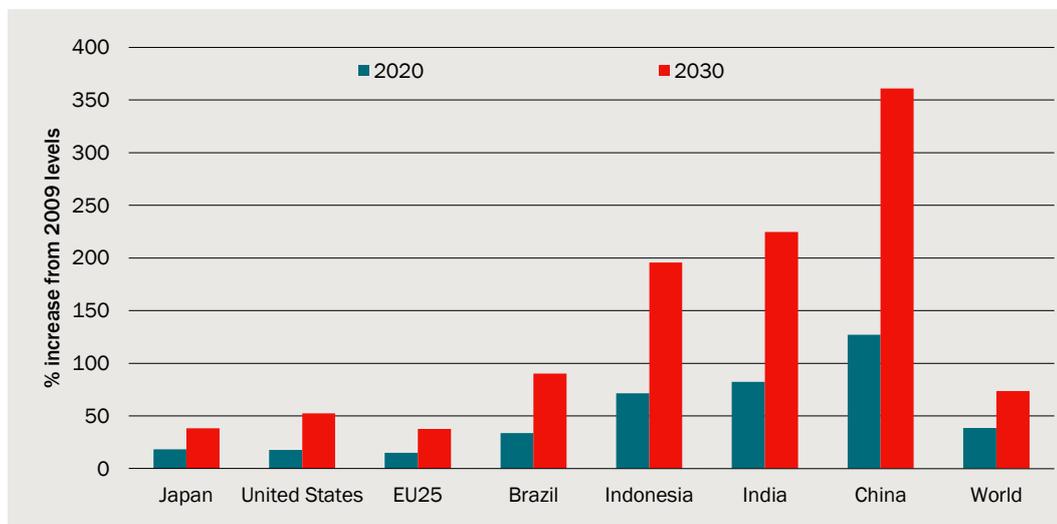
Over 80 per cent of the people moving to the middle class are expected to be from the Asia Pacific region. This trend is supported by economies transitioning from predominantly agriculture based to increasingly manufacturing and services based, as well as high level of rural to urban population migration (Kharas et al, 2010).

This economic change in developing countries provides a double impact to international agricultural trade:

- a gross increase in the level of demand for agricultural products driven by population and income growth

³ FAO (2009) Global agriculture towards 2050. High Level Expert Forum

1.2 Growth in per person GDP for key regions



Data source: International Monetary Fund, World Economic Outlook Database, and UN Demographic projections.

- increased pressure domestically for increasing capital productivity in rural agricultural areas or increasing reliance on international trade with populations transitioning from rural to urban areas.

In contrast, it is expected that the middle class in the United States and Europe is shrinking or at best static.

It is well understood that income growth generates increased demand for animal-based proteins in developing countries, and for higher end ‘first world’ foods — for example, with attributes such as sustainable, green, organic etc. This will lead to a substantial change in where consumption of food and meat red takes place between 2009 and 2030. Feeding these people, and satisfying their requirement for protein, will be critical to continued economic growth in for each country and for the global economy.

Trade, food security, food self-sufficiency

Where governments move from food self-sufficiency toward food security policies, trade in agricultural products expands, however, increased trade will likely be focussed on raw or minimally transformed commodities initially as:

- governments focus on supporting and growing domestic processing industries; and;
- consumers demand specific attributes in products that are best supplied through domestic processing and blending of imports from different countries/sources.

The effect of population growth on global trade depends heavily on both the consumption deficit for individual countries (reflecting physical productivity constraints) as well as access to international markets — largely determined by policies to improve self-sufficiency. While these policies are often considered politically popular, history provides evidence that compromise is often necessary over time. Often it becomes

apparent that domestic productivity cannot keep pace with domestic demand at competitive price levels, due to either (or both):

- the scale of demand growing too quickly for current production to keep pace
- consumer preferences changing too rapidly for domestic production systems to adjust to new products, for example moving from rice to wheat, or plant proteins to animal proteins.

In such cases, self-sufficiency objectives transition into domestic processing industries accessing imports of raw commodities and minimally transformed products and, at the same time, steadily increasing imports of final products.

Therefore, an important question for Australian agricultural producers and exporters is whether export markets will shift from importing the traditional, minimally transformed commodities to importing more sophisticated final products and the lead time over which this shift is observed.

Where there are self-sufficiency goals, the policies of key countries and regions can be summarised in table 1.3. In general, self-sufficiency policy can have the detrimental effects of:

- restricting food imports through tariffs or quantitative restrictions at the cost of reducing the food security of the most vulnerable people; and
- exacerbating domestic fluctuations in food prices that result from greater variation in production systems.

1.3 Summary of self sufficiency policies for key regions

Country	Coverage	Comments
China	Rice and corn	<ul style="list-style-type: none"> ▪ China has effectively abandoned its policy of being self-sufficient in grain as its population outpaces the ability to grow its own food. ▪ Beijing has increasingly imported grains and food but has maintained an ideological emphasis on producing as much domestically as possible. For the first time, however, it has now set a grains output target well below domestic consumption rates. ▪ Rising consumption of meat was also a larger driver as livestock industries lobbied for access to imported grains.
India	Rice and wheat Dairy products Meat	<ul style="list-style-type: none"> ▪ There is also increasing pressures on India's self-sufficiency policies. Its food subsidies have risen sharply in the last few years because of open-ended grain purchases at high minimum support prices, large and costly stock holdings and a food distribution system riddled with inefficiencies and leakages. ▪ India's new National Food Security Act, also known as the Right to Food (RTF) Act, will expand the scope and coverage of the Targeted Public Distribution System. ▪ Rather than consumers prices, government expenditure is the problem. The government estimates that the RTF will increase India's annual spending on food subsidies from US\$4 billion to approximately US\$20 billion.
Indonesia	Rice Beef	<ul style="list-style-type: none"> ▪ In November 2012, the Government released the Law No. 18/2012 that includes principles of sovereignty, independence, security, safety, benefit, equality, sustainability, and equity. ▪ In contrast to previous policy, the term independence, rather than self-sufficiency, has been used to including 100 percent independence (self-sufficiency) or more less

Country	Coverage	Comments
		<p>or more than 100 percent. This provides policy makers with more flexibility.</p> <ul style="list-style-type: none"> ▪ The most obvious manifestation of current policy settings, which still have a strong emphasis on self sufficiency, are strong growth in food prices and inflation which peak around Ramadan. This most often results in public calls for the issue of more import licences — especially for beef and live cattle.
Russian Federation	Grains and potatoes Livestock products	<ul style="list-style-type: none"> ▪ Russia has maintained a strong emphasis on self sufficiency. On January 30, 2010, Russia's Food Security Doctrine was signed outlining Russia's agricultural production and policy establishing the following minimum self-sufficiency targets: <ul style="list-style-type: none"> – 95 percent in grain & potatoes, 90 percent in milk & dairy products, 85 percent in meat & meat products and 80 percent in sugar, vegetable oil, and fish products. – It did not address required funding or provide any government measures for reaching its targets. ▪ These goals were surpassed in 2013 in grain (98.4 percent), sugar (92.9 percent), vegetable oil (81.1 percent) and in potatoes (97.5 percent). ▪ The goals for milk, meat and fish remain far from being reached. In 2013 only 76.6 percent was achieved for milk and for meat 77.5 percent was reached. <ul style="list-style-type: none"> – The Minister of Agriculture attributed this to a lack of federal budget funding. According to mass media, the Minister succeeded in increasing the agricultural federal budget by 42 billion rubles for 2014, most of which will be spent to compensate agricultural producers from losses connected to WTO accession.

Source: <http://www.ft.com/cms/s/0/6025b7c8-92ff-11e3-8ea7-00144feab7de.html#ixzz33G2Xzhu3>
<http://www.eastasiaforum.org/2014/02/28/beyond-bali-imperatives-for-reforming-indias-food-security-system/>
<http://www.thejakartapost.com/news/2013/08/12/indonesia-crossroads-addressing-food-security.html>
http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Food%20Security%20Doctrine%20Adopted%20_Moscow_Russian%20Federation_2-11-2010.pdf

Through the 2000s, it was a common observation that countries required a pragmatic revision of self-sufficiency policies that were found to be negatively impacting on markets. The primary method of achieving this was by either changing the definition of self-sufficiency or softening the objective with a numerical target — such as 75 per cent self-sufficiency.

Indeed, food security, rather than self-sufficiency, is an important social objective that should be pursued through maintenance of access to international food markets and by fostering productivity through targeted R&D.

Where countries are revising self-sufficiency policies, or promoting domestic development policies, there has been an observed increase in demand for raw commodities or minimally transformed products. Research has indicated that:

- nations that rely upon agricultural imports for their food supplies are increasingly seeking to import raw or minimally transformed commodities that are then processed within that nation prior to distribution and sale to consumers
- major grain importing nations have developed flour milling capacity, for example, for a range of reasons, and this is increasing demand for the raw commodity rather than processed product.⁴

These domestic policies coincide well with Australia's role as one of the world's largest exporters for a number of commodities such as wheat, sugar and cotton.

⁴ Keogh, M. and Tomlinson, A. (2013) Australia risks missing a big livestock export and animal welfare opportunity. Australian Farm Institute

Our comparative advantage in these commodities is for raw commodity production rather than processed products. Where there is strong international demand for raw and minimally transformed commodities, Australia is well placed to meet this demand.

