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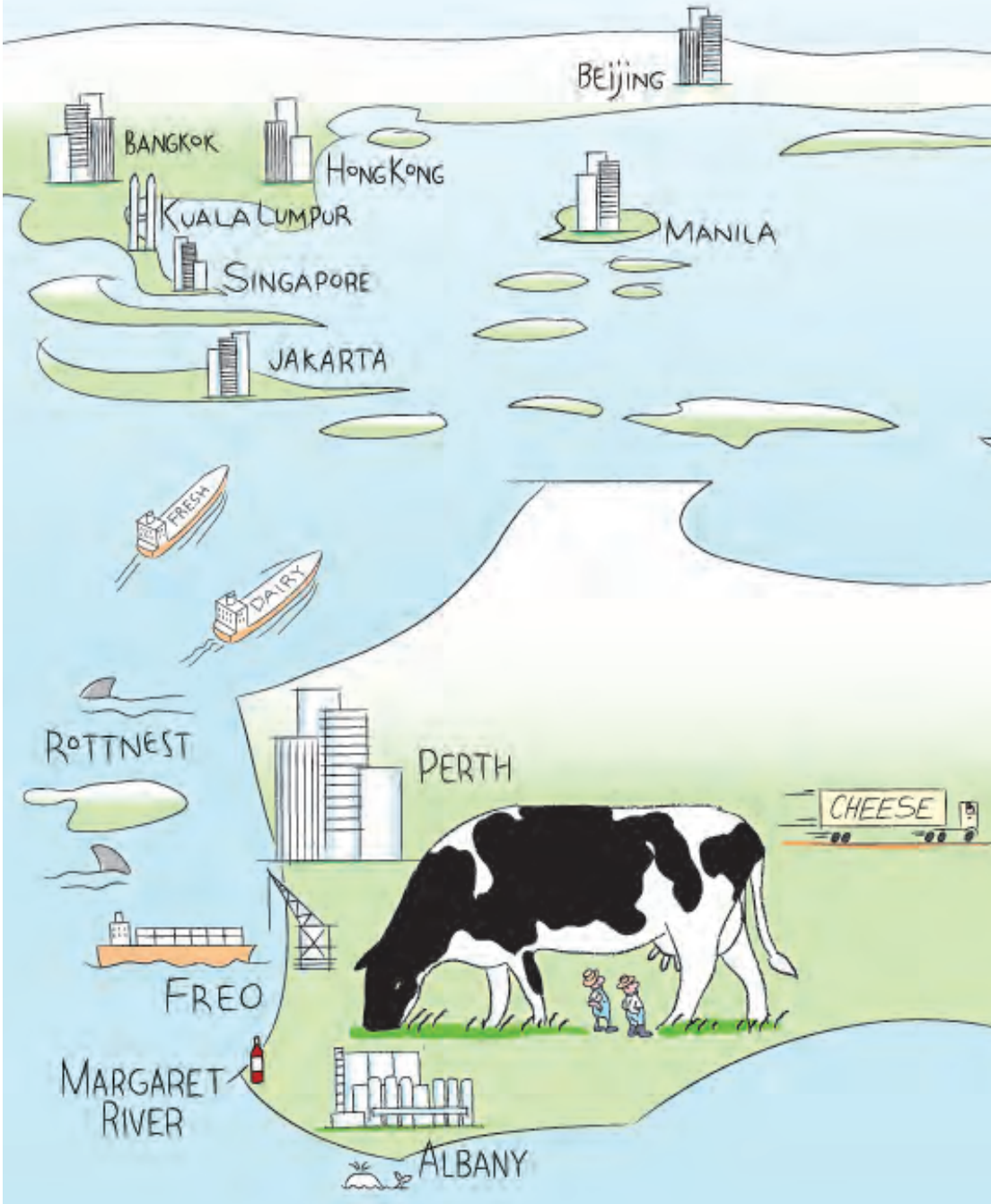
Report sponsored by Wesfarmers Limited on building a sustainable dairy industry in Western Australia



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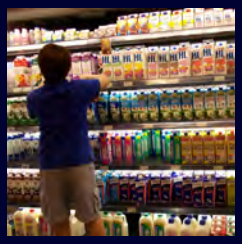




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February 2012

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Table of Contents

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Preface

This Report examines the strategic options to build a sustainable dairy industry in Western Australia. After discussions with WA dairy farmers in early 2011, Wesfarmers agreed to sponsor a project to investigate several options which may help place the state's dairy farming on a long-term sustainable footing. This would include a fact-based analysis of the WA dairy industry and the examination of options available to assist the industry's future.

Strategis Partners were appointed by Wesfarmers to lead the project in July 2011.

Interviews and meetings were held with more than eighty people in WA, Melbourne, Sydney, Kuala Lumpur and Singapore. Discussions with key stakeholders include many dairy farmers in WA, the Minister for Agriculture for WA, Department of Agriculture and Food Western Australia, all of the major WA milk processors and a number of small scale dairies, Western Dairy, WAFF WA, the University of WA, Dairy Australia, and retail procurement managers.

The actions recommended in this report aim to position WA's dairy industry for long term success. A successful and sustainable industry means that:

- There are new and attractive career opportunities for people wanting to join the industry.
- The industry's production methods are clean, green and ethical.
- The industry's assets continue to grow over time; both know-how and physical assets including manufacturing capital and farms, and natural-resource stocks such as clean water.
- Over time, WA is able to build on its competitive advantages over other dairy regions.

This report develops a sustainable strategy based on three elements:

1. **A diagnosis:** an explanation of the nature of the challenges and opportunities facing the WA dairy industry.
2. **A strategic policy:** an overall approach to deal with the challenges and capture the opportunities identified in the diagnosis.
3. **A set of actions** which are coordinated with one another to support the accomplishment of the strategy.

The Report contains the following chapters:

- Chapter 1 contains the Executive Summary.
- Chapter 2 provides an overview of the situation and outlook in the WA dairy industry.
- Chapter 3 analyses the challenges and opportunities.
- Chapter 4 recommends a strategy to build a more sustainable industry.

While the Study is sponsored by Wesfarmers it should not be inferred that Wesfarmers has made any commitment to invest in the WA dairy industry. The aim of the Report is to encourage informed public debate on ways to develop the dairy industry in the State.

Strategis Partners express thanks to those people who provided technical and economic assistance throughout the project: Colin Bosustow of Primary Consulting Services Pty Ltd, Tony Brady of A Brady Consulting Pty Ltd and Steve Hossen Rural Consulting.

We would also like to express a special note of appreciation to the following people for their assistance and support: Joanne Bills and Phill Goode at Dairy Australia; Tony Emms of Stanton, Emms & Sia in Singapore; Dr Amin Mugera and Travis Murray at the University of WA; Kevin Chennell and his team at the Department of Agriculture and Food WA including John Lucey, Dr Brad Plunkett and Andrew Weinert; Dairy Farmers Phil Depiazzi, Peter and Sue Evans, Michael Partridge and David Partridge; and Dale Hanks and the other board members of Western Dairy.

Jay Horton and Ted Harnett
Strategis Partners.

February 2012.

1 Executive summary

The strategic challenge is to re-start long-term growth

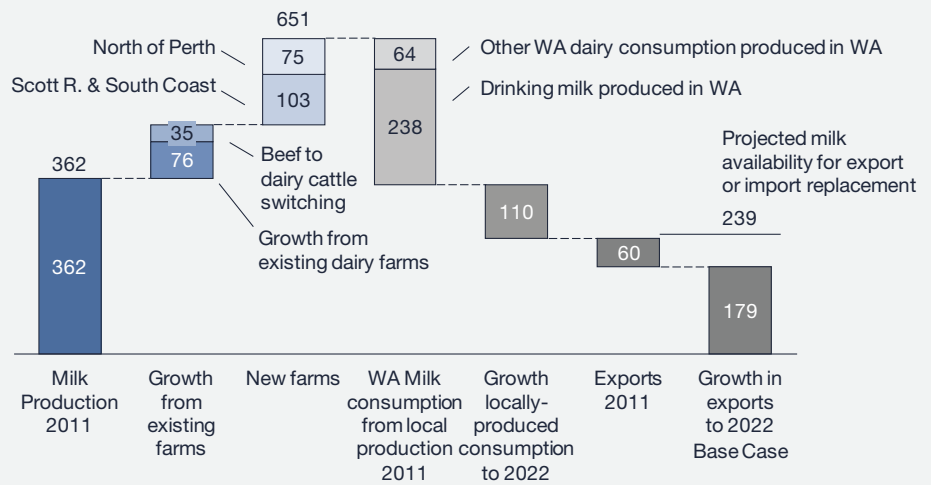
Sustainable growth is the key to the industry's future. Not only can the current problems in the industry such as lack of confidence, declining production and low rates of investment be overcome, but also new opportunities open up if these challenges are addressed.

The key challenges are:

- The industry is sub-scale making it vulnerable to import competition.
- There are barriers to international expansion.
- Supply-side constraints on growth need to be overcome.

If these challenges are dealt with effectively the industry can grow substantially. Both domestic consumption growth and export growth can be met as shown in Exhibit 1-1. [1]

EXHIBIT 1-1: DAIRY EXPANSION POTENTIAL IN WA
Million litres of milk equivalent p.a.



Source: Strategis Partners analysis, based on discussions with dairy farmers.

Through further investment and productivity improvements, WA milk supply could expand to 777 million litres with approximately 365 million litres available for export each year.

[1] Rounding differences in the Exhibits: Because of rounding, some totals may not agree exactly with the sum of their component parts.

1.1 WA dairy's key advantages are its expansion potential and proximity to Asia

The overall message from this Study is that there are no insurmountable barriers to sustainable growth, either on the supply-side or market-side.

WA's clean, green, ethical dairy farming can be expanded. The WA dairy industry has some of the world's lowest cost milk producers. Moreover, dairy farming appears to be the most financially attractive agricultural activity in the traditional and emerging dairy areas of WA.

WA's other key competitive advantage is its proximity to Asia. Its future lies in targeting and hitting the premium markets in Asia where dairy consumption is growing strongly.

1.2 How the industry can move forward

WA can become an innovative exporter and overcome the small size of its domestic market – like New Zealand did 30 years ago – with an emphasis on 'fresh'.

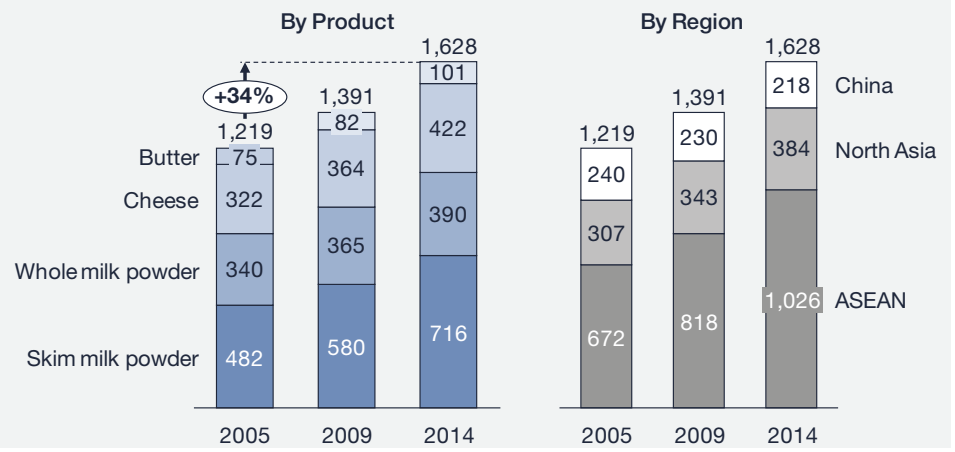
The guiding policy for enlarging the dairy industry in WA, is to increase on-farm production and increase WA's share of the dairy market in Asia by re-positioning the WA dairy industry from its predominantly domestic focus and growing its exports of value-added, mainly fresh dairy products into Asia. This needs a coordinated program of investment in market development and manufacturing, and a re-engineering of the supply chain, which in turn needs to be supported by the introduction of productivity and innovation initiatives to expand on-farm dairy production.

WA will not be able to meet its requirements for fresh milk, let alone meet export demand from Asia, unless the industry significantly increases on-farm production.

1.3 Asian market outlook

Growth in dairy imports across Asia is being driven by a range of factors: income growth, urbanisation, increasing westernisation of diets and population growth; concerns over food security; constraints on local milk production; and trade liberalising measures which is stimulating cross-border trade. With long term growth in incomes Asia's imports of dairy products are projected to grow strongly across all products and most countries (Exhibit 1-2).

EXHIBIT 1-2: PROJECTED IMPORTS OF DAIRY PRODUCTS ACROSS ASIA
(Thousand tonnes p.a.)



Source: Dong, F., 2005. "The Outlook for Asian Dairy Markets: The Role of Demographics, Income, and Prices." CARD Working Paper 05-WP 399, Iowa State University.

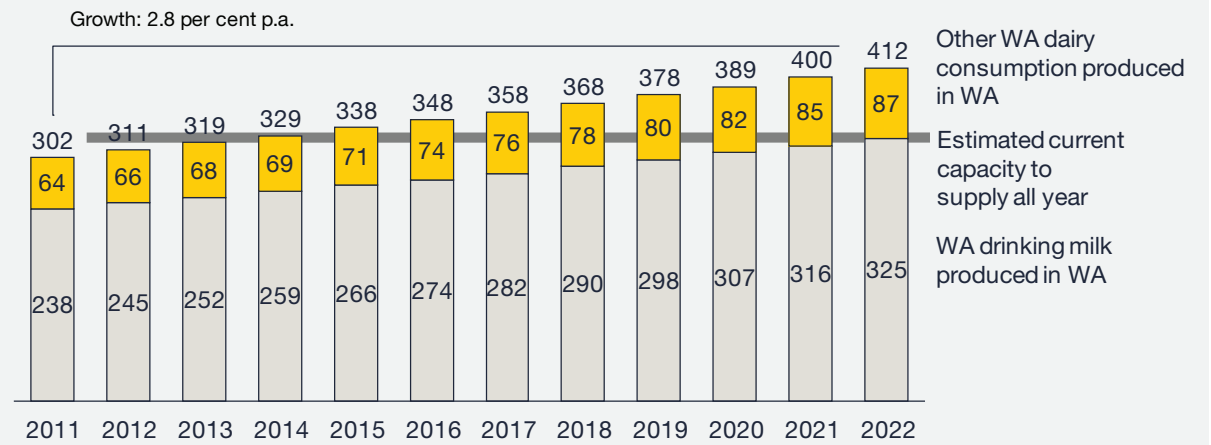
In milk equivalent terms the growth in projected imports of dairy products across Asia to 2014 will require an extra 300 to 400 million litres each year, roughly equal to WA's total milk production.

1.4 Domestic market outlook

WA's domestic fresh milk consumption is expected to grow at 2.8% per year, based on population growth and growth in per capita milk consumption. On the basis of these assumptions, fresh milk consumption is projected to be more than 400 million litres by 2022. Unless on-farm production increases significantly WA will be unable to supply domestic requirements for fresh dairy products by 2015.

Exhibit 1-3 shows forecast consumption outstrips current production in the next three to five years. Under this scenario milk would need to be imported from the Eastern States.

EXHIBIT 1-3: PROJECTIONS OF WA FRESH MILK CONSUMPTION TO 2022
(Million litres p.a.)



Source: Australian Bureau of Statistics; Dairy Australia; Strategis Partners analysis.

1.5 Outcomes from implementing a sustainable industry

A more sustainable industry scenario in the coming decade sees:

- Milk production expands from 360 to 700 million litres p.a. by 2022 supplying not only WA's growing needs but also expanding export markets.
- Dairy farming expands from 53,000 to over 90,000 head of cattle across some 200 farms.
- Dairy research station at Vasse is an industry-driven, WA project focused on developing innovative systems to increase on-farm productivity in Western Australia.
- Strategic partnerships form to expand WA's exports of dairy products to S.E. Asia, East Asia and North Asia, and partly replace imports from the Eastern states. Grounded in commercial reality, but supported by a range of government policies, these partnerships involve local processors in close collaboration with Asian food companies.
- Dairy farmers and local processors work closely together developing an overarching implementation plan to ensure the industry is expanded in a sustainable manner. It is critical to ensure there is sufficient fresh milk to meet local demand whilst production increases to supply milk for the growing export market.
- Australia's national food retailers commit to increasing their local sourcing of dairy products – and source WA niche dairy products for Eastern markets.
- Shipping services from WA to Asia are re-engineered and a fleet transports fresh dairy products and other fresh agricultural products daily to S.E. Asia.

- Small scale integrated dairy companies expand their operations to take advantage of the dedicated fresh logistics system to export 'super premium' dairy products to the growing Asian market.

Dairy processing investments are made both in Asia and WA to take advantage of more open trade agreements between Australia and ASEAN, the emerging Trans-Pacific Partnership, as well as bilateral agreements between Australia and countries such as Indonesia and China.

1.6 Key actions to establish a sustainable dairy industry in WA

There are five key actions to develop a sustainable dairy industry in WA.

Action 1. Convene a Government and Industry task force to drive expansion

Scope of project:

Establish a task force made up of key industry and government stakeholders to review, prioritise and implement initiatives to expand the industry. The immediate tasks are (1) complete a detailed study on re-engineering the supply chain for shipping fresh dairy and food products to Asia; (2) design and run a 'Brand WA' food and dairy marketing campaign in Asia; and (3) identify actions to support expanding on-farm dairy production.

Action 2. Collaborate on processing and export market development

Scope of project:

Existing processors to address the problem of sub-scale operations: (1) by identifying initiatives to capture consolidation opportunities in processing; (2) by consolidation of logistic operations; and (3) by developing a joint venture to capitalise on export opportunities. The export joint venture could also provide services to small-scale dairies such as Bannister Downs and Margaret River Dairy Company.

Action 3. Re-engineer the 'fresh' supply chain from WA to Asia

Scope of project:

Re-engineer the shipping supply chain system to transport fresh dairy products and other fresh food products from WA to S.E. Asia, on a more regular basis, possibly daily.

Action 4. Boost productivity and innovation on-farm

Scope of project:

Develop and implement a set of actions to encourage dairy farmers to at least double on-farm production over the next decade. This will require a co-ordinated approach from industry stakeholders including Government, Western Dairy and Dairy Australia. Key issues to be addressed include improved infrastructure, water management, on-farm labour, innovation and training, impact of climate change, the development of sustainable farming practices and gaining farmers confidence to invest.

Action 5. Establish an integrated dairy export business

Scope of project:

Establish a joint venture with an Asian partner to build a processing plant in WA, secure on-farm supply and export fresh premium dairy products to the Asian markets (and over time to the Middle East) exploiting WA's clean, green, ethical reputation.

1.7 An expanded dairy industry can deliver significant benefits to WA

The dairy industry is a significant contributor to the WA economy with strong potential for growth. In many parts of the South West dairy farming is the most efficient use of agricultural land.

The dairy industry has the potential to at least double in size over the next ten years. In addition to increasing the value of on-farm production there is an opportunity to significantly grow the local processing industry and to develop a major new export business.

The expansion of the industry should create major employment opportunities, particularly in the South West of Western Australia.

The co-ordinated expansion of the dairy industry could be a model for growing other WA agricultural industries capitalising on WA's close proximity to Asia and its clean, green, ethical image.

1.8 The next era for dairy in Western Australia

The story of milk in WA can open a new chapter, one that sees WA as the distinctive fresh dairy producer to Asia. The expansion of dairy exports will be driven by income growth and trade liberalising measures in the high- and middle income markets of South East Asia and East Asia.

WA's natural advantage is quality dairy product, and quality includes not only the safety and nutritional balance of the milk products, but also the way it is produced – ethically and sustainably. The use of animal and natural resources is becoming important to the consumer, and those with discretionary income are looking for the premium label. WA's dairy future lies in targeting and hitting the premium market.

The goal is to achieve superior long-term returns on investment that will come from expanding the WA dairy industry, by producing products which deliver hard-to-imitate benefits to Asian consumers who have always demanded fresh foods.

WA's dairy growth strategy will be based on a distinctive supply chain that maximises the state's potential as the temperate climate fresh food supplier to the region. By reducing delivery times, maintaining freshness and minimising shipping costs, advances in sea borne transportation will facilitate trade of fresh dairy products.

Governments also have a critical role to play. Over the next 20 years, food security will be a key public policy issue across the region. Moreover, the development of WA's dairy industry is fundamentally about structural change. It involves extensive innovation to produce more milk using more sustainable production systems on-farm, and to develop, process and ship new products via new international logistics chains. To facilitate the structural change needed, Governments have a role to play in skills, infrastructure and trade development.

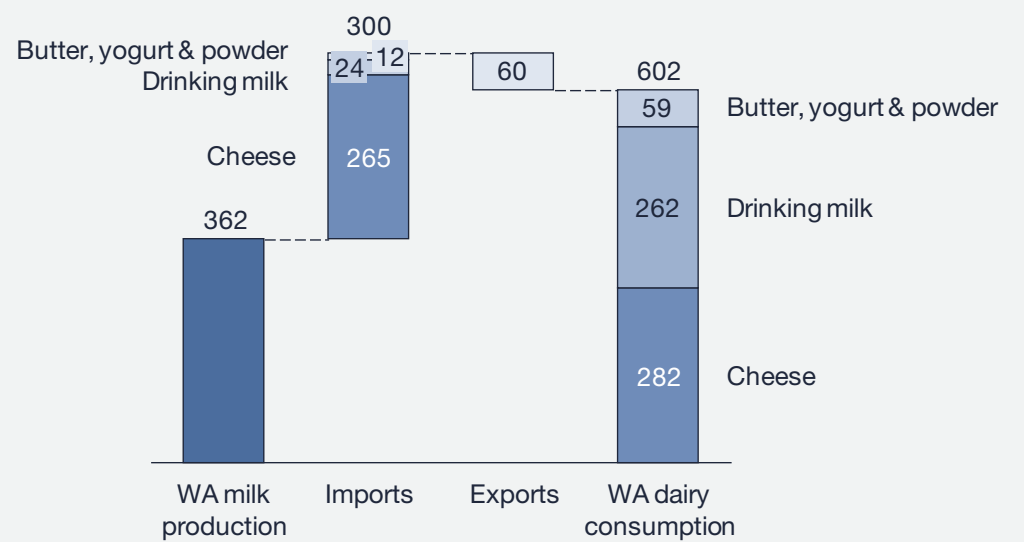
To ensure the WA dairy industry continues to have enough fresh milk to supply the domestic market it is important that dairy farmers, Western Dairy and local processors work closely together to develop an overarching plan to grow on-farm production whilst export markets are developed.

In fact this unfolding story is about continuity of direction which was set more than a decade ago with the export of premium ice-cream to Japan and bulk fresh milk to South East Asia pioneered by Peters and Brownes. WA should not go for commodity markets that dairy regions such as Victoria and New Zealand have captured. WA will succeed on a 'fresh' value proposition which competitors struggle to emulate.

2 Situation and outlook

WA currently consumes the equivalent of more than 600 million litres of milk p.a. in the form of cheese, drinking milk, butter and yogurt (Exhibit 2-1)[2]. Imports of manufactured dairy products comprise the equivalent of 300 million litres of milk p.a. (mainly cheese), with exports running at some 60 million litres milk equivalent p.a.

EXHIBIT 2-1: WA DAIRY SUPPLY AND DEMAND, 2010-11
Million litres milk equivalent p.a.

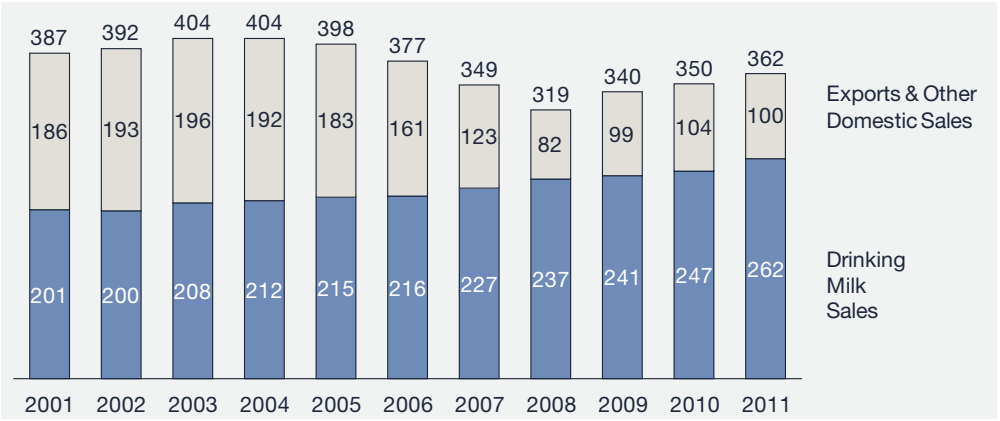


Source: Dairy Australia; Strategis Partners analysis.

Milk production is now some 362 million litres p.a., down from its peak of 404 million litres in 2003 and 2004. Drinking milk sales comprise the bulk of WA's milk production (Exhibit 2-2).

[2] Drinking milk includes regular, reduced fat, no fat, flavoured and UHT milk.