2 *External influences on demand for Australian agriculture*

With strong growth in international demand for agricultural products, Australia is well placed to supply the increase in global demand for agricultural outputs. Indeed, it is highly unlikely that Australia will experience a decrease in demand for our agricultural products. However, our trading markets will be influenced by the domestic conditions faced by both our trading partners and trading competitors.

This section of the report highlights some factors that are expected to influence our trading market, considering issues such as domestic macroeconomic policies, environmental policies and health and safety concerns of consumers.

Macroeconomic policy influences

Significant changes in the economic growth rate or domestic policies of our trading partners will necessarily affect demand for Australian agricultural products. Key current examples include:

- **the hurdles India is facing to ensure economic development continues and the middle class is allowed to ‘emerge’**
- **centralised Chinese government policies affecting the rate of domestic demand growth**
- **protectionist policies of Argentina reducing exports and increasing domestic price variability.**

Releasing of macroeconomic control in China and India would have a significant effect on international trade in all products, including agriculture. However, it is unclear when or if changes to macroeconomic policy will occur.

Centralised economic policy in China

The size and regional diversity of the Chinese economy means that its centralised macroeconomic policy will play a significant role in global demand for agricultural products.

In support of GDP and export growth targets, the Chinese government has consistently pursued policies that have put downward pressure on its exchange rate. Where for much of its history, the Yuan has been pegged tightly to the US dollar, more recently the Chinese government has floated the currency within a narrow band (now 1 per cent

either side of a benchmark fixed each morning by the central bank). Most observers believe that the Yuan is undervalued, for good reasons:

- a massive current-account deficit
- net foreign investment (more investment coming-in than going-out)
- the Central Bank's intervention through the purchase of foreign exchange and US bonds
- increased circulation of the Yuan
- policies that encourage high levels of domestic (private) savings (and therefore lower domestic demand)
- high levels of public debt, especially in local and regional governments.

While the degree of this under-valuation is difficult to determine now, let alone how this would change over the next 20 years, some estimates are available. For example, using the World Price Index (WPI), which measures the value of an urban selection of goods and services at purchasing power parity, reflecting the real purchasing power of different nations estimates suggest the Yuan is currently 17 per cent undervalued.⁵

The key effect of these macroeconomic policies to Australian exporters is compressed Chinese domestic demand. Where domestic consumption growth is currently not in line with what would otherwise be expected in a more deregulated market economy, changes in Chinese macroeconomic policy, and an expansion in Chinese consumption would have a resulting increase in demand for all imports and Australian agricultural products.

Overall, higher domestic demand and a higher Yuan would be observed if the government released these controls. With strong demand already identified across a spectrum of agricultural products now, loosening of macro policy would have significant and sustained benefits to Chinese consumers and for all exporters to China. The revaluation of the Yuan in concert with reduction in trade barriers would provide a sustained period of growth in global markets.

However, it is unclear when, if or by how much, Chinese macroeconomic policy may change in the future.

Macroeconomics and infrastructure constraints in India

The ability for the middle classes to emerge in developing countries relies heavily on the rate of economic development continuing. India is an important example of how both macroeconomic policy settings and key physical constraints can affect opportunities in global markets.

India experienced strong economic performance through the middle of the 2000's and in 2009 and 2010, after the recovery from the GFC, with GDP growth rates of just below 10 per cent annually. This was associated with a growth in consumer spending linked to continuing urbanisation, greater employment in skilled occupations and higher real wages. In contrast, recent economic performance has been lower than expected; India

⁵ <http://www.worlddeconomics.com/WorldPriceIndex/WPI.efp>

has continued to achieve growth of between 5 and 6 per cent between 2013 and 2015. The slowing growth rate has been attributed to a range of factors including:

- macroeconomic policy settings
- significant requirements for infrastructure development
- previously mismanaged natural resources limiting current and future productive capacity;
- increasing levels of bureaucracy and corruption restricting development opportunities.

Key macroeconomic policies are having an appreciable effect on India's rupee, with the WPI suggesting that the currency is undervalued by 34 per cent. There are a number of reasons for this:

- the cost of food is kept artificially low through the government's high-cost public distribution system policies
- price inflation is largely out of control and if current government policies were changed prices of some food items could double
- large government deficits and balance of payments deficit
- the Reserve Bank of India benchmarks its currency against a basket of currencies that are also weak.

To achieve sustained economic growth, and realise the potential of the emerging middle class, India will need to persist with economic reforms of macro and micro policies, including control of government spending and freeing up foreign direct investment (FDI) for both public infrastructure and industry. These strategies would maintain or increase economic growth while resulting in a revaluation of the rupee. If these changes were realised along with a reduction in trade and other regulatory barriers to imports, India represents the largest potential market for agricultural products in the future.

Argentinian macroeconomic policy

The past eight years in Argentina have been a key example of the effects that protectionist government policies can have on the competitiveness of an industry.

In an attempt to manage domestic prices for both wheat and beef, the Argentinian government introduced export taxes as well as export quotas, with the intention that it would focus domestic producers to supplying the domestic market at cheaper prices. The effect was to reduce both the production levels of beef and wheat, affecting both domestic supply and exports.

Argentina was the fourth largest wheat exporter in 2006, producing close to 16 million tonnes annually. In 2013, it was the tenth largest exporter, with production having halved. The beef industry story is similar, having been the world's third largest beef exporter, in 2012 it was 11th placed.⁶

While the government does not seem close to revising these policies, structural changes in the Argentinian agricultural market have occurred that would limit the recovery of

⁶ TheEconomist (2014) Against the grain. January 15th

particularly the beef industry, even should reversals be made. Following the cut off of international export markets, beef producers converted large amount of pasture land to crops, particularly soybeans. This land is now considered too valuable and profitable to return to cattle production.⁷

Consumer driven demand disruptions

Demand for agricultural products is also affected by food safety outbreaks (usually a short term event) and more general concerns of consumers over chemicals used during the production process (over the medium to long term).

These factors can generate consumer confidence downturns in demand (or switches in demand) independent of changes in economic growth.

Downturns in consumer confidence are rarely confined to suppliers of the affected product, with consumers generally viewing all sources of supply with increased scepticism in the short term.

Through the mid to late 2000s, Japanese consumers had been nervous about the safety of beef in particular, primarily reflecting concerns around the outbreak of Bovine spongiform encephalopathy (BSE). Canada's National Beef Industry Development Fund found that only 48 per cent of Japanese consumers considered beef a safe product to consume. Other survey evidence suggests that safety is the primary concern for beef consumers, and that 80 per cent 'worry' about the safety of imported beef.

BSE has only been detected among domestic and foreign suppliers to these markets in the last decade — however, consumers first started to hear about BSE in the mid-1980s, when it was detected in the United Kingdom.

In Japan, the first domestic case of BSE was detected in September 2001. At this stage, BSE had not been detected among any of Japan's major domestic and foreign suppliers. The government slaughtered all cattle at risk and banned the production, sale and use of all livestock feed containing meat and bone meal and similar products. However, these policies did not prevent consumers rejecting both domestic and imported beef.

In 2003, the United States experienced its first case of BSE, and resulted in Japan suspending all imports of US beef. Australia and New Zealand responded by providing 90 per cent and 8 per cent of the import market respectively. These restrictions were removed at the end of 2005 and the United States has since been recovering import share.

Demand for all beef products fell immediately after the BSE detections. Year on year total consumption of beef products fell 17 per cent over 2000–02. Total beef consumption in Japan remained at levels similar to 1990 over the four years to 2008 with a slight upturn at the end of 2008. Further, total consumption has not increased as rapidly as was expected after the re-opening of the market to US beef. After US beef was permitted to re-enter Japan in mid-2006, there were reports that both Japanese retailers and consumers

⁷ Queck, P. (2013) Argentina provides a lesson on how to ruin a beef industry. Beef Magazine

were cautious and so import demand grew slowly. Further compounding effects included US producers having trouble meeting strict age specifications and supply limitations imposed on US imports to assure product quality.

Stringent requirements on packaging information and traceability of beef products from stores and restaurants in Japan back to abattoirs and farms are examples of the level of concern Japanese consumers have for the safety of beef products and the implicit price adjustments they are willing to accept to meet these requirements. The most recent advances in traceability involve Quick Response codes on retail packages and restaurant meals. These codes may be scanned by specially enabled mobile phones, allowing for immediate transmission of sourcing data (Babcock et al, 2007).

International biofuels policies

Taking a global perspective, the emergence of biofuels has been a significant contributor to increased prices of all agricultural commodities, market observers indicate that these demands will effectively underwrite world prices at those higher levels established after the GFC.

- **Developments in biofuels policy, in concert with increased speculation in commodity markets, have resulted in highly correlated prices between oil and feed grains and oilseeds across all agricultural commodities.**
- **We also expect that biofuels demand will add to greater variability in all agricultural prices over time, because government policies result in biofuels demand being unresponsive to changes in feedstock prices.**
- **Over the next 20 years, with increasing concerns for food security, there will be greater pressure on the development of alternative technology and feedstock sources including greater use of byproducts and cellulosic fibres to mitigate this impact.**

During the last decade, there has been more than a five-fold increase in liquid biofuel production globally. The United States, Brazil, and the European Union lead the world in biofuel production, bolstering their biofuel industries with mandates, subsidies, and favourable trade policies.⁸

There have been a number of recent attempts to estimate the impact of these policies on world markets but most of these have focused on the United States – their findings include the following.