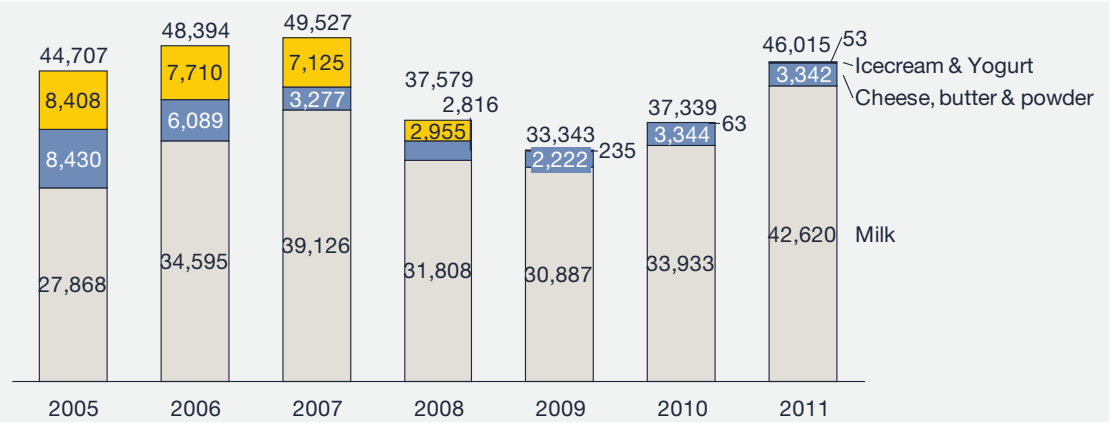
EXHIBIT 2-2: WA MILK PRODUCTION AND ITS END USES
Million litres p.a.



Source: Dairy Australia, Strategis Partners analysis. The volume of 'other domestic sales' is calculated as the residual of total milk production, less drinking milk sales, and the milk-equivalent of WA's exports of cheese, butter, milk powder and liquid milk.

WA's exports to Asia are mostly liquid milk, with small volumes of cheese, butter and powder (Exhibit 2-3). In the early to mid-2000s Brownes Dairy developed a strong export trade in ice-cream to Japan. Following the acquisition of Brownes by Fonterra the ice-cream manufacturing equipment was re-located to N.Z. resulting in the loss of WA's ice-cream exports.

EXHIBIT 2-3: EXPORTS OF DAIRY PRODUCTS FROM WA
Tonnes p.a.



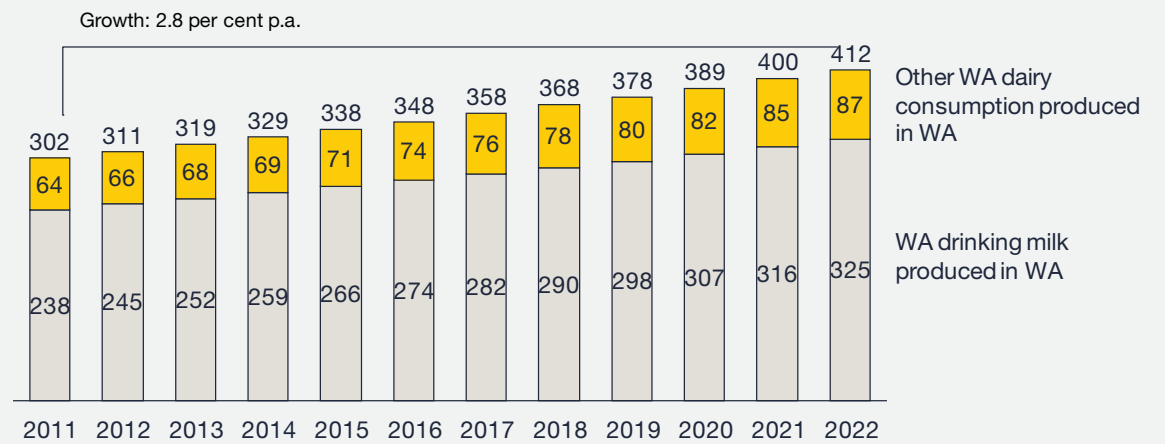
Source: Dairy Australia; Strategis Partners analysis.

2.1 Market outlook for dairy products

2.1.1 WA fresh milk consumption will grow consistently with population growth

Currently the milk equivalent of some 302 million litres of drinking milk, yogurt and cheese consumed annually in WA are sourced from WA milk production. Consumption is estimated to be over 410 million litres by 2022 as shown in Exhibit 2-4, based on population growth of 2.2 per cent p.a. and growth in per capita consumption of 0.6 per cent p.a.

EXHIBIT 2-4: PROJECTIONS OF WA MILK CONSUMPTION SOURCED FROM WA PRODUCTION TO 2022
Million litres p.a.

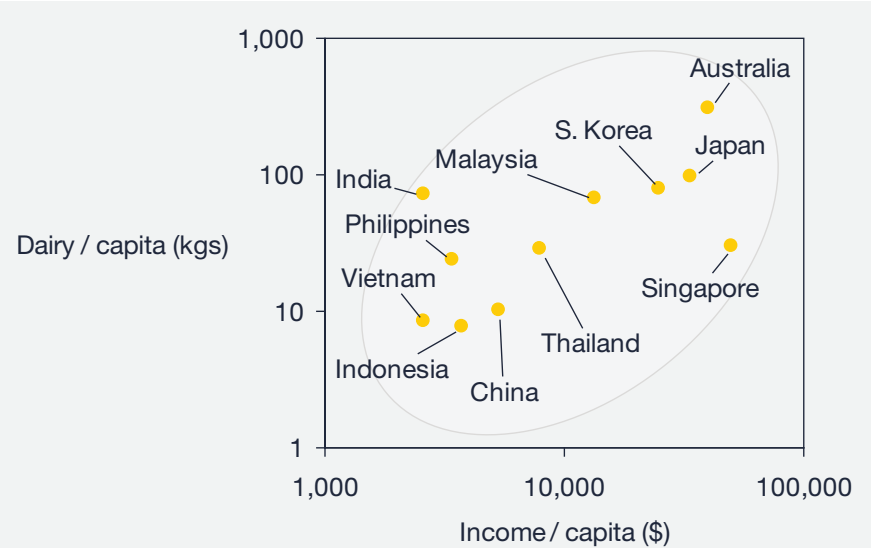


Source: Dairy Australia; Strategis Partners analysis.

2.1.2 Asian dairy consumption to grow strongly in the next decade

Asian diets are relatively low in dairy foods but consumption is expected to grow strongly as incomes rise and tastes become more westernised (Exhibit 2-5).

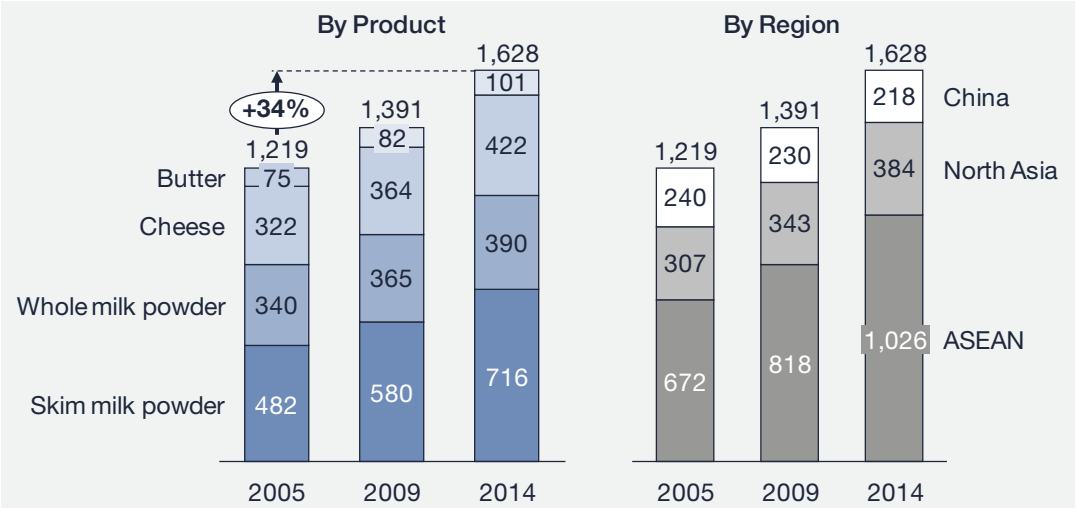
EXHIBIT 2-5: DAIRY CONSUMPTION VERSUS INCOME PER CAPITA FOR ASIAN COUNTRIES



Source: Dong, F., 2005. "The Outlook for Asian Dairy Markets: The Role of Demographics, Income, and Prices."; Strategis Partners analysis.

With long term growth in incomes, Asia's imports of dairy products are projected to grow strongly across all products and most countries (Exhibit 2-6).

EXHIBIT 2-6: PROJECTED IMPORTS OF DAIRY PRODUCTS ACROSS ASIA
Thousand tonnes p.a.



Source: Dong, F., 2005. "The Outlook for Asian Dairy Markets: The Role of Demographics, Income, and Prices." *CARD Working Paper 05-WP 399*, Iowa State University. Available from: <http://www.card.iastate.edu/publications/DBS/PDFFiles/05wp399.pdf>.

In milk-equivalent terms the growth in projected imports of dairy products across Asia to 2014 will require an extra 300 to 400 million litres each year, roughly equal to WA's total milk production.

In its August 2011 report *Australian Dairy - stimulating the appetite for growth*, specialist food and agribusiness bank Rabobank says global demand for dairy is increasing at more than two per cent a year, providing the Australian dairy sector with ample room to grow. The long-term implication is that dairy prices will grow both domestically and internationally.

2.1.2.1 Drivers of growth in Asian dairy imports

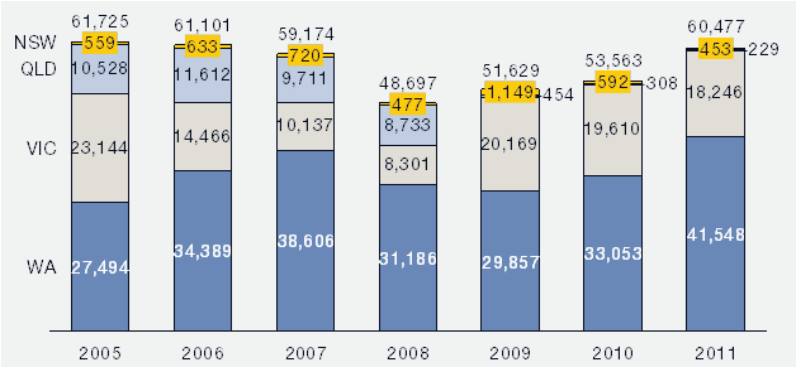
Growth in dairy imports across Asia is being driven by:

- Income growth, urbanisation and the rise of supermarkets in Asia, increasing westernisation of diets, and to a lesser extent population growth are feeding import growth.
- Concerns over food security across Asia, particularly China, both in terms of local food quality and at times, food availability.
- Constraints on local milk production. Southeast Asian countries do not produce enough fresh fluid milk to satisfy their fresh milk needs, nor to manufacture dairy products such as cheese and milk powders.
- Trade liberalising measures across Asia stimulating cross-border trade.

The ASEAN Australia New Zealand Free Trade Agreement (AANZFTA), in operation since 2010, opens up opportunities for closer integration of the region's food processing industries. In addition the Trans-Pacific Partnership between Australia, Brunei, Chile, Malaysia, New Zealand, Peru, Singapore, the US and Vietnam was announced in November 2011. This Agreement could open up further export opportunities for Australia's food and agricultural products. As trade across the region frees up certain types of food manufacturing companies will re-locate their operations to lower cost countries, while higher cost operations such as in South Eastern Australia will become less competitive. S.E. Asia will play an increasing role in food processing, and exporting to East Asia, North Asia and the Middle East.

WA's share of Australia's liquid milk exports to East Asia and S.E. Asia is the largest and in recent years the fastest growing (Exhibit 2-7).

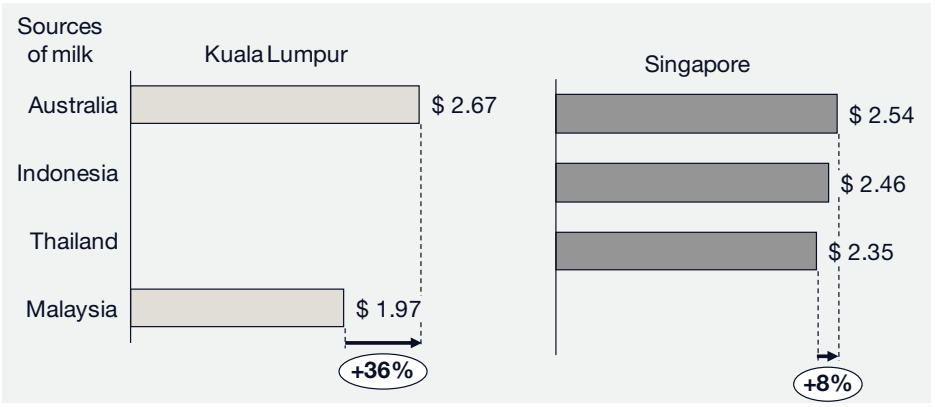
EXHIBIT 2-7: AUSTRALIAN EXPORTS OF LIQUID MILK TO EAST ASIA AND S.E. ASIA, Tonnes p.a.



Source: Dairy Australia; Strategis Partners analysis.

Australian fresh milk commands a strong price premium of more than thirty per cent in Malaysia which imports some two million litres p.a. of Australian milk. In Singapore which imports more than ten million litres p.a. of Australian milk, competition from milk producers in Indonesia and Thailand reduces the Australian premium to around eight per cent (Exhibit 2-8).

EXHIBIT 2-8: PRICES OF ONE LITRE FRESH MILK CARTONS IN S.E. ASIA
A$ per litre



Sources: Cold Storage Supermarkets in Kuala Lumpur and Singapore, September 2011; Strategis Partners analysis.

2.2 Milk Processing in WA

2.2.1 Major milk processors in WA

There are three major dairy processors in WA: Brownes, Harvey Fresh and National Foods. The processing facilities for National Foods and Brownes are located in Perth at Bentley and Balcatta respectively. Brownes also has a small plant at Brunswick Junction in the South West manufacturing cheese and yogurt. Harvey Fresh is located at Harvey in the South West.

WA processing plants focus primarily on bottling fresh milk for the domestic WA market, although Harvey Fresh and Brownes export liquid milk in bulk and packaged forms. Harvey Fresh has expanded recently and installed new equipment to increase milk processing capacity and UHT packaging for both dairy and fruit juice products.

In addition to the three major processors there are a number of innovative processors in WA such as Azzura Gelati and Borello Cheese who provide specialty dairy products for the WA market.

Exhibit 2-9 shows the product capabilities of the WA Processors. Since there is currently little manufacturing capacity in the state, WA imports the equivalent of some 300 million litres of milk p.a. in the form of cheese, butter, yogurt and other dairy products from Eastern Australia.

EXHIBIT 2-9: PRODUCT CAPABILITIES OF THE WA PROCESSORS

Processor	WA Milk Products					
	Fresh Milk	Yogurt, Fl. Milk	Cheese	Bulk milk, Concentrate	UHT	Butter, Powder
Harvey Fresh	●	●		●	●	
Brownes	●	●	●	●		
National Foods	●					
Other	●	●				

Source: Strategis Partners analysis.

Brownes was previously owned by Fonterra but was recently acquired by Archer Capital a private equity company.

Brownes was established in 1886 when Edward Browne first started collecting milk. Today they collect around 130 million litres of milk every year fresh from the South West. This milk is used to produce dairy products, including yogurt, cream, flavoured milk and dairy desserts. Brownes operates plants at Balcatta (liquid milk) and Brunswick (cheese and yogurt). It is exporting small volumes of branded products to Asia.

For further information: www.brownesdairy.com.au

Harvey Fresh is a privately owned WA business. Harvey Fresh is a manufacturer of Freshly Squeezed Fruit Juices, Dairy Products and Wine.

Products produced include fresh juice, long life fruit juice, apple, pear and carrot juice concentrates. The dairy factory produces fresh milk, flavoured milk, yogurt, lactose free milk, high calcium milk, long life UHT milk and skim milk. The winery produces premium wine from grapes within the Geographe Region of Western Australia which is a cool climate area. The company also contract packs house-brands for fruit juices, dairy products and wine. Harvey Fresh provides the full range of milk products including branded fresh, ESL and UHT. They are the leader in WA in exporting these products to parts of S.E. Asia. Harvey Fresh also have the Coles contract for private label milk in WA. They also produce yogurt and a limited range of cheeses.

Harvey Fresh is developing its technical knowledge of dairy manufacturing particularly for producing UHT products, in preference to products such as cheese and milk powder for the export market.

For further information: www.harveyfresh.com.au

National Foods is Australia's largest dairy food and juice company, with core activities in milk, fresh dairy foods, juice and specialty cheese. It is now part of Lion Group that is owned by the Japanese Kirin Holdings Company Limited.

In WA, National Foods dairy business operates under the Masters Brand at their plant at Bentley. It produces liquid milk products mainly for the domestic WA fresh milk market but also exports milk products to Asian markets. National Foods also has the Woolworths' private label milk supply contract for WA.

For further information: www.mastersmilk.com.au and www.lionco.com

2.2.2 The small scale integrated dairy industry in WA

Some innovative dairy farmers in WA have invested in small scale dairy processing over the past decade to produce a range of 'super-premium' dairy products. These include: Bannister Downs Dairy, Margaret River Organic Creameries, Margaret River Dairy Company, Miller's Ice Cream, Mundella Foods and Ravenhill Dairy.

Exhibit 2-10 describes each of their operations and scope of business.

EXHIBIT 2-10: SMALL SCALE INTEGRATED DAIRIES IN WA

Dairy	Description of operations and scope of business
Bannister Downs Dairy	Bannister Downs runs an integrated dairy business taking fresh milk from their cows to process on-farm fresh milk, flavoured milk and fresh cream. They sell direct to supermarkets, other retail outlets and coffee shops. Milk is packaged in an innovative and environmentally sustainable Ecolean pack.
Margaret River Organic Creameries	An integrated organic dairy business taking fresh milk from their cows to process a cheese range including Feta, Romano, Havarti, Cheddar And Camembert. Product supplied to retailers in Perth and South West.
Margaret River Dairy Company	The Margaret River Dairy Company produces premium quality boutique cheese and yogurt products. The cheeses range from Brie, Camembert, and Cheddar, to Feta and Baked Ricotta. The European style yogurts are 'pot-set' and come in a range of flavours. The Margaret River Dairy Company has two boutique shops located in Margaret River, WA.
Miller's Ice Cream	The Miller family run an integrated dairy farm taking fresh milk from their cows to process ice cream at Cowaramup, Margaret River. In addition to handmade ice cream they also supply fresh milk to outlets in the South West of WA.
Mundella Foods	Mundella Foods has an integrated dairy operation on their dairy farm at Mundijong. They produce natural dairy products including, soft cheeses and yogurt, which are supplied to supermarkets all over the state.
Ravenhill Dairy	The Ravenhill family runs an integrated dairy operation on their property located in the Great Southern region near Albany. They produce a range of products: fresh milk, fresh cream, skim milk, flavoured milk and ice cream. They mainly sell their products to retailers in the Great Southern.

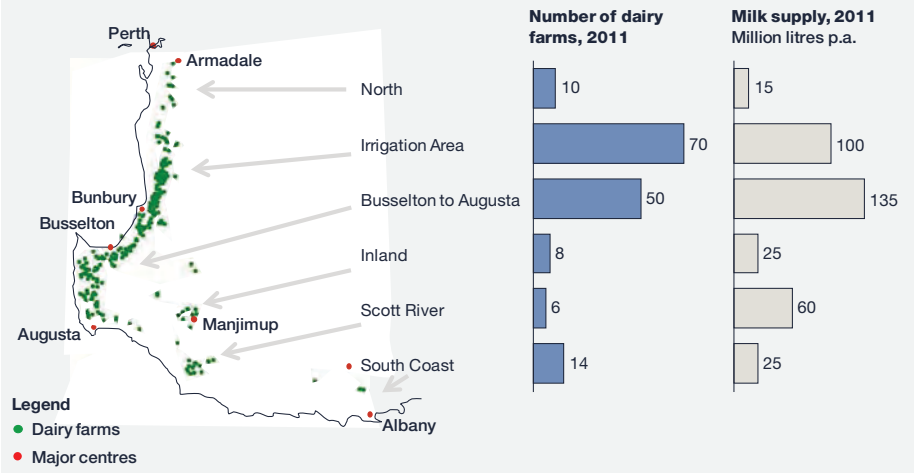
For further information on WA's small scale dairy companies refer to Appendix A.

2.3 Dairy farming in WA

WA dairy farming comprises some 160 farms with an average property size of 256ha, milking on average 330 cows with mean annual production of some 6,800 litres each for a total state output of 360 million litres in 2010-11. This farm milk production was estimated to be worth $135 million (Western Dairy, 2010).

Exhibit 2-11 shows the distribution of dairy farming across the regions of South West WA, the number of farms and milk production.

EXHIBIT 2-11: DISTRIBUTION OF DAIRY FARMING IN WA



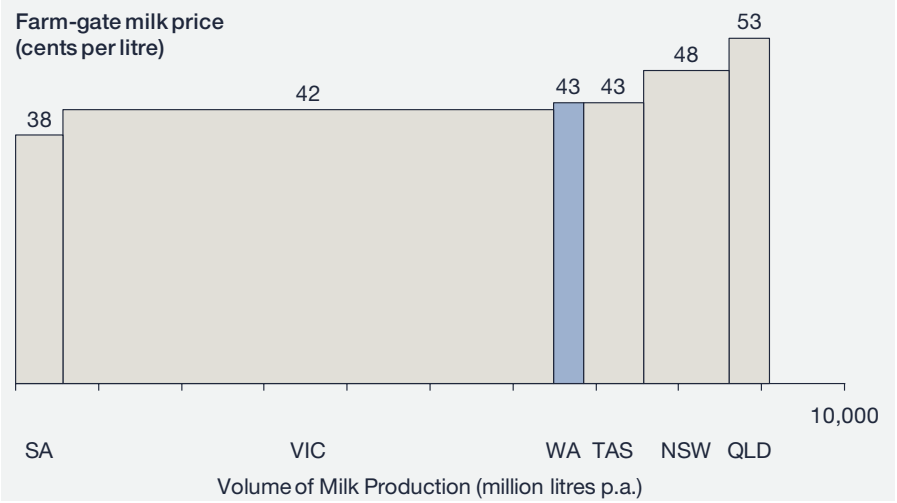
Source: Department of Agriculture and Food WA; Strategis Partners analysis.

WA has a very favourable climate for dairy production and has a strong core of efficient farmers. Comparatively, the WA dairy industry appears to be very competitive with its eastern counterparts. WA dairy farmers manage larger operations with higher-producing animals, as the national average herd size in 2009/10 was 220 cows with mean production of 5,445 litres per annum (Western Dairy, 2010).

WA dairy production is dispersed over a large area relevant to the volume of milk produced. This results in high inbound freight costs particularly for the processors based in Perth. The average inbound freight costs for Brownes and National Foods are around 5 cents and 6.5 cents respectively for each litre of milk. This compares to an inbound average freight cost of around 1.5 cents per litre for Murray Goulburn in Victoria.

Exhibit 2-12 compares average farm gate milk prices and production volumes state-by-state for 2010-11[3]. It shows that while WA produces a relatively small volume it is low-cost.

EXHIBIT 2-12: AVERAGE FARM GATE PRICES AND MILK OUTPUT, BY STATE 2010-11

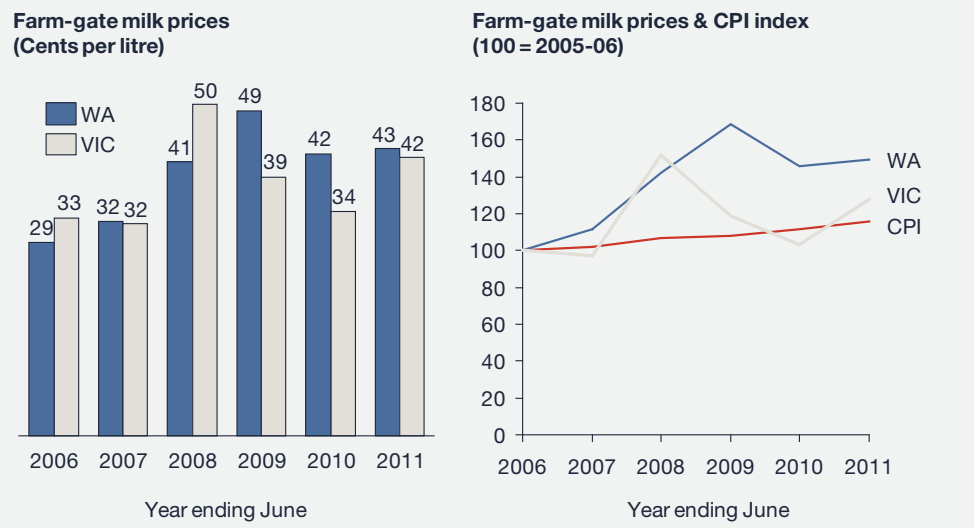


Source: Dairy Australia; Strategis Partners analysis.

[3] Farm gate milk price is defined as "gross payment for total milk intake (in litres), excluding GST, but before levy, cartage and any other deductions".

WA's farm-gate milk prices have been less volatile than Victoria's, since export prices are more volatile than domestic fresh milk prices as shown in Exhibit 2-13.