- Global food price indexes have been estimated to be 20 per cent higher than would have been observed without biofuels.⁹

⁸ Condon et al (2013) Impacts of Ethanol Policy on Corn Prices: A Review and Meta – Analysis of Recent Evidence. National Centre for Environmental Economics

⁹ Roberts and Schlenker (2010) Identifying supply and demand elasticities of agricultural commodities: implications for the US ethanol mandate. NBER Working Paper 15921

- Corn prices were around 30 percent higher between 2006 and 2011 than they would have been without the mandated increase in American corn-based ethanol production. Further, ethanol production was also found to have exacerbated the effects of below average harvests in 2011 and 2012, where corn prices were 40 per cent higher than those that would have been observed if ethanol production remained at 2005 levels.¹⁰
- A meta-analysis found that between 2008 and 2013 found that each billion gallon expansion in US ethanol volumes (a 7.5 per cent increase from 2012 levels) resulted in an average 2 to 3 per cent increase in corn prices across studies examined.¹¹
 - This is equivalent to the impact of US ethanol production in 2012 increasing the US corn price between 26 and 29 per cent, compared to the situation without mandated ethanol production.

The requirement for feedstock by the biofuels industry has effectively directly linked the price of feed grains and oilseeds with oil and other energy markets. This is due to:

- the large proportion of demand for feedstock from biofuels in relation to other uses including the livestock industries (around 40 per cent of US corn production)
- the inelastic (unresponsive) nature of that demand with respect to the feedstock price and so out competing other grain users and reducing margins in livestock industries.

Over the next 20 years, the potential impact of biofuels to world demand for grains, oilseeds and sugar has been the subject of scenario analysis by market observers and forecasting agencies. This interest revolves around the impact of these policies on long term commodity prices and, in turn, the affordability of food especially to less developed countries.

The use of agricultural feedstocks in biofuels production will constitute an important component of long term global demand for agricultural products. Consumption in almost all countries of the world will be dictated by the on-going government use policies rather than commercial considerations.

- The three major producers are expected to remain the United States, Brazil, and the European Union.
- While biofuel production is expected to increase out to the 2030, this rate of increase will be significantly slower than that observed since 2000.
- By 2023, world biofuel production is projected to increase by 50 per cent compared to 2013, growing by 4 per cent each year due mainly to a slowdown in US ethanol production. Biofuel production is projected to consume a growing share of global production of sugar cane, vegetable oil and coarse grains by 2023.¹²

Production and use in the United States and the European Union are mainly driven by the policies in place (that is, Renewable Fuel Standard 2 and the Renewable Energy Directive).

¹⁰ Carter et al (2012) Carter et al (2012) The effect of the US ethanol mandate on corn prices.

¹¹ Condon et al (2013) Impacts of Ethanol Policy on Corn Prices: A Review and Meta – Analysis of Recent Evidence. National Centre for Environmental Economics

¹² OECD-FAO Agricultural Outlook 2014

- In the United States, over 40 per cent of total corn use is projected to go into ethanol production.
- The growing production of ethanol in Brazil is linked to domestic demand from the growing fleet of flex-fuel vehicles (as a result of government regulations) and exports of ethanol to the United States.
- India's production is expected to double with molasses the major feedstock used with the growth in China expected to come from cassava and sorghum as a result of continuing restrictions on industrial use of domestic maize for ethanol production due to food security concerns.

Biofuel demand has contributed to increased global demand and world prices above what would have occurred otherwise. For the majority of producers/exporter exposed to the world market, including those in Australia, the impact of biofuels will be restricted to movements through the world or benchmark price, rather than directly in a particular market or region. Around these benchmark prices, developments in other segments of the market will continue to determine premiums available for higher quality, better specified product that meets the needs of customers. For example, while world corn and wheat prices have been highly correlated as a result of their use in biofuels and common uses such as in livestock production, premiums remain for products that satisfy higher performance specifications (such as high protein and low starch) in selected end uses (for example, noodle production).

3 *Changing international consumer preferences*

The global market for agricultural products is no different from any other market, with a complex and dynamic supply chain, a group of consumers with a spectrum of demands and the need to anticipate and meet changing consumer preferences within the constraints of productivity and logistics resources.

Within the trend of growing demand for agricultural products, it is important to note that individual consumers are in fact a very diverse group with a range of preferences and utility for different attributes of agricultural products. Market segments are based on consumer characteristics as well as demographic, ethnic and income profiles and trends that can be identified to some extent by extrapolating current market developments.

Successfully harnessing and capitalising on growing international demand for agricultural products will require Australian producers and exporters to gain a strong understanding of these consumer preference trends.

This section of the report considers some of the dominant consumer preferences in agricultural products both internationally and within Australia.

Communication with consumers

Demand for information is a key component of agricultural markets. Having a good product is not enough – targeted marketing and a carefully managed distribution strategy is critical to getting consumers to purchase a product.

Understanding the distribution channels that consumers use in purchasing products is also a key driver to ensuring product demand is maintained. Where economic development and income growth will likely change shopping patterns, driven by changing product demand, these changes may be limited in the short to medium term by factors such as a growing use of servants and assistants.

Product attributes and labelling

Taking a view across all markets, we can anticipate future consumer demand for agricultural products as a spectrum across a large number of attributes that have different weights in the choice by final consumers (see table 3.1). While these weights will be different between individuals, some generalisations can be made as follows.

3.1 Profile of product attributes for agricultural products

Product attributes	Credentials	Communication of attributes
Price	<ul style="list-style-type: none"> ▪ Cost-effectiveness ▪ Price points and on-promotion 	
Intrinsic – enjoyment	<ul style="list-style-type: none"> ▪ Variety or cut ▪ Taste and/or appearance/Colour ▪ Serving size ▪ Freshness 	<ul style="list-style-type: none"> ▪ Labelling ▪ Packaging/presentation
Branding and exclusivity	<ul style="list-style-type: none"> ▪ Proprietary ▪ Generic ▪ Unbranded 	<ul style="list-style-type: none"> ▪ Labelling ▪ Marketing ▪ Price
Origin	<ul style="list-style-type: none"> ▪ Country ▪ Regional and local 	<ul style="list-style-type: none"> ▪ Claim on label ▪ Certification
Production method	<ul style="list-style-type: none"> ▪ Conventional, Organic/bio-dynamic, free range ▪ Environmental sustainability ▪ Chemical/hormone free ▪ Humanely/ethically produced 	<ul style="list-style-type: none"> ▪ Claim on label ▪ Certification
Processing method	<ul style="list-style-type: none"> ▪ Production location ▪ Preserved (frozen, canned) and read-to-cook ▪ Ingredients single or multiple source ▪ Domestic and imported ingredients ▪ Conventional/organic processing 	<ul style="list-style-type: none"> ▪ Labelling ▪ Certification
Health and food safety	<ul style="list-style-type: none"> ▪ Product integrity systems (HACCP and traceback) ▪ Shelf life and use by dates ▪ Disease status ▪ Functional benefits (improved health and wellbeing) 	<ul style="list-style-type: none"> ▪ Claim on label ▪ Certification
Convenience	<ul style="list-style-type: none"> ▪ Product shelf life ▪ Ready-to-cook ▪ Ease of use (easy-to-peel, ready-to-use slices) 	<ul style="list-style-type: none"> Claim on label Packaging/presentation Marketing

Source: CIE.

- Consumers in lower income and emerging middle classes will seek products that are cost-effective, safe and nutritious, which will predominantly mean minimally transformed with minimal branding and marketing supporting the production process or origin.
 - An example would be Chinese consumption of Indian beef. This product is imported in unbranded standard packaging, and is sold as ‘boneless beef’ through wet markets at price points 20 to 30 per cent below exports from other countries.
- Established middle class and higher income consumers are looking for more elaborately transformed products or products with attributes that provide additional benefits in terms of provenance, improved health or exclusivity.

- Within these aggregate categories, there will be sub-markets based on consumer demographics beyond income. For example, the demographic driving demand for health foods in China are the middle-aged and elderly market as these products are seen as the best choice to stay fit and healthy.¹³
- Other attributes such as convenience and product life, already important in western markets, are becoming more important in those regions with an emerging middle class.

Table 3.1 also illustrates that successful production and sale of higher valued agricultural products must be accompanied by marketing activities such as labelling and accreditation that can support the claims being made about product attributes. This requires investment in:

- establishment and promotion of brands
- licensing or certification to backup or substantiate product claims
- a continual process of product evolution, through marketing and packaging, to maintain consumer interest.

Marketing and distribution channels

Strongly linked to product attributes are the channels through which consumers purchase these products, which range from traditional format markets through to high-end full service supermarkets and speciality outlets, and more recently, sales of speciality products over the internet (see table 3.2). For example, expensive imported products are unlikely be available through traditional markets but through high-end retailers. Similarly, sophisticated imported food ingredients are unlikely to appear at road side food vendors in suburban or regional markets.