EXHIBIT 2-13: FARM-GATE PRICES IN WA AND VICTORIA



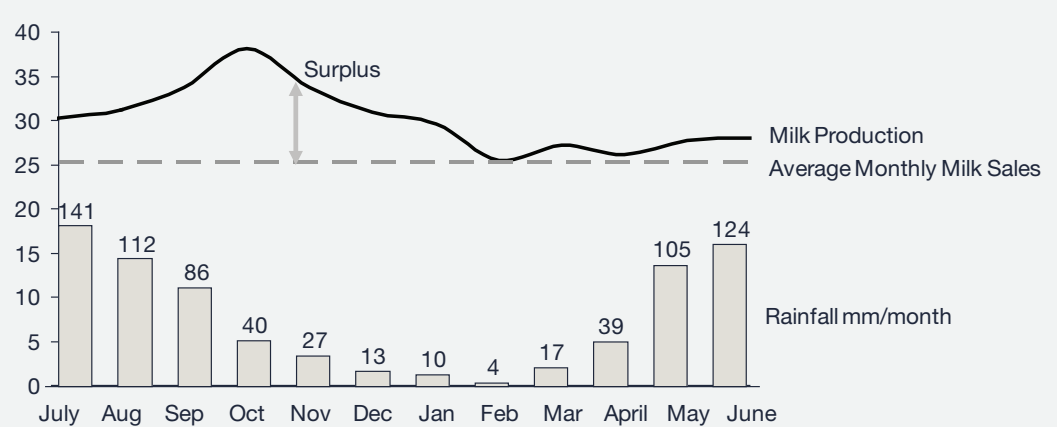
Source: Dairy Australia; Strategis Partners analysis.

Farm-gate prices in WA have risen faster than the CPI over recent years. Individual company pricing policies have influenced this rising trend. For example in the early part of this period, Challenge Cooperative accounted for 25% of milk intake and were well below the other processing companies in terms of farm-gate milk price. National Foods and then Fonterra increased prices in 2008 in response to better export returns and to match the Eastern Seaboard pricing. Over the year to end-December 2011 all the existing players appear to have lowered their prices, but with the removal of the much lower Challenge average, the overall state average has remained stable. [4]

2.3.1 The milk supply curve in WA

WA operates with a relative flat milk supply curve consistent with its primary focus on supplying the domestic fresh milk market (Exhibit 2-14). In this respect WA is similar to NSW and Queensland, whereas the exporting states (Victoria and Tasmania) operate with highly seasonal milk supply curves.

EXHIBIT 2-14: WA MILK PRODUCTION, MILK SALES, AND RAINFALL
Million litres per month / mm per month



[4] Dairy Australia; email communication between Joanne Bills of Dairy Australia and the authors, 15 November 2011.

Source: Milk production and sales data from Dairy Australia; rainfall data recorded at Vasse Research Centre, Busselton WA 1998 to 2011 from Department of Agriculture and Food WA.

WA's lowest production month is typically February when production exceeds drinking milk sales by only around 15% of production. However in 2008 the February coverage dropped to only 8%, and one processor was forced to import milk from Victoria to cover its supply shortfall.

2.3.2 Competitive advantages of WA dairy farming

The key competitive advantages of WA dairy farming include:

- Good to excellent dairy farming conditions in WA south-west region;
- Cost of land is similar to other dairy regions in Australia;
- Proximity to grain and fodder markets;
- Access to water storages and aquifers;
- Climate and topography allow for diversity of farming systems to be employed.

As previously stated a flat milk supply curve raises the costs of raw milk production. This helps explain why NSW and Queensland have the highest on-farm milk prices.

2.3.3 Some disadvantages WA dairy farming needs to deal with

The key competitive disadvantages include:

- Aging demographics – farmers' average age in WA is 51 although this is lower than in other states;
- Mining and energy industries attracting labour and skills away from agriculture;
- Relatively small scale of WA dairy industry means that not all specialised support services are available;
- Water supply is a constraint on growth in some areas;
- Dairy farming tends to be widely dispersed across the South West resulting in higher milk transport costs;
- Lack of 'best practice' managerial skills on many farms;
- High land values due to competition for land from hobby-farms makes dairy farming uneconomic for new entrants in areas near Perth (Waroona and Harvey) and Margaret River;
- Competition from export market for young heifers could make it difficult to significantly increase dairy cattle numbers without significantly increasing domestic prices. Also there are restrictions on importing cattle from the eastern states.

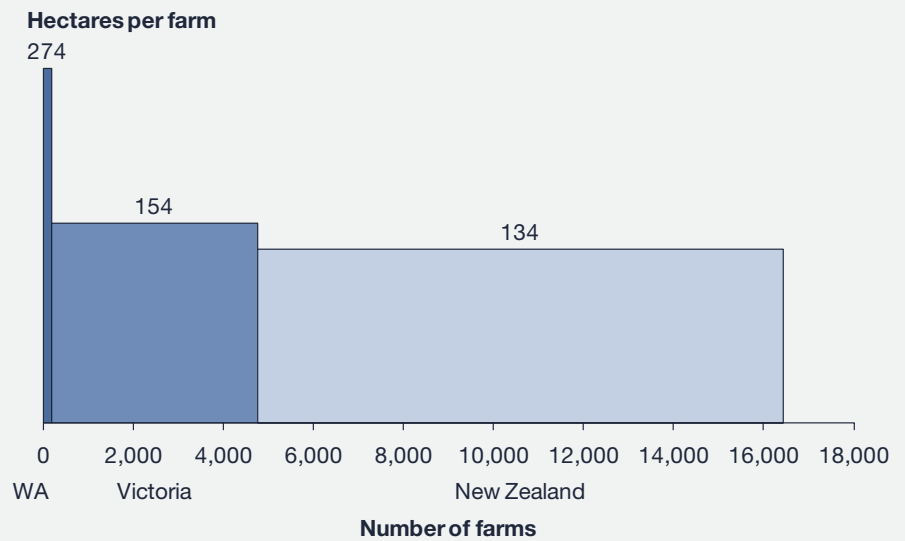
The ways in which these disadvantages can be overcome are explained in Chapters 3 and 4.

2.3.3.1 Competition for land

Dairy farming appears to be one of the most profitable agricultural enterprises in South West WA. Assuming dairy prices increase as a result of higher domestic demand and increased exports the real price for land is expected to increase over the next decade. Also land currently used for beef production could transfer to dairy production. In dairy regions from Harvey and north through to the Margaret River there will continue to be strong competition from hobby farmers for land. There could be an opportunity for dairy farmers to lease this land.

WA has a significantly larger average farm size than Victoria and New Zealand as shown in Exhibit 2-15. As the industry in WA expands the average farm size is expected to increase.

EXHIBIT 2-15: DAIRY FARM SIZE AND NUMBER OF FARMS



Source: Dairy Australia; Strategis Partners analysis.

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3 Challenges and opportunities facing the WA dairy industry

3.1 The key challenge is to re-start long-term growth

This chapter diagnoses the inherent challenges facing the industry and identify the critical aspects which need to be addressed if the industry is to prosper.

Fundamentally sustainable growth is the key to the industry's future. Not only can the current problems in the industry such as lack of confidence and investment be overcome, but also new opportunities open up if these challenges are addressed.

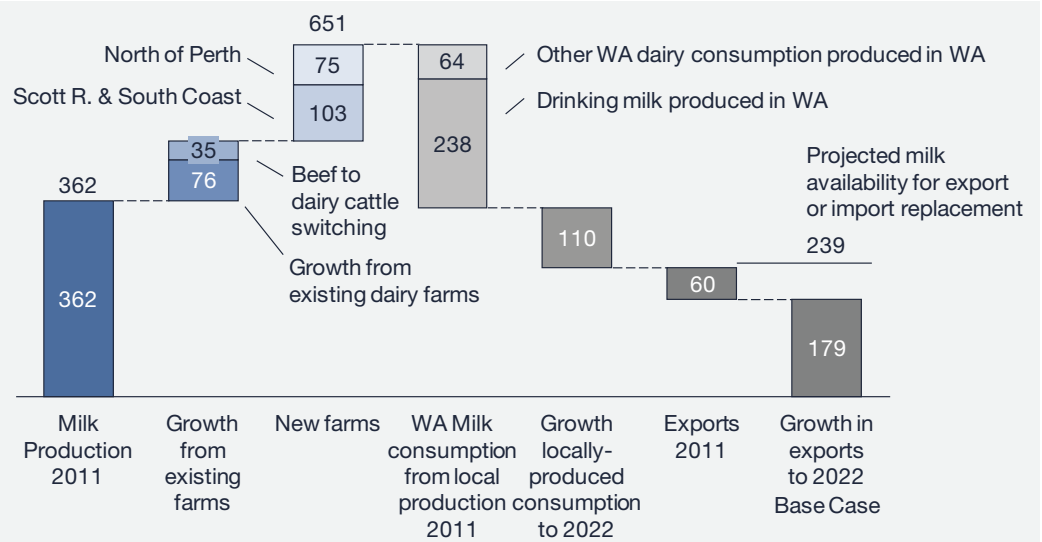
A range of benefits come with a bigger industry:

- **Scale economies** yield lower unit costs and enable more markets to be accessed profitably. Companies that are closer to an industry's efficient scale are much more likely to succeed in entering export markets and new domestic markets.
- **Scope economies** enable resources to be shared across markets, while the cost of those resources remains largely fixed. In addition farmers and processors can access more specialised services to become more productive operations with a larger industry.
- **Improved handling of production volatility**. Every production process is characterised by random fluctuations, such as output on individual dairy farms or factories. As these day-to-day fluctuations are combined, some of them will level off one another, with the effect being that the volatility of overall output can be reduced.
- **Learning economies,** based on increasing scale of operations over time, improve the operating reliability of processing plants and the success rate of new product introductions.

3.1.1 The scale of the growth opportunity

If these challenges are dealt with effectively the industry can meet both domestic consumption growth and some 239 million litres for exports and / or import replacement in the next decade as shown in Exhibit 3-1.

EXHIBIT 3-1: DAIRY EXPANSION POTENTIAL IN WA – BASE CASE
Million litres of milk equivalent p.a.

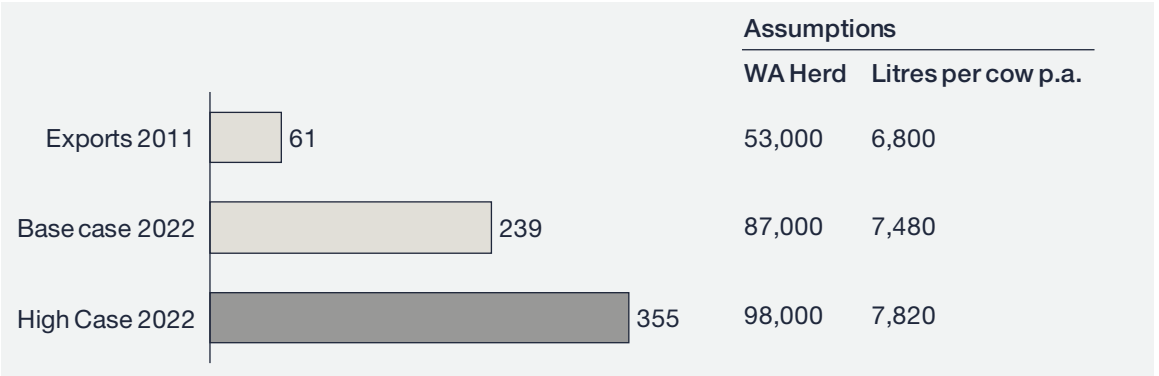


Source: Strategis Partners analysis, based on discussions with dairy farmers.

The increased milk production would be sourced from existing dairying regions of the South West – through increases in dairy farm herd sizes, farms switching from beef to dairy cattle, and new farms around Scott River and the South Coast – as well as through the establishment of dairy farming in the midlands north of Perth at Gin Gin and / or Dandaragan.

By 2022, exports could be the equivalent of some 240 million litres p.a. Through further investment and productivity improvements, milk supply available for export products and import replacement could expand to 365 million litres p.a. (Exhibit 3-2).

EXHIBIT 3-2: EXPORT POTENTIAL TO 2022
Million litres of milk equivalent p.a.



Source: Strategis Partners analysis.

3.1.2 The growth challenges

There are four key challenges to address to get WA dairying on to a long term growth path:

- The WA milk processing industry is sub-scale.
- There are barriers to international market expansion.
- Supply-side constraints on growth need to be overcome
- Growth needs to be implemented under a co-ordinated plan to ensure security of supply for fresh milk.

The following sections address each of these challenges in turn.

3.2 The WA milk processing industry is sub-scale

The primary focus on supplying the domestic fresh milk market has resulted in a sub-scale industry with low returns on capital. The domestic market has always represented a 'safe haven' for dairy producers, offering modest but steady growth. As one of the smallest producing states WA is vulnerable to competition from the other states; for example import competition in packaged ESL and UHT liquid milks, flavoured milk, yogurts and cheeses.