3.2 Distribution channel is also important (in order)

Channel	Purchase outlets
Household consumption	<ul style="list-style-type: none"> ▪ Traditional/wet/wholesale markets ▪ Speciality retailer ▪ Full service supermarket ▪ Online shopping
Food service	<ul style="list-style-type: none"> ▪ Traditional street or market vendor ▪ Takeaway and dining out ▪ Event or institutional

Source: CIE.

Producers, suppliers and exporters must therefore be aware of the intersecting factors driving product demand when marketing their products. For example, the recent rapid

¹³ Wong, B. (2014) China's Health Food Market <http://china-trade-research.hktdc.com/business-news/article/China-Consumer-Market/China-s-health-food-market/ccm/en/1/1X000000/1X002L54.htm>

growth of China's imports of food and beverages since 2011 has been put down to a combination of drivers:

- high disposable incomes;
- food safety concerns for domestic products;
- rapid growth in online shopping due to the price advantage over traditional import-oriented retailers.¹⁴

The product lines that have dominated China's imports include dairy products (including infant formula and cheese), snack foods and alcoholic beverages.

Rates of change in purchasing habits

The combination of different consumer drivers can result in counter-intuitive outcomes. For example, the transition from purchases of fresh produce in traditional markets to packaged and processed products in supermarkets has not been as fast as expected in some Asian countries such as Indonesia and India.

Higher disposable incomes especially in the middle class have improved purchasing power not only for food, but other goods and services. A priority for many households is hiring domestic help, especially for meal preparation where both household heads are working. The domestic help will also be responsible for purchasing the majority of the 'wet' ingredients for meals — including meat, fruit and vegetables — which will be made at the local or regional market.

For this scenario, it is expected that the main purchases of food and beverage items made by the (increasingly wealthy) household head will tend to be restricted to durable goods and include expensive imported goods such as wine and luxury products such as chocolates, cheese and dry goods, for example. These purchases are likely to take place in western style supermarkets or malls, but purchasing is likely to be restricted to weekends by traffic congestion and lack of parking.

In contrast, the experience in China is significantly different as the result of two broad developments:

- household help, especially 'nannies', has become out of reach for most middle class families with many of women preferring higher paid jobs in other parts of the economy
 - With working household heads having to shop, convenience becomes an even greater factor.
- many traditional markets, especially in urban areas, have been closed due to food safety concerns which has accelerated the trend towards the popularity of supermarkets and hypermarkets.

Therefore, while traditional purchasing patterns from markets are likely to persist for some time, the significant shift towards supermarkets and the purchase of packaged 'wet' goods will take place when the emerging middle class purchase their own meal

¹⁴ China's Increasing Appetite for Imported Food and Beverage, 19 March 2014, <http://www.asiaperspective.net/chinas-increasing-appetite-imported-food-beverage/>

ingredients on a regular basis. This is likely to happen as a result of higher wage levels throughout the economy and domestic assistance becoming increasingly unaffordable.

Demand for new products

While new product categories will provide short to medium term profitability, all products will be subject to increasing market competition. Like traditional agricultural products, products with new attributes that are attractive to consumers are unlikely to be sustained premiums for sustained periods.

Demand for organics is a key example where even with a very small international market penetration; profit margins are beginning to be compressed rapidly.

Increasing incomes have been associated with increasing interest in an expanding range of product characteristics, such as health food. While this category of foods is very large, there are two ends of the spectrum that might be considered: organics — which may be considered a stable new product category — and health and functional food attributes — which may be seen as driven more by contemporary consumer trends.

International demand for organic production

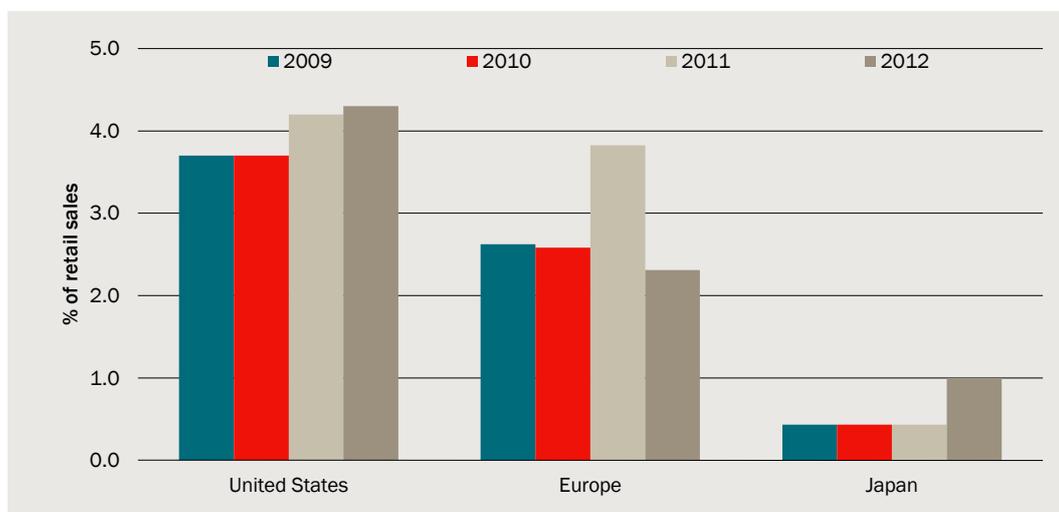
Demand for organic produce, as with all higher price point products, is almost current focused on high income, western economies and the higher income segments of eastern or emerging economies. Even so, penetration of organic products remains small, with Denmark found to have the highest level of organic produce penetration at 7.6 per cent or total retail sales.

Chart 3.3 shows that while growth in retail sales of organic products is high in some markets, such as Australia, penetration into the retail sector is coming off a low base. There is little or no data for emerging economics but penetration is expected not to be significant.

Organic products embody a range of attributes sought by consumers that focus on safety, responsible and sustainable production and information (accreditation) that support these credentials. These products can also be combined with convenience attributes delivered through packaging and the degree of transformation (from 'raw' ingredients through to meal-ready).

Sustained volume growth in this segment and price premiums have resulted in the transition of the supply chain from small individual producers, operating at a local and regional level, to the entry of larger corporates or regionally based co-operatives. This transition has accelerated the rate of product development within the organic sector and allowed development of supply chains catering to large supermarkets who demand larger volumes and consistent product quality.

3.3 Organic retail sales by region



^a As a percentage of total retail sales. No data was available for emerging economies.

Data source: The World of Organic Agriculture 2013 edition.

China, particularly, is expected to provide significant opportunities in this segment for Australian exporters, especially for beef, wine, fresh milk, citrus, wheat flour. While accreditation of organic products is more or less standardised across the world, Australian producers will still rely on country-of-origin and regional attributes (clean and green) to differentiate them from organic producers from other countries.

Health and functional foods

Functional foods are defined as food that provide additional health or lifestyle benefits beyond the traditional nutritional factors. Currently, Japan is the largest market for functional foods, by value, approximately \$20 million annually. Market observers have noted that key drivers for consumer purchases of health and functional foods in Japan include:

- scientifically proven health benefits
- positive consumer experiences: a crucial point for repeat purchases
- name and content of key functional ingredients
- country of origin: 'Made in Japan' usually has strong appeal, while Australia is generally seen as a producer of natural and high quality products
- naturally derived ingredients: no artificial ingredients, and a simple and/or minimal production process
- product brand name ¹⁵.

A large percentage of health and functional food products are sold online, in catalogues and through TV shopping. Where functional foods are considered to be more driven by consumer trends, with uncertainty around future demand levels, there is necessarily going to be additional marketing activities required to sure up demand at least in the

¹⁵ Austrade (2014) Health and functional foods Japan

short term. For example, in the case of the functional food market in Japan, discounting is considered likely.

Most suppliers provide special discounts for long term repeat purchases, encouraging consumers to place repeat orders. However, the ratio of these repeat purchases has recently decreased due to intensified competition among all types of the retailers selling health and functional food products.¹⁶

The role of technology and telecommunications

Online purchasing has generated a major shift in accessibility of markets to producers as well as accessibility of products to consumers.

Technology has also fuelled the demand for information in Australia's export markets. Purchasers are looking for increased access to information on the entire supply chain.

These platforms will provide significant opportunities to grow demand for Australian products if it can be harnessed effectively.

Growing applications and use of information and communications technology is having a transformative effect on global markets. As consumers demand increasing amounts of information and accessibility for their products, producers, exporters and retailers are able to respond.

Quick response (QR) codes are a prominent example of being able to deliver key product attributes quickly and efficiently to consumers (generating that information on the other hand may not always be quick or efficient for producers). QR codes are able to provide instantaneous information to the consumer on the supplying region or even individual suppliers.

This trend is driven by the requirement by consumers to know more about the origin and production processes of products on supermarket shelves. This initiative was first developed in Europe in response to the BSE outbreak to provide consumers with the assurance about the safety of the product. Consumers scan the code on the package to enable traceback to the producer. This initiative has been extended to 'meet the producer' initiatives on a range of fresh product sales both in Australia and key export markets.

The same technology platform has also enabled online shopping which combines information and convenience attributes. While in Australia, and globally, online shopping for food and beverages has not reached the level of general retail products, the market is experiencing significant growth rates off a current low base. Australian revenue from online food and beverage purchases was approximately \$2 billion in 2013-14 experiencing average annual growth of 11.9 per cent over the period 2009-14.¹⁷

¹⁶ Austrade (2014) Health and functional foods Japan

¹⁷ IBIS World (2014) Online grocery sales in Australia: Market Research report.

<http://www.ibisworld.com.au/industry/online-grocery-sales.html> accessed on 21/11/2014

Growth rates in online shopping for food and beverages in China is vastly outstripping consumption growth rates. In 2012, online purchasing grew by 66 per cent, to reach a market valuation of approximately \$USD 202 billion. Price competitiveness and product confidence are the key reasons given for the growth in Chinese import oriented online shopping.¹⁸ The increased use of this channel resulted from two factors:

- lack of confidence in domestically produced products especially in the case of infant formula
- lack of availability of products, especially high end consumer goods such as wine, in local outlets.

This increased demand has resulted in a response by supermarket chains to be able to import these products through official market channels.

Therefore, online markets allow increased global market connectivity and provides additional market access points for suppliers, be they domestic retailers or international exporters. However, in all instances, the role of online markets is limited by perishability and the ability to physically deliver the product. Where consumers are choosing online and delivery services, it is either because distances are too far or too difficult (traffic congestion) to make it worthwhile purchasing in person, however these constraints will also affect online sellers.

Domestic consumer preferences

The domestic market for Australian agricultural products can be viewed on the spectrum of the international market.

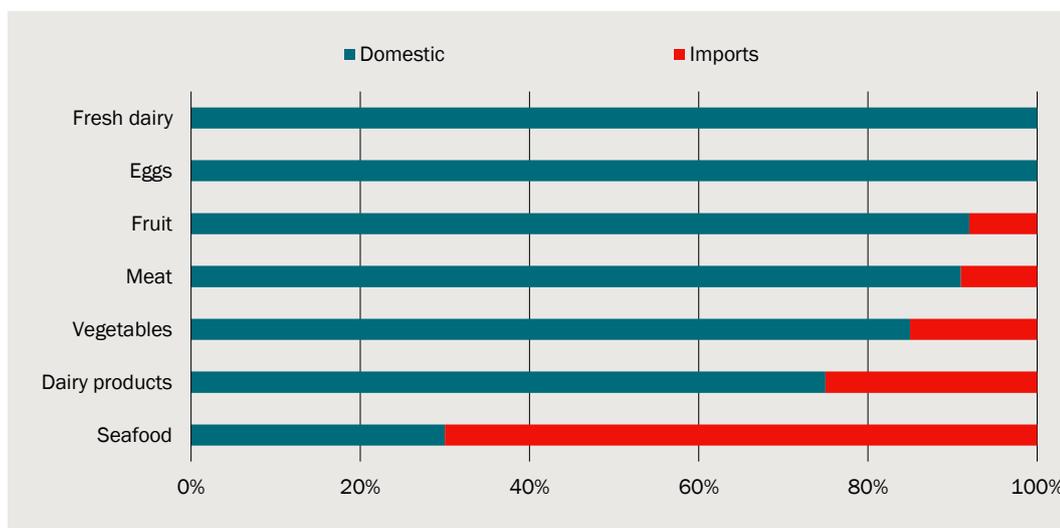
Consumers are looking for increased convenience, information and price competitiveness. To promote demand for Australian agricultural products, suppliers must target these demand characteristics through careful selection of packaging size and composition, labelling information and distribution channels.

Australian consumers are not a special case of international consumption and should be viewed as integrated in the spectrum of international, first world, consumers of agricultural products. All of the issues considered in this section relating to consumer preferences, demand for new products and the role of technology and telecommunications apply to Australian consumers.

For Australian agricultural producers however, the Australian consumer is an interesting target market. While a large proportion of agricultural products consumed are Australian made and grown (chart 3.4), and a large proportion of Australian production remains in the domestic market. This is often the outcome of strict quarantine restrictions, limiting the ability and cost effectiveness of (especially fresh) products to enter the Australian market.

¹⁸ China's Increasing Appetite for Imported Food and Beverage, 19 March 2014, <http://www.asiaperspective.net/chinas-increasing-appetite-imported-food-beverage/>

3.4 Sources of food consumed in Australia



Data source: Spencer, S. and Kneebone, M. (2012) FOODmap. An analysis of the Australian food supply chain. Department of Agriculture, Fisheries and Forestry, Canberra

Competition in the Australian market from imports is predominantly in processed, packaged and dry goods categories, or where these product types can compete as substitutes for fresh products.

In line with drivers of consumer behaviour in middle to high income cohorts in western countries, analysis of Australian food retail trends has found that issues most important to consumers, in order of importance, include:

- time spent in supermarkets
- increasing convenience in consumption
- provenance
- increasing use of food service options
- product information
- online accessibility
- increased purchasing for in home 'food service quality' consumption
- increased acceptance of imported foods¹⁹

These trends reflect international trends in food demand across the world. That is, consumers are looking for increased convenience, information and price competitiveness. To promote demand for Australian agricultural products, or demand for their product against other Australian products, suppliers must target these demand characteristics through careful selection of packaging size and composition, labelling information and distribution channels.

¹⁹ Kneebone, M. (2013) Retail trends in Australia. What are they really telling us? An analysis of consumer meal and food shopping trends in Australia. Fresh Logic Summer Edition

As with all of the trends discussed in this report, a spectrum of consumers needs to be recognised. Within the domestic demand for Australian agriculture, the spectrum radiates from three major groups:

- price sensitivity
- convenience in purchase and consumption
- enhanced product attributes.

Qualitative assessment of the international and Australian literature of changing retail consumption trends provides insight into the relative utility functions placed around these three elements by Australian consumers as illustrated in chart 3.5.

An attempt has been made to consider a guide on how the market of Australian consumers is divided into these three trade-off categories. Based on the characteristics of household segments used by the Department of Agriculture, Fisheries and Forestry²⁰ to track household consumption patterns:

- 20 per cent of the Australian population might be considered to predominantly trade off product attributes and convenience (singles and couples with higher incomes and no children)
- 40 per cent of the Australian population might be considered to predominantly trade off price and convenience (budgeting families and established families)
- 40 per cent of the Australian population might be considered to predominantly trade-off price and product attributes (empty nesters and singles and couples with lower incomes and no children).

There will always be a spectrum of demand for Australian products across these three factors. Australian producers, at each level of the supply chain — production through to processing and distribution — need to identify the market segment they will target and understand the responsiveness of their market to each of the three factors.

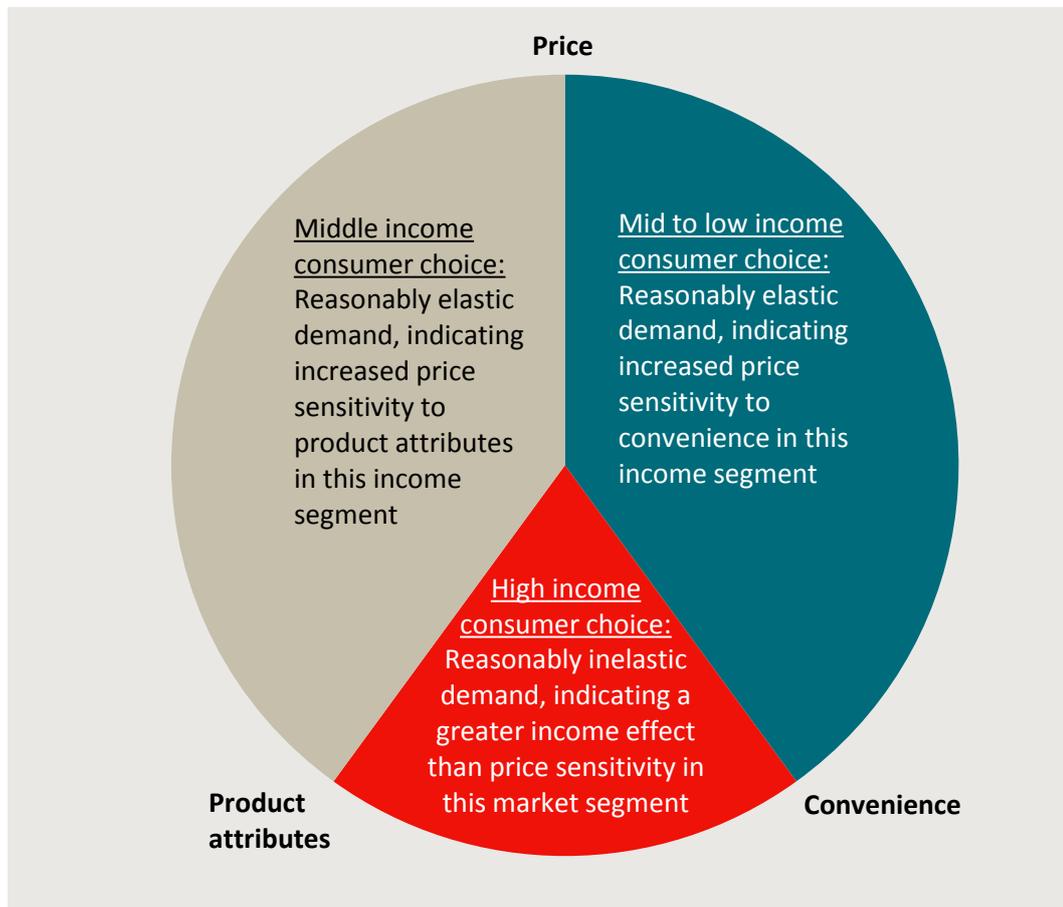
The portion of the market that is trading off price and convenience for example, the predominantly mid to low income portion, is the market segment most likely to respond to lower priced imported products and ‘home brand’ products at ‘everyday’ low prices. This market category is focussed on low price point staples primarily, where additional marketing attributes such as sustainability, provenance and functional food claims have limited influence on purchasing decisions.