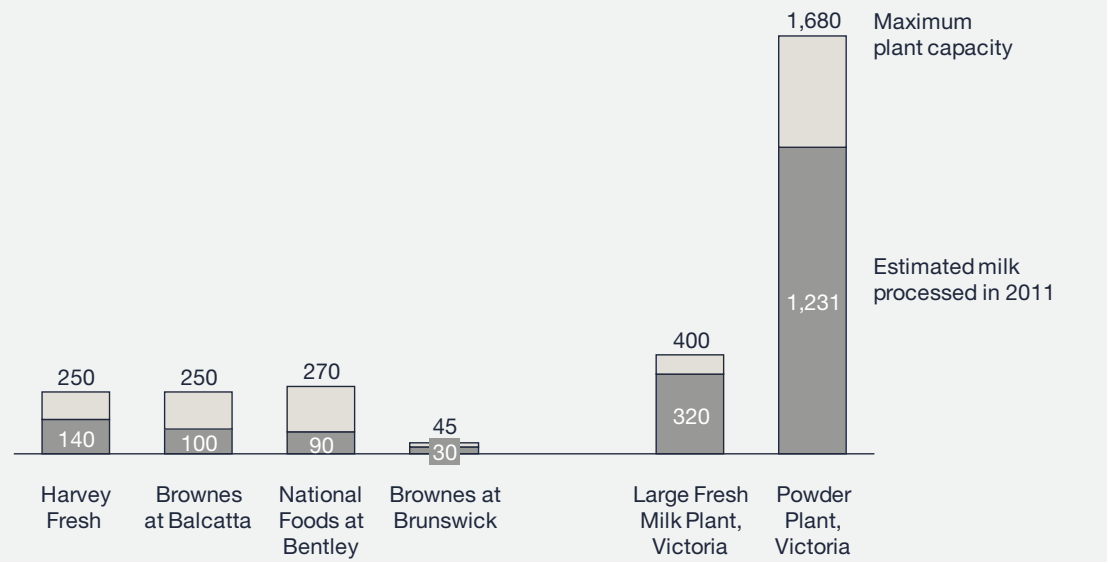
The two main reasons for WA's vulnerability are that:

- Processing plants are small and have low levels of utilisation; and
- WA lacks processing alternatives to convert the seasonal milk surplus into storable products.

3.2.1 WA processing plants are small and have low levels of utilisation

WA plants are relatively small when compared to Victoria as shown in Exhibit 3-3. The milk processing capacity of the three processors is some 800 million litres p.a. compared with current processed volumes of 340-360 million litres p.a. In contrast, Victoria's largest fresh milk plant processes some 320 million litres p.a. (and has a capacity of 400 million litres p.a.); while Victoria's largest dairy manufacturing plant at Koroit processes more than one billion litres p.a. into milk powder.

EXHIBIT 3-3: PROCESSING PLANTS – CAPACITIES AND UTILISATION
Million litres p.a.

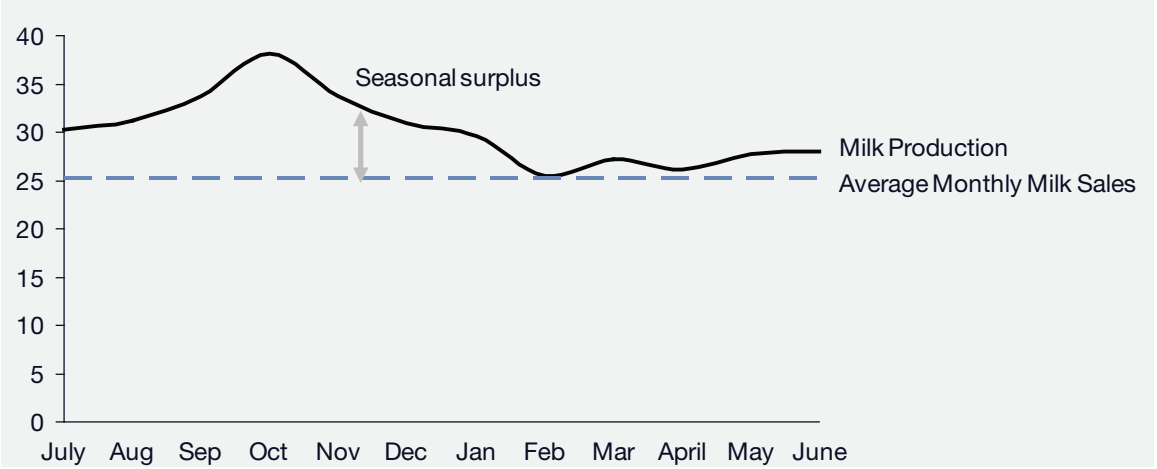


Source: Strategis Partners analysis; based on discussions with WA and Victorian executives in dairy processing.

3.2.2 WA lacks alternatives to process the seasonal milk surplus

At present there is limited 'balancing' capacity to create stored milk products. Harvey Fresh has installed a UHT production line and there is some limited cheese making capacity at Brownes' plant at Brunswick Junction. Exhibit 3-4 shows the size of the seasonal surplus in WA, representing approximately an annualised 60 to 70 million litres above WA's domestic milk sales of fresh milk and locally produced flavoured milk and yogurt.

EXHIBIT 3-4: WA MONTHLY MILK PRODUCTION AND MILK SALES 2011
Million litres per month

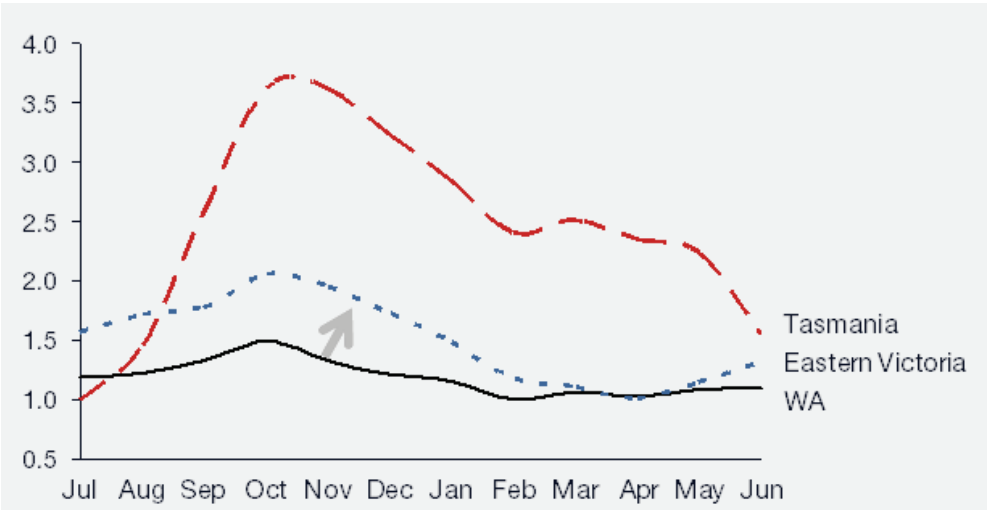


Source: Dairy Australia; Strategis Partners analysis.

WA does not have a large-scale dedicated manufacturing plant producing butter, cheese and milk powders for the export market. The largest operating cheese factory in WA is Brownes' factory at Brunswick Junction which processes some 30 million litres of milk annually. In contrast National Foods expanded cheese factory at Burnie in Tasmania will process 160 million litres of milk annually and Tasmanian Dairy Products' new milk powder plant at Smithton will process some 200 million litres p.a.

With a major investment in its dairy export manufacturing capacity WA could be expected to have a more cost-efficient, seasonal milk production profile more like Victoria and Tasmania (Exhibit 3-5).

EXHIBIT 3-5: SEASONALITY OF MONTHLY MILK PRODUCTION
Peak to off-peak ratio



Source: Dairy Australia; Strategis Partners analysis.

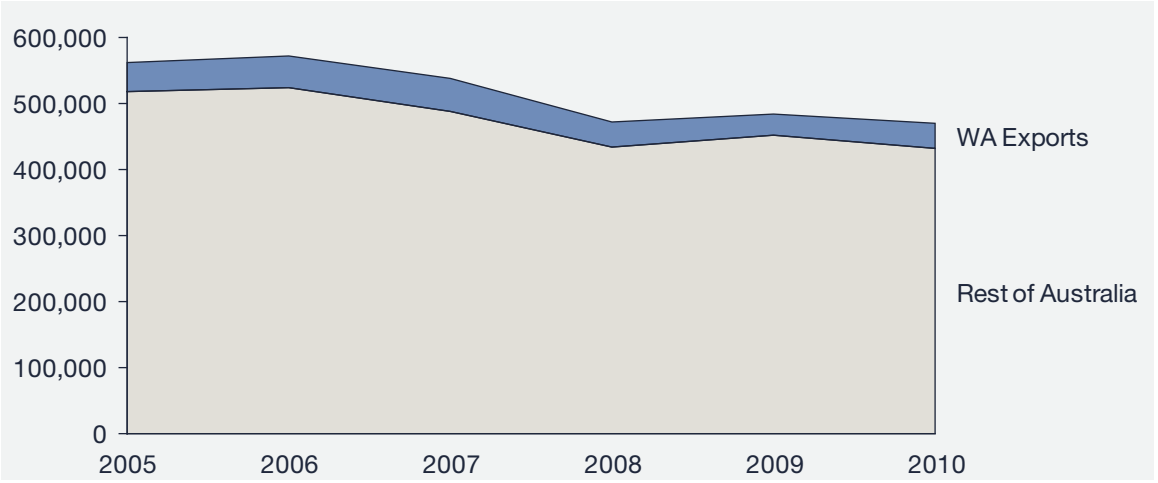
A steeper milk supply curve is estimated to lower the cost of production on many WA farms by up to five or six cents per litre through savings in feed and water costs during summer and autumn.

3.3 Barriers to international market expansion need to be overcome

3.3.1 WA's proximity to Asia is a real advantage, but exports are small

The WA dairy industry has focused on the domestic market rather than the export market in the most populated and fastest growing region of the world. Exhibit 3-6 shows that Western Australia's exports of dairy products to Asia comprise a small proportion of Australia's exports to the region.

EXHIBIT 3-6: AUSTRALIAN EXPORTS OF DAIRY PRODUCTS TO ASIA
Tonnes p.a.

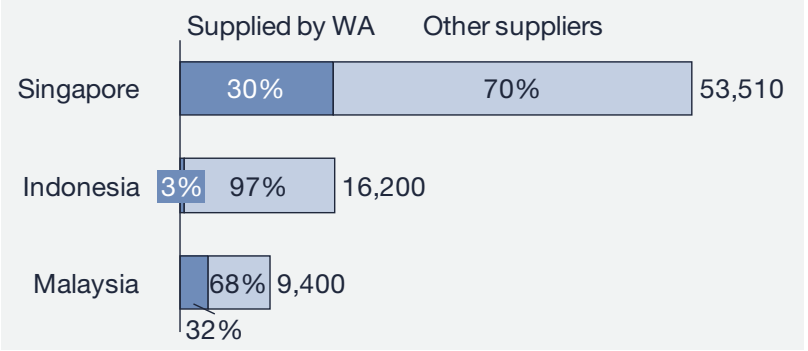


Source: Dairy Australia; Strategis Partners analysis.

3.3.1.1 WA can grow its share of the liquid milk supply into S.E. Asia

WA has potential to grow its share of the liquid milk supply into S.E. Asia (Exhibit 3-7). WA will need to differentiate its products such as through developing a clean, green, ethical reputation to overcome competition from Indonesia and Thailand.

EXHIBIT 3-7: LIQUID MILK IMPORTS TO SOUTH EAST ASIAN COUNTRIES IN 2008
Million litres p.a.



Source: WA Department of Agriculture and Food.

One example of a market development opportunity for WA is Indonesia. With a population of 240 million, a burgeoning middle class and economic growth rates of more than six per cent p.a., Indonesia is ASEAN's largest potential market for dairy. It has great potential to expand its consumption of fresh milk.

3.3.1.2 In-market milk production in S.E. Asia is constrained

Southeast Asian countries do not produce enough fresh fluid milk to satisfy their fresh milk needs. Their dairy industry has been plagued with problems in cattle feeding systems, farm management, milk acquisition and distribution systems, herd replacement quality and unfavourable climate.

Both Australian and S.E. Asian governments have provided technical assistance and financial support to the industries in Indonesia, Thailand and Malaysia. However these programs have not expanded local dairy industries sufficiently to satisfy domestic demand.

There have been quality problems with the local milk and as a result, milk imported from Australia and the U.S. commands a premium on the supermarket shelves of Asia.

3.3.2 Barriers to international expansion

WA faces a number of barriers to international expansion:

- There is a 'chicken-and-egg' investment problem;
- Supply chains to Asia need to improve for WA's fresh food exporters;
- WA's processors individually may lack sufficient scale for large-scale export market development;
- WA's potential in dairy is not well-recognised by potential investors.

3.3.3 The 'chicken-and-egg' investment problem

WA's dairy industry suffers from what may be called the 'chicken-and-egg' investment problem whereby the returns to one player's investment depends upon the investment of others in the industry value chain. For example, if one party decides to invest in farm expansion, another in dairy processing, another in rural infrastructure, another in export market development and another in new agricultural technology, then each party clearly benefits from the actions of the other. However, if one or more of these actions is missing then the returns to the other parties' investments will be reduced.

A catch–22 situation exists where no party will act until others have done so or make a credible commitment to do so.

3.3.3.1 How to secure joint commitments and achieve long-term coordinated actions?

Historically the dairy industry worldwide has adopted vertical integration – in the form of farmer co-operatives owning processing assets and retail brands – as the way to overcome the chicken-and-egg coordination problem. But for numerous reasons including the receivership of Challenge Dairy Co-operative in 2010 and more fundamentally the lack of a co-operative culture in WA dairy, it will be difficult to establish a large new dairy co-operative in the state.

Hence the strategic issue for players in the WA dairy value chain: how can they secure joint commitments and achieve long term coordinated actions at low cost – without losing the advantages of decentralised ownership? There are no magic solutions to this problem but there are potential avenues available. These include longer-term contracts, joint ventures, strategic alliances, asset ownership, and franchising as the means to realise lower capital costs and greater flexibility than vertical integration.

Joint ventures and strategic alliances, for example, allow firms to exchange certain goods, services, or expertise while maintaining a formal trade relationship on others. For example WA's grain handler, CBH Group has invested almost $100 million in a joint venture investment vehicle with Indonesia's Salim Group to secure a 50% stake in Interflour, one of the largest flour milling operations in South East Asia.

The joint venture is seen as a way for West Australian grain growers to participate in the value chain and capture extra value created through the processing of their grain. They also provide a greater degree of surety for the international demand of Australian wheat. In addition, the

CBH Group is able to convey clear market signals and unique feedback from international customers direct to growers.

Joint ventures may also allow the companies involved to retain their corporate identities and to avoid contravening trade practices law. For example two competitors in wool marketing were able to form joint venture to consolidate their wool handling operations with the approval of the Australian Competition and Consumer Commission.[5]

Asset ownership is another hybrid arrangement. A host firm in dairy processing for example could own the critical assets in adjacent stages of the industry chain such as farm land and milk tankers but contract out farm management and milk supply logistics.

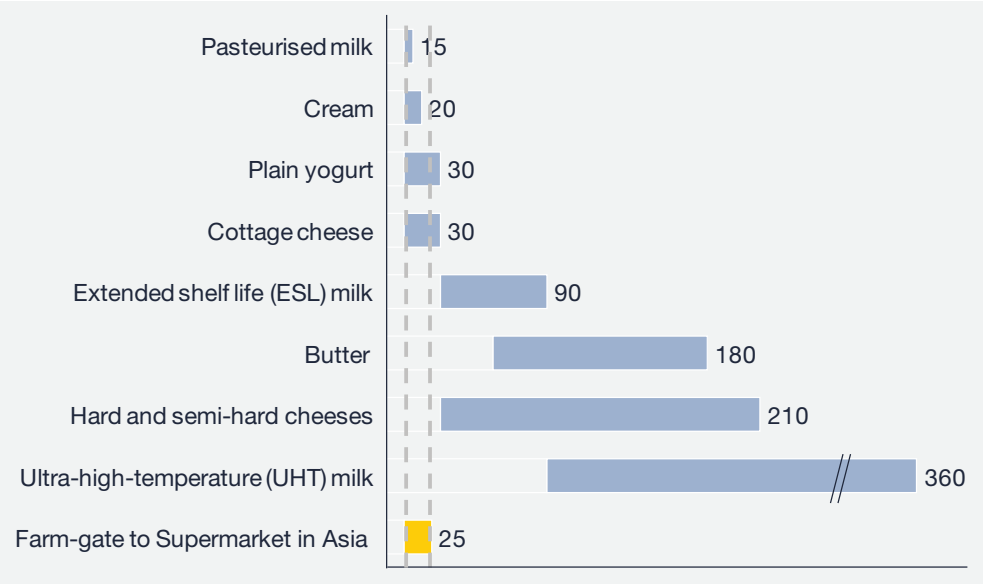
Similar arrangements are also possible on the consumer market side. For example, international marketing franchises allow the host enterprise to control distribution without the drain on capital and management resources that full integration would require.

3.3.4 Supply chains to Asia need to improve for WA's fresh food exporters

Many dairy products have relatively short shelf lives so that WA's proximity to S.E. Asia is a natural advantage against competitors in South Eastern Australia and New Zealand.

Exhibit 3-8 compares typical minimum and maximum shelf lives for a range of dairy products[6]. For example yogurt has a shelf life of between 10 and 30 days, whereas the current delivery time from farm-gate to supermarket in Asia varies between 10 and 25 days depending on the destination port. (The shipping times to Asia are analysed in the following pages.)

EXHIBIT 3-8: SHELF LIVES FOR DAIRY PRODUCTS VERSUS DELIVERY TIME FROM WA
Days



Source: G L Robertson (ed.), *(2010). Food Packaging and Shelf life: A Practical Guide,* CRC Press; Strategis Partners analysis.

[5] AWH Pty Ltd was established in 1998 by two competitors in wool marketing, Landmark and Elders, to provide economies in warehousing and export services for Australia's wool industry, handling approximately two-thirds of Australia's annual wool clip.

[6] The shelf-life of a dairy product is best defined as the time during which the product remains 'wholesome' and in a state of satisfactory quality in terms of nutritional value, taste, texture and appearance.

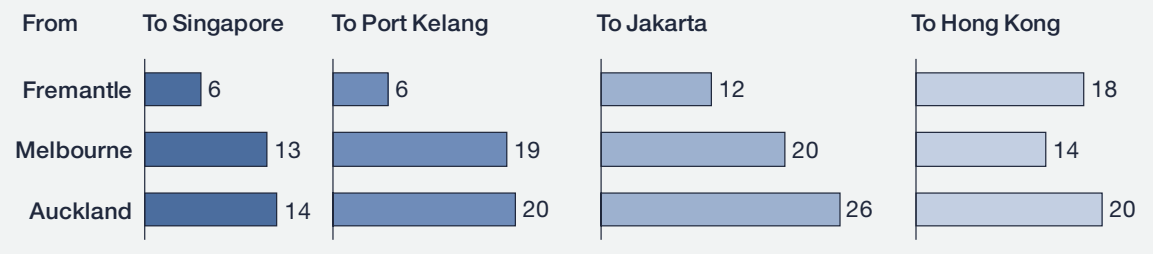
The available shelf life of a dairy product is determined by three main factors:

1. **Quality of milk** production and processing– the microbial quality of raw milk, temperature and time exposure during storage and handling, pasteurisation conditions, equipment sanitation.
2. **Packaging**; for example UHT milk relies on special packaging technology to achieve its long shelf life, while flushing the headspace of packaged cheese with pure CO2 increases shelf life.
3. **The supply chain** by which the product is delivered from source to end-use; speed of delivery and refrigeration temperature on-route and in-store being the two key factors.

Across the supply chain scope exists to improve its performance. WA's fresh food advantage is constrained by current shipping services which are not frequent enough for WA to take advantage of its close proximity to S.E. Asia, and few direct links from Fremantle other than to Singapore and Port Kelang. Only two lines ship from Fremantle to Singapore each week and they currently depart on Friday and Saturday.

Exhibit 3-9 compares sailing times to Singapore, Pt Kelang (Kuala Lumpur's port), Jakarta and Hong Kong. For example, it takes around six days at sea from Fremantle to Singapore compared to 13 and 14 days from Melbourne and Auckland. However for exports to Hong Kong (and southern China), Melbourne is faster. At present there is no direct shipping service from Fremantle to Jakarta; the transhipment port being Singapore.

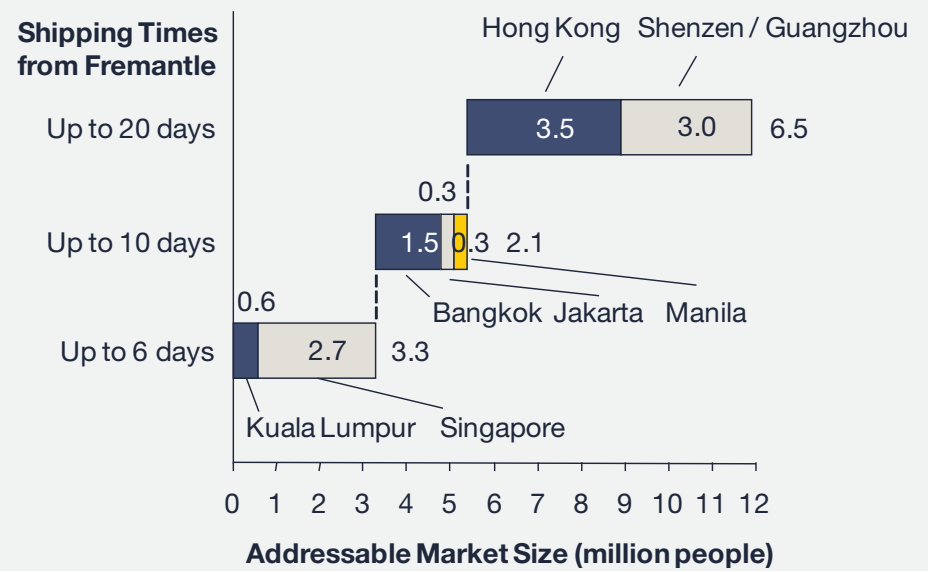
EXHIBIT 3-9: SAILING TIMES FROM OCEANIA TO ASIA
Days



Source: Strategis Partners analysis based on published shipping schedules from australiatrade.com.au and www.mscaustralia.com; accessed 15 November 2011.

Exhibit 3-10 shows the estimated size of the market potential for fresh value added dairy products versus the shipping times from Fremantle to markets in Asia. A conservative estimate suggests a market of some twelve million people in S.E Asia and southern China. This compares with a total of 80 million middle and upper income group consumers spread across the ten member states of ASEAN.

EXHIBIT 3-10: CURRENT SCOPE OF SOUTH EAST ASIAN MARKETS BY SEA TRANSPORTATION
Days



Source: Asian Development Bank statistics; Strategis Partners analysis. The "Addressable Market Size" in each of these cities is an estimate of the number of middle class and affluent people who would shop in supermarkets in which fresh dairy products are sold.

Product development needs to be carried out on packaging to extend shelf life and to cater for needs of Asian consumers, such as smaller pack sizes in the way that milk is sold in Hong Kong.

Benefits of re-engineering international logistics

If shipping times can be reduced and more frequent services become available more dairy product markets are available across Asia.

Reduced shipping times may be achieved through the establishment of a dedicated 'fresh food' fleet of vessels and / or through point-to-point shipment rather than transhipment via hub ports such as Singapore. For some markets such as Hong Kong and Jakarta a fifty to seventy per cent reduction in shipping times may be achievable. The benefits of such supply chain innovations for WA's dairy and fresh foods industries are:

- **Higher prices for higher quality.** Fresher foods command a price premium.
- **More markets with more products**. More cities in Asia can be supplied with an expanded range of products.
- **Greater consumer demand and reduced waste.** A longer product shelf life makes the product more attractive to supermarkets and their customers.

In addition WA has a potential cost advantage in shipping produce to S.E. Asia via the backhaul of empty containers from the Port of Fremantle. More than 80,000 containers shipped out of Fremantle in 2007 were empty with the bulk of these going to Singapore, Indonesia and Malaysia.[7]

By investing in fresh food transportation systems and technology WA can expand trade in fresh dairy products. This involves initiatives to streamline the export logistics chain, increase

[7] T. Emms, email communication with the authors, 23rd September 2011.

the frequency of shipping to Asia, and to more closely align the export supply chain with the WA brand promise.

3.3.5 WA's potential in dairy is not well-recognised by potential investors

WA tends to be overlooked as a producer region with growth potential since it represents only four percent of Australia's milk production. The challenge is to persuade investors that the WA dairy industry has great potential for growth. The following are suggestions for meeting this challenge:

- The involvement of overseas partners in developing export markets, for example, the establishment of an export marketing Joint Venture between WA processors, such as the Big River Pork consortium in South Australia; [8]
- Both 'hard dollar' and 'soft dollar' incentives to encourage investors to build WA's dairy manufacturing and international fresh food logistics capabilities so as to build an integrated dairy export business;
- Trade promotion programs sponsored by the WA Government, with participation by the major dairy processors and the small-scale super-premium dairy companies.