International products are likely to be able to compete on a similar footing in convenience in both purchasing and consumption with domestically produced agricultural products. This is through either increased accessibility from direct, online sourcing of imports, or packaging design distributed through Australian retail channels.

Therefore, targeting product attributes that consumers are demanding, such as locally made, environmentally friendly, sustainable and animal welfare credentials, supported with increased information accessibility is likely to be the major driver of differentiated demand for Australian agricultural products in the retail food chain.

²⁰ Spencer, S. and Kneebone, M. (2012) FOODmap. An analysis of the Australian food supply chain. Department of Agriculture, Fisheries and Forestry, Canberra

3.5 The spectrum of domestic demand by price, convenience and attributes



Data source: CIE

An increased prevalence of preferential trade deals is likely to see an increase in the volume of imported, minimally processed and highly processed final products to the Australian market. This is likely to generate, in turn, increased pressure for Australian processors to meet lower international prices, or to turn to export markets where there is a larger pool of consumers willing to pay a premium for higher quality Australian products. That is, an increase in preferential trade agreements is likely to increase competition in the Australian market for products that target consumers who are trading off 'price and convenience' and 'price and product attributes'. The result is likely to be encouragement for Australian producers to turn to export or domestic markets that are instead trading off 'convenience and product attributes'.

An interesting trend observed within this high income, attribute/convenience trade off market segment is the strong emergence of a submarket that is looking to 'complete the circle' of food purchasing. That is, they are moving away from convenience packaging and moving back towards the farmers market, direct purchase models that are the higher income equivalent of wet markets in developing countries.

4 *Positioning Australia in the international market*

In the future, Australia is expected to experience an increase in demand for agricultural products generated from a combined effect of:

- a pure increase in global demand — where all trading nations can expect increasing demand to a certain extent; and,
- a proportional increase in regional population demand, where we have a geographic advantage being close to some of the main population growth centres — although our geographic advantage depends on the relative logistics capability of our trading competitors.

There are important differences across market segments in terms of the outlook for exports, as well as the needs of the market segments to support future growth and market share.

On the one hand, some market segments — such as the red meat industry — are not so concerned with the question of whether they can find a market for their product, but more importantly, how they can continue to meet the growing demand from these markets. This is an important consideration as one of the key characteristics that many buyers of agricultural products are looking for is critical mass and reliability in supply. This dynamic shows the importance of linking questions of Australia's productivity and supply in agriculture with questions of marketing Australia's agricultural products.

On the other hand, there are market segments — such as horticulture — that will require targeted actions from Australian producers and governments to be able to capitalise on and leverage growing international demand. That is, a staged approach working to open up market access arrangements to designated countries to then allow individual producers and collectives of producers to market and distribute their products.

The division of tasks across governments and producers should be closely aligned to considerations of public and private goods. That is, where there is a public good nature to actions promoting Australian agricultural products and market access, this should be undertaken by governments of varying levels. However, the more detailed and privately profitable actions of marketing, distribution and to a certain extent market research should be done at the business or industry association level.

This final section of the report looks at how Australia can respond to the drivers of demand for agricultural products internationally, considering:

- expected changes to the international trade pattern of agricultural products
- Australia's placement as both a traditional commodity producer a final products exporter and a supplier of expertise
- the role of strategic producer alliances

- preferential free trade agreements and foreign direct investment as alternate market access points
- the role that Australia's clean and green reputation has on generating demand.

Expected trade patterns

The dominant trends expected in agricultural trade in coming years are expected to be:

- **developing countries boosting domestic processing capacity and increasing demand for raw or minimally transformed products; and**
- **increased supply of minimally processed and fully processed food products from these developing countries.**

Legal and informal trade

In general, it is expected that world trade and demand for agricultural products will divide into two main segments. The first being formalised channels meeting WTO guidelines and meeting increasing consumer preferences for convenience, health, sustainability characteristics for example. However, while significant international trade activities are currently organising around increasing import standards focussing on sustainable and ethical sourcing for example, there remains significant demand for affordable food.

Countries looking to meet this demand for food have historically (and continue to) utilised informal import channels to import everything else that is needed without checks and limited branding or origin identification. Therefore, this second segment is likely to be focussed on less stringent, informal trade channels supplying bulk, low cost food commodities to sustain growing and developing populations. Such activities tend to be centred on countries experiencing high population growth rates and strong demand for food — largely in selected countries in Asia and Africa.

Australian exporters are currently exposed to both trade streams, and this trend is expected to continue while ever there is unmet demand in these informal markets. However, formal recognition of trade arrangements and market access continues to be a key goal of Australian exporters.

Processing capability

Over time, the factors that are likely to affect trade patterns and in turn, demand for Australian agricultural products, include emerging countries with objectives of boosting domestic employment through food processing facilities that focus international demand on raw and minimally transformed products (such as Australia's traditional exports).

Internationally, there has been an observed trend of cheap labour and increased processing capacity in developing countries increasing the demand for unprocessed, raw product imports, and increasing the supply of cheaper processed product on the

international market.²¹ Indeed, this trend is being solidified in Australia and other developed nations with the globalisation of food and beverage companies seeing domestic manufacturers sourcing ingredients more widely internationally for production domestically — manufactured in Australia from local and imported ingredients.²²

In Australia over recent years, the majority of the growth in imports has been in processed products, with an overall declining food trade balance.

Domestic demand, self-sufficiency and competition

India and China are expected to be the fastest growing, significant markets for Australian agriculture. However, development and growth within each economy will mean that trade flows are heavily influenced by domestic production and processing capabilities. By 2050, China is expected to have experienced significant growth in the value of real food demand, with the largest growth sectors being sugar, beef, dairy, sheep and goat meat and vegetable oil. Dairy and beef are considered the major growth sectors for Chinese import demand, with most other agricultural sectors expected to be able to meet demand through domestic production, at least in aggregate value terms.²³

India on the other hand is expected to become a net importer of fruits, vegetables and nuts and has recently established itself as a net exporter of beef products. Annual net fruit and vegetable imports are expected to reach approximately USD14 billion by 2050, up from USD1.4 billion in 2007.²⁴

By 2012, India was the world's largest beef exporter, exporting over 1.56 million tonnes of beef — predominantly carabeef, or buffalo, exported as beef.²⁵ Indian beef provides an example of where developing countries can move to increase international supply of agricultural goods, having an impact as a competitor for Australian products, but at the lower end of the market. Indian beef is of lower quality, marketed with limited production information at a price 40 per cent below the average price of Australian product.²⁶ Developing countries expanding into lower cost market segments and meeting demand for increased volume at low prices from other developing nations (Vietnam, Thailand, Malaysia and the Philippines) are unlikely to compete directly with Australian product in common export markets such as China, but indirectly through the world price. However, with nominal meat prices growing at around 4 per cent each year, product from lower tier suppliers will satisfy demand at lower price points, which then over time transitions to demand for high value product as incomes grow. Following the experience of other exporters such as Brazil, the composition of exports from countries such as India

²¹ Spencer, S. and Kneebone, M. (2012) FOODmap An analysis of the Australian food supply chain. Department of Agriculture, Fisheries and Forestry, Canberra

²² Spencer, S. and Kneebone, M. (2012) FOODmap An analysis of the Australian food supply chain. Department of Agriculture, Fisheries and Forestry, Canberra

²³ ABARES (2013) What Asia wants: Long term food consumptions trends in Asia

²⁴ ABARES (2013) What Asia wants: Long term food consumptions trends in Asia

²⁵ MLA (2014) India's beef export footprint continues to grow.

²⁶ MLA (2014) India's beef export footprint continues to grow.

would be expected to evolve over time to higher value cuts following income growth and hence greater population volumes demanding high quality cuts.

Bulk commodities and specialised products

Australia's comparative advantage is in exporting bulk, minimally transformed agricultural commodities and these commodities are likely to continue to account for a large proportion of the value and volume of Australian agricultural exports.

Processed and transformed agricultural exports provide a much more dynamic story into the future. There is strong potential for Australia to generate international demand for our high value, highly transformed agricultural products that can attract a premium even in the face of exchange rate movements.

Within the wider macroeconomic picture of growing agricultural demand, there exist opportunities for Australia across different market segments that range from 'traditional commodities (whose trade levels set world prices) through to specialist or niche market segments at premiums to the bulk price.

Australia is currently straddling the line of a traditional commodities supplier and a supplier of high end, high quality agricultural products. A third of our agricultural exports, by value, are unprocessed or very minimally transformed goods.²⁷ It is likely that a large proportion of Australia's agricultural exports, by volume and value, will remain as bulk commodities, with a high level of trade exposure for these sectors. At the same time, a more dynamic market segment of final products is likely to present large growth opportunities for highly transformed, high value final agricultural products.

Australia is likely to sit at the two ends of this spectrum, raw and minimally transformed and final products — we are not able to compete effectively with the low cost of labour in developing countries for processed products. These two market segments are not expected to generate competitive tension between them and may have a mutually reinforcing role, promoting Australian high quality.

Both of these market segments require a strong understanding of international markets to be able to capitalise on growing demand.

Bulk commodities

Bulk commodities destined for processing industries are all subject to a degree of product mixing to generate the required final product specifications. In these markets, demand hinges heavily on price for different product quality categories. For Australian certain products, superior product attributes result in blending with lower quality product from other sources. For example, Australian sugar is blended with Brazilian and Thai sugar to satisfy user specifications at minimum cost, especially in the beverage industry, where the

²⁷ Spencer, S. and Kneebone, M. (2012) FOODmap An analysis of the Australian food supply chain. Department of Agriculture, Fisheries and Forestry, Canberra

country-of-origin of the ingredients is unknown to the final consumer. Another example, is Australia's chemically lean manufacturing beef that is blended with fattier product to achieve specification for hamburger patties.

Australia's ability to maintain current markets and to expand into non-traditional export markets such as timber and wood products for example, will depend on our ability to compete internationally on a purely price basis with a predominantly de-identified product.

The value of the Australian dollar plays a strong role in Australia's ability to compete on a pure price basis. Where other industries are dominating Australia's trade, such as mining exports or other industry imports, demand for Australian agricultural products will be influenced by its international price via the exchange rate. Indeed, where the value of the dollar is high, Australia's advantage is reportedly in these raw and moderately processed products²⁸, as high value add products find it difficult to compete on international markets after a quality premium and exchange rate premium are both placed on the price.

Where the Australian dollar remains high, agricultural exports will predominantly shift towards bulk commodities at the expense of premium, transformed products.

Over time, new players are also emerging in the bulk commodities markets, where developing countries such as India and China are themselves seeking a growing market share of agricultural trade. However, growth from these countries is not considered to be a major constraint to growth in Australian exports. As discussed, growth is likely to be in separate product categories such as low quality, de-identified Indian boxed beef targeting traditional wet markets in China.

Intermediate and final products

Australia's high value, high quality products are an important factor in the future of agricultural industries and present a somewhat more dynamic market picture than bulk commodities. Where new market segments are to be forged, significant resources need to be invested to market a differentiated, high quality, high cost product to the market. With significant growth in the middle class, especially within the Asian region, Australia is well placed to capitalise on new product offerings.

However, anticipating future market opportunities and products for development is a private market task. It is the role of Australian producers to develop and promote products that the international market is demanding. This may be undertaken at either the individual producer level, or where there is a collective benefit to a single industry, the task may be undertaken by industry funded associations. In contrast, it is the role of governments to establish and maintain market access for all Australian agricultural producers, allowing these producers to trade in these markets where and how they choose.

²⁸ Australian Government (2013) National Food Plan: Our food future.

In general, Australia's future market position will not be in intermediate processed products used as ingredients in final products. These processes should be dominated by developing countries, and Australia is unlikely to be able to compete on a purely price basis. Australia's growing future market role will likely lie in targeting changing consumer preferences for highly transformed products.

That said, there has been some discussions around the ability of Australia and other high cost, high quality producing nations to enter specialised ingredient supply markets. Ingredient supply, in contrast to product supply, could possibly provide an additional avenue of entry to international markets where consumers are particularly aware of food safety regulations and are wary of imported products, such as Japan. This method circumvents requirements to build brand or product reputation and undertake market research.²⁹ While this is, and will remain, a small market segment, it is likely to benefit highly specialist and niche product suppliers that focus on uniquely Australian products. Austrade provides examples of such ingredient market products:

- bovine cartilage powder (utilising the advantage of Australia's BSE free status)
- freeze dried young barley grass or other fruit/vegetable powders (utilising Australia's general food and chemicals safety regulation status)
- fish and shark liver oil (utilising the important role that Australia's Environmental Protection Agencies have in the fisheries and aquaculture industries)
- herbs and spices derived from native plants that have proven health benefits (utilising Australia's unique natural and environmental resources).

However, it should be noted that the market for ingredients is likely to be significantly more price competitive than the market for final products. That is, suppliers from other countries can also provide similar products that are supported by their own country branding and accreditation.

Expertise and integration in domestic production

A third approach to expanding demand for Australian agricultural products considers the role that Australia can play in providing agricultural expertise and technology, such as genetic material, to other countries. For example, Australia has been exporting herd genetics for many years, with dairy cattle destined for Asian dairy farms and more recently Saudi Arabia as well as sheep exported to diversify, and improve, the genetic dynamics of Inner Mongolian herds.³⁰

Other areas in which Australia is diversifying agricultural exports include:

- management of agricultural systems and technologies (for example, GPS based monitoring and tracking systems for both cropping and livestock);

²⁹ <http://www.austrade.gov.au/Export/Export-Markets/Countries/Japan/Industries/Food-and-beverage-health-and-functional-foods#.VGU3CvmUd64>

³⁰ Lynch, J. (2014) Australian agribusinesses help export markets to feed themselves.

- importing genetics (dairy cattle, for example) from the US and Europe and adapting them to local conditions and then in turn exporting these improve genetic traits to China and other markets; and,
- post-farm technologies where, for example, Australia exports wine technology to major competitors.

While these activities will likely remain very small in the overall scheme of Australian exports, they represent an important diversity in Australia's integration in international markets. They also provide a further means of promoting Australian quality with the potential to generate increased demand for Australian products (through reputation and brand recognition) more generally.

Accessing the markets

The increasing prevalence of preferential trade deals (or free trade agreements) provides increased market access to Australian agricultural products. However, Australian producers still need to clear the hurdles to meet consumer demand from these markets.

- **Increasingly, strategic partnerships between Australian producers and international producers, marketing agencies and distributors are driving increased market access and consumer awareness of Australian products.**
- **Foreign direct investment is likely to provide an advantage in sourcing international finance for expansion of Australian production while providing supply chain surety to our investing trading partners.**

Export markets for agricultural products are looking for the key characteristics of:

- competitively priced safe agricultural products
- consistent and reliable product quality and delivery.

National level access through preferential trade agreements is important for umbrella market categories such as horticulture that then allow individual producers, or collectives of producers to export and market their products in a wider international market. However, the increased prevalence of Preferential Trade Agreements in recent years has provided some market advantages while also being accompanied by a greater incidence of non-tariff barriers. To address these interventions, there are a number of approaches that can be taken involving collaboration between government and industry in exporting countries by:

- presenting evidence to importing authorities at a government-to-government level to change regulatory requirements to minimise compliance costs and maximise access through, for example scientific or economically informed protocols to address concerns of the importing countries
- developing strategic alliances with importers or customers within country to change or enable reform by putting pressure on importing authorities.

To be able to maintain a market presence, effective Australian exporters need to:

- have the scale or the capability to effectively co-ordinate growers and marketers to enable a more efficient supply chain
- provide quality product all-year-round or to target specific seasonal windows in a range of markets
- be able to respond to market developments by addressing changes in customer tastes (through product development) and requirements by import authorities (for changes in labelling and packaging or import protocols for fresh product).

For Australian agricultural products, the high level product distribution choice is one between private strategic alliances or integrations into the international supply chain through FDI.

Transformative partnerships and new collocation

While there is demand for Australian agricultural products, accessing markets is not always straightforward or cheap. China in particular poses a complex challenge for agricultural products despite significant demand for both bulk commodities as well as for attribute-based products. While formal import channels are increasingly stringent, following WTO requirements, there exist well-established grey channels for many products that link international producers with domestic consumers while circumventing formal import requirements. Access to these channels requires information and connections sourced through private strategic alliances between producers and third party agents. These channels are likely to focus on either low price points, or premium products that are subject to stringent formal requirements. There will necessarily be limited public marketing of these products. While sales through informal channels are welcomed, the majority of exporters see legal market access as a longer term imperative that provides greater surety of access.

At the other end of the spectrum, where Australian products choose to compete on product attributes and branding through formal channels, strategic alliances with importers, supermarkets and local supply chains are becoming increasingly prevalent with partners who assist in understanding customer's needs. To support a strategic alliance, Australian products are required to build product trust through consistency and reliability which may not necessarily be a fast or cheap process for either party. For this reason, strategic alliances are likely to be made either with large scale domestic producers or with a coordinated collective of domestic producers that are able to provide scale guarantees as well as consistency and reliability guarantees.

As a background to promoting strategic alliances, collaborative trade shows and marketing activities are a growing occurrence in international trade. Exporters are beginning to work together in the 'collaborate and compete model'. Such activities are proving beneficial through:

- promoting safety, quality and sustainability attributes of products and product standards and aligning themselves with producers and exporters with similar or better credentials and market presence

- allowing exporters to work together to address market access issues and develop standardised packaging and labelling specific to the markets
- allowing continued competition on price and propriety brands once market access had been established.

Trade negotiations and foreign investment

FDI by trading partners is often used as a method to establish and maintain supply chains, ensure imported product standards meet domestic market requirements or diversify national investment portfolios.

Australian agriculture, as a market for FDI, is no different. Particular examples of diversification of sources of supply and creation of dedicated supply chains back to their countries can be found with investments made by:

- Brazilians — JBS Australia, a division of Brazil's JBS, owns 10 meat processing plants and five feedlots in Australia.³¹
- Chinese — over the six years to 2012, a total of USD1.048 billion was invested in Australian agriculture, including cotton (Cubbie Station, USD277m), Food logistics (Manassen Foods, USD500m), grain supply chain in Albany Western Australia (Heilongjiang Feng Agricultural), Sugar (Tully Sugar, USD146m)³²
- Qataris — Through the company Hassad Australia, since 2009 the Qatar government has been investing in a range of Australian agriculture ventures including sheep and grain properties. The goal is to produce 165 000 tonnes of grain and 100 000 lambs annually. However, this production goal is not all destined for the Qatar market, as a portion is made available for sale on the domestic and international market.³³
- Japanese — NipponHam Foods Australia (beef processors) and operating across Australia and New Zealand, Japanese company Lion operates in beer, spirits, wine, milk, fresh dairy, juice and soy products.³⁴

A more portfolio approach to investing in Australian agriculture can be seen through:

- Terra Firma — a London based private equity company with majority ownership of cattle producer, Consolidated Pastoral
- Saputo — a Canadian dairy company that purchased major shareholding in Warrnambool Cheese and Butter in 2014, has operations globally in Australia, Canada, US and Argentina.

³¹ Austrade (2007) Investment opportunities in Australian agribusiness and food. Brochure, p26

³² KPMG and University of Sydney (2013) Demystifying Chinese investment in Australian agribusiness, p7

³³ Smith, I. (2013) Middle East company adds spice to Australian grain. ABC Rural. Available at <http://www.abc.net.au/news/2013-12-06/foreign-investment-australian-grains/5140084>, accessed on 22/10/2014

³⁴ Austrade (2007) Investment opportunities in Australian agribusiness and food. Brochure, p26

In looking at the longer term perspective on demand for Australian agricultural products, the important question to be considered is whether or not acceptance of FDI is a necessary or sufficient condition to improve access to international markets. While international companies seek FDI opportunities in Australian agriculture solely to shore up their supply chains, strategic FDI provides an opportunity to leverage off investment partners to:

- better understand customer requirements and supply chains in the importing country
- more effectively deal with any issues with the importing authority or local regulations as required
- spread the risk of exporting along the supply chain.

Australia's clean and green reputation

Reassuring consumers of the superior quality of Australian products is a key factor in successful export market activities. This represents a joint responsibility between government authorities and industry (gaining market access) and exporters (promoting and marketing of products).

Australia has a relatively strong reputation internationally for 'clean and green' agriculture. This reputation is built through a number of factors including geographic isolation, limiting the spread of pests and disease, as well as high levels of environmental protection and animal welfare standards, often demanded by the Australian public, with added advantages to international trade.

This clean and green reputation serves all aspects of Australia's integration in international markets — bulk commodities, final products and expertise and resources. Maintaining this clean and green reputation is a double-edged sword for exporters as while it allows a premium to be placed on products, it also often increases the costs of production as a result of quality assurance measures, requiring this premium on sale price.

When considering what the international consumer is looking for from agricultural products, within the income growth category, consumer preferences are changing towards environmentally friendly, sustainable and ethical production. This is generating a fundamental shift in the way that trade agreements are being viewed by both consumers and exporters, as well as changing the rate of uptake of products once they gain access to international markets.

Historically, the major hurdles for selling agricultural food products internationally was achieving increased market access and overcoming economic and technical trade barriers. More recently, as the number of preferential trade agreements has increased, progressively it has been Australia's relative reputation for supplying 'clean and green' products driving consumer level demand for Australian products internationally (beyond gaining access to these markets). That is, where previously the primary challenge was gaining access to these markets, the new issue is convincing international consumers of the preferred characteristics (credentials) of Australian products.

Further to this, while Australia's clean and green reputation is a strong, and arguably necessary, support for agricultural exports; however, it cannot be relied upon as the only basis for selling Australian products. As discussed, key issues of quality, attributes, packaging, distribution and marketing are playing an increasingly important role.

5 *Conclusion*

Australia is expected to experience strong growth in demand for our agricultural products in coming years. This demand will be driven by a growing global population as well as increasing average incomes in many of our major markets.

In line with rising incomes, patterns of food demand across the world are changing. With higher levels of income, consumers are demanding not only higher quality products, but also more information on the products as well as greater accessibility to the products.

To be able to capitalise on this growing market, Australian producers and governments need to solve the matrix of what consumers want, when they want it, how much they want and how to get it to them.

There are clear and differentiated roles to be played by producers and government in completing this matrix. The role of government should be focussed on working to achieve market access and maintaining Australia's reputation for 'clean and green' agriculture. Producers have a more micro-level role to take responsibility for understanding their consumers and their competitors. Scale economies in production or marketing and strategic alliances that link producers with the domestic markets of trading partners are likely to offer success in growing demand for Australian agricultural production.

References

- Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) 2013, *What Asia wants: Long-term food consumption trends in Asia*, Andrews, N and Gunning-Trant, C (eds.), ABARES Research report, Canberra, October.
- ACIL Allen Consulting 2014, *Australia's Comparative Advantage in Agriculture*, Prepared for ACOLA, Unpublished.
- Australian Academy of Technological Sciences and Engineering (ATSE), 2014, *Food and Fibre: Australia's Opportunities*, A Report of a Study by the ATSE, March.
- Austrade (2014) *Health and functional foods Japan*, available from <http://www.austrade.gov.au/Export/Export-Markets/Countries/Japan/Industries/Food-and-beverage-health-and-functional-foods#.VGU3CvmUd64>
- Austrade 2007, Investment opportunities in Australian agribusiness and food. Brochure, p26
- Department, of Agriculture, Fisheries and Forestry (DAFF) 2013, *National Food Plan, Our food future*, Canberra.
- Carter, C Rausser, G. and Smith, A 2012, *The Effect of the US Ethanol Mandate on Corn Prices*, <http://www.ourenergypolicy.org/wp-content/uploads/2013/07/The-Effect-oftheUS-Ethanol-Mandate-on-Corn-Prices-.pdf>.
- China's Increasing Appetite for Imported Food and Beverage, 19 March 2014, <http://www.asiaperspective.net/chinas-increasing-appetite-imported-food-beverage/>
- Condon, N. Klemick, H Wolverton, A 2013 *Impacts of Ethanol on Corn Prices: A Review and Meta-Analysis of recent Evidence*, Working Paper Series for the National Center for Environmental Economics, Working Paper #13-05, August.
- Food and Agriculture Organization (FAO) 2009, *Global agriculture towards 2050. High Level Expert Forum*, <http://www.fao.org/wsfs/forum2050/wsfs-background-documents/hlef-issues-briefs/en/>.
- IBIS World 2014, *Online grocery sales in Australia: Market Research report*. <http://www.ibisworld.com.au/industry/online-grocery-sales.html> accessed on 21/11/2014
- Kharas, H. and Gertz, G. 2010, *The New Global Middle Class: A Cross-Over from West to East*, Center for Development at Brookings.
- Keogh, M and Tomlinson, A 2013, *Australia risks missing a big livestock export and animal welfare opportunity*. Australian Farm Institute.
- Kneebone, M 2013, *Retail trends in Australia. What are they really telling us? An analysis of consumer meal and food shopping trends in Australia*. Fresh Logic Summer Edition.
- KPMG and University of Sydney 2013, *Demystifying Chinese investment in Australian agribusiness*, p7.
- Linehan, V, Thorpe, S, Andrews, N, Kim, Y and Beaini, F 2012, *Food demand to 2050: opportunities for Australian agriculture*, 42nd ABARES conference, Canberra.
- Linehan, V, Thorpe, S, Gunning-Trant, C, Heyhoe, E, Harle, K, Hormis, M & Harris-Adams, K 2013, *Global food production and prices to 2050: scenario analysis under policy assumptions*, ABARES conference paper 13.6, Canberra.

- Lynch, J. 2014 *Australian agribusinesses help export markets to feed themselves*. Available from <http://www.smh.com.au/business/australian-agribusinesses-help-export-markets-to-feed-themselves-20140828-109n7f.html>.
- Meat and Livestock Australia (MLA) 2014, *India's beef export footprint continues to grow*, Available at <http://www.mla.com.au/Prices-and-markets/Market-news/India%E2%80%99s-beef-export-footprint-continues-to-grow>.
- OECD-FAO Agricultural Outlook 2014.
- Queck, P. 2013, *Argentina provides a lesson on how to ruin a beef industry*. Beef Magazine.
- Roberts and Schlenker 2010, *Identifying supply and demand elasticities of agricultural commodities: implications for the US ethanol mandate*. NBER Working Paper 15921.
- Smith, L. 2013, *Middle East company adds spice to Australian grain*. ABC Rural. Available at <http://www.abc.net.au/news/2013-12-06/foreign-investment-australian-grains/5140084>
- Spencer, S and Kneebone, M 2012, *FOODmap. An analysis of the Australian food supply chain*. Prepared for Department of Agriculture, Fisheries and Forestry, Canberra.
- TheEconomist 2014, *Against the grain*. January 15 2014
- Wong, B. 2014, *China's Health Food Market* available at <http://china-trade-research.hktdc.com/business-news/article/China-Consumer-Market/China-s-health-food-market/ccm/en/1/1X000000/1X002L54.htm>



THE CENTRE FOR INTERNATIONAL ECONOMICS

www.TheCIE.com.au