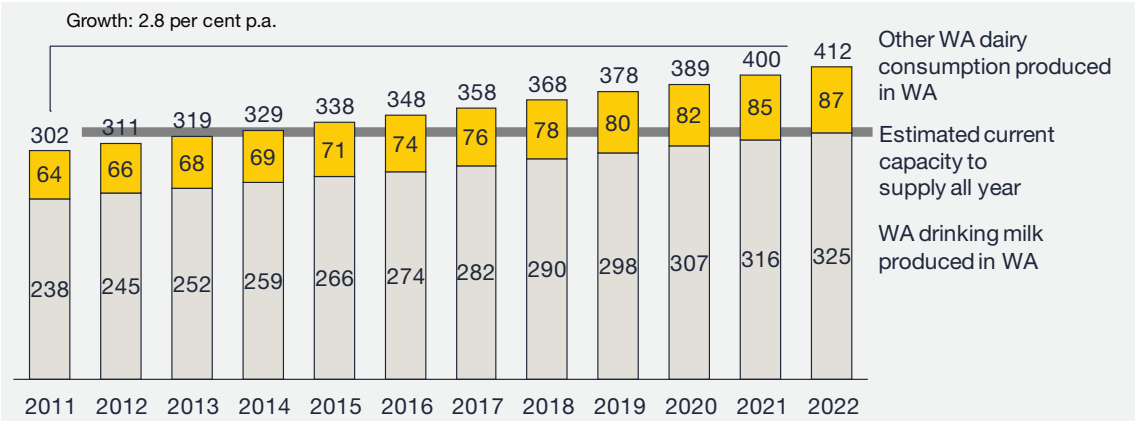
3.4 Supply-side constraints on growth need to be overcome

3.4.1 Without growth in supply, market milk shortages and price volatility

WA domestic fresh milk consumption is expected to grow at 2.8% per year, based on population growth of 2.2 per cent p.a. and growth in per capita milk consumption of 0.6 per cent p.a. On the basis of these assumptions, fresh milk consumption is projected to be more than 400 million litres by 2022. Unless on-farm dairy production increases significantly WA will be unable to supply domestic requirements for fresh dairy products by the middle of this decade.

Exhibit 3-11 shows how forecast consumption outstrips current production in the next three to five years.

EXHIBIT 3-11: PROJECTIONS OF WA FRESH MILK CONSUMPTION TO 2022
Million litres p.a.



Source: Australian Bureau of Statistics; Dairy Australia; Strategis Partners analysis.

The lack of farmer confidence to invest, in recent years, combined with the sale of young heifers for export could result in a short-term shortage of fresh milk in early 2012.

[8] To enable WA processing companies to form a consortium, relief from the Trade Practices Act may be needed.

Under this scenario milk would need to be imported from the Eastern States. As like Queensland, WA would see the marginal supply cost increase substantially, possibly to some 70 cents per litre compared to current WA farm-gate prices of around 42 cents per litre. Price volatility would also increase.

3.4.2 Most important supply-side constraints on growth

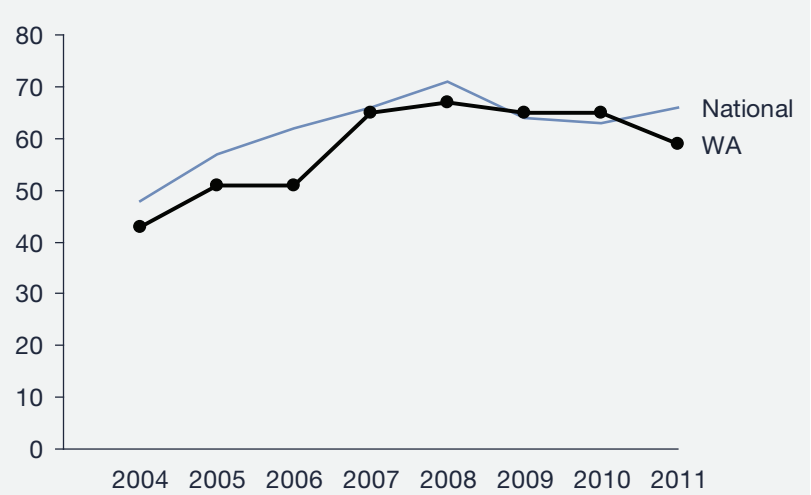
A range of supply-side constraints needs to be addressed:

- Farmer confidence needs to return;
- Greater understanding of the profitability of on-farm dairy production in WA;
- Unsatisfactory milk supply coordination mechanisms need fixing;
- Farm management skills and labour supply need to expand;
- Water and land access need to be expanded;
- Herd expansion requires coordinated action;
- Climate change requires adaptation of farm practices.

3.4.3 Farmer confidence needs to return

WA has a level of farmer confidence below the national average and has recorded the greatest decrease in confidence of all the States over the past year. Exhibit 3-12 shows the WA and national average dairy farmer confidence index.[9]

EXHIBIT 3-12: WA AND NATIONAL DAIRY FARMER CONFIDENCE INDEX
Per cent



Source: Dairy Australia.

The decline in confidence in WA has been the combination of a number of factors including the voluntary administration of Challenge Dairy in late-2010, poor seasonal conditions in 2010, rising input costs, uncertainty regarding the long term future of milk processing in WA, a lack of large scale export markets and the discounting of private label milk.

Farmer confidence now appears to be improving due to the former Challenge clients being serviced by other processors, seasonal conditions improving and some input costs falling.

[9] The Dairy Confidence Index includes three key attitudinal components which are indicators of confidence in the future of the industry. Firstly it measures 'Production' including herd size, volume of milk and predicted growth or contraction over the next three years. Secondly it measures 'On-farm Investment' including recent and planned for the next twelve months. Thirdly it measures 'Attitudes' towards the future of the industry. All three components are given equal weighting in calculating the Index score. Source: Pamela Watson, (2010). *National Dairy Farmer Survey Report, March 2011*, prepared by Down To Earth Research for Dairy Australia.

However, some farmers are reluctant to invest since they believe that the private label price discounting will ultimately lead to lower farm-gate milk prices.

In addition, the switching of private label supply contracts from one processor to another creates uncertainty for farmers. A market structure with a small number of buyers and many small sellers upstream can be unstable particularly if downstream contracts between processors and retailers are switching between suppliers. This has the potential to put a brake on farm investment.

For example if one processor loses the supply contract, farmers supplying that processor may face the prospect of having their contract volumes reduced over time. Alternatively they may try to switch their supply to the processor who has won the private label contract. This may be difficult if the incumbent suppliers to the winning processor have capacity to expand supply.

Discussions with farmers suggest that a ten per cent increase in average current prices to around 46 cents litre may be required to have existing farmers expand operations, while an average price of fifty cents per litre would be required to attract new entrants.

The WA dairy industry would benefit from having access to objective data showing the prices required to encourage increased production.

3.4.4 Greater understanding of the profitability of on-farm dairy production

One way to grow the dairy industry in WA is to attract farmers from Eastern Australia, New Zealand and further afield, while a further opportunity is to attract corporate farmers and superannuation funds to invest in the industry. However to attract these new entrants, it will be essential to demonstrate the commercial viability of large-scale dairy production (for example farm herds of more than 1,000 head of cattle). Currently there does not appear to be readily available and independent information on the profitability of dairy farming in WA. It is therefore recommended that a detailed study be undertaken to compare the profitability of dairy farming in WA with competing regions such as New Zealand, SE Asia and Victoria.

In addition it is unlikely a company would make a major investment in new processing unless it has confidence that dairy farmers could be paid a milk price that drives increased production. This particularly applies to the proposed integrated dairy export business covered in Section 4.8 of this report.

3.4.5 Unsatisfactory milk supply coordination mechanisms need fixing

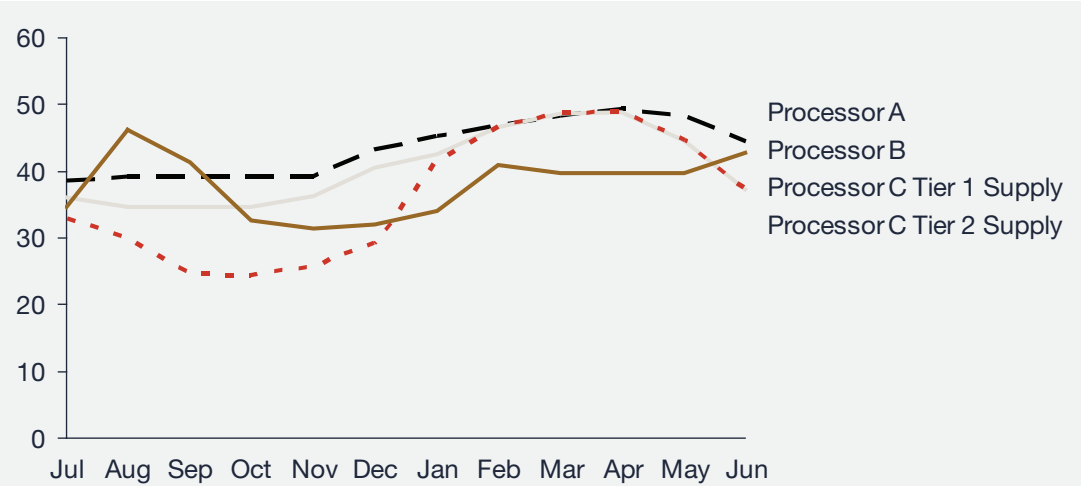
The existing milk supply contracting system reduces the industry's economic efficiency and its ability to respond to changing supply and demand conditions.

3.4.5.1 Farmers face a multitude of price signals in any one month during the year

A market price for raw milk based on actual supply and demand conditions does not exist in WA. There are three separate systems of bilateral contracts which each processor enters into with its milk producers, with prices fixed up to one year in advance. Such arrangements split the WA milk pool into three sub-pools, in what is already a very small volume in comparative regional terms. This makes the task of achieving monthly supply and demand balance harder – given the volatility in milk supply due to changing weather conditions.

Contracts between farmers and processors contain a wide range of seasonal prices (Exhibit 3-13). By their very nature these prices cannot incorporate all information on supply conditions up to one year ahead, and across all dairy farms. Such contracting arrangements can therefore only provide a very imperfect guide for balancing supply and demand over the seasons.

EXHIBIT 3-13: FARM-GATE PRICES IN 2011-12, BY PROCESSOR
Cents per litre



Source: Steve Hossen Rural Consulting.

Such milk pricing arrangements create inefficiencies. For example at particular times of year, higher cost milk production from some farmers may be supplying the market (via one processor), while the latent capacity to supply lower cost milk from other farmers (contracted to a different processor) remains untapped.

In addition there are two features of current arrangements which may work against farmer interests. Firstly processors trade surplus milk between each other. The system is not transparent and may reduce competition resulting in lower prices being paid to dairy farmers. Secondly incentive clauses in contracts for farmers supplying one processor exclusively are a barrier for new manufacturers wanting to enter the industry.

3.4.5.2 New price mechanisms for milk supply – a WA Milk Exchange

To develop a more effective pricing system consideration should be given to establishing a new price mechanism for milk supply in the form of a Milk Exchange. The WA Milk Exchange (WAMEX) would operate as a short-term trading pool with voluntary participation of suppliers and buyers. The purpose of the Milk Exchange is to provide transparent prices that reflect more accurately the milk supply and demand balance in any period.

In the Milk Exchange, producers offer to supply specific volumes of milk at nominated prices on a given day in the coming weeks, and buyers submit orders to purchase specific volumes of milk at nominated prices on a given day. An arbitrage process determines the optimal transfer of milk between suppliers and buyers, subject to the constraint that all milk produced each day must be processed.

The objective is to provide buyers and sellers of raw milk with a new industry growth platform that facilitates the efficient use of farmers' resources in producing milk over the year, and to ensure the most valuable uses of milk via its various processing options over the year.

Processors and farmers would continue to operate the existing bilateral long-term contracts. These would remain outside of the scope of WAMEX which would operate as a *net pool* that would allow suppliers and buyers to contract short term for the delivery of part or all of their milk volumes.

The milk pool is not a physical location; rather it is a set of procedures that the WAMEX Operator manages according to its Design Rules and in conjunction with market participants and regulatory agencies.

Processors could contract to acquire fresh milk at a reserve price (assumed to be around the cost of on-farm milk production) if milk is not traded by WAMEX. This will ensure dairy farmers have confidence that the exchange will sell all the milk it has listed for sale.

The WAMEX Operator could be constituted as a private company owned by industry participants.

WAMEX could stimulate the growth and profitability of the milk industry in WA by providing pricing signals that reflect more accurately the seasonal supply and demand conditions. It would:

- Provide processors with a way to manage short-term supply and demand imbalances (and risks) more economically;
- Provide a new channel to market for farmers to enable them to produce more when it is most profitable for them to do so;
- Provide a point of entry for new processors or major milk customers such as supermarkets to contract for milk supply;
- Provide all market participants with transparent pricing.

Appendix C explains in more detail the concept and operation of a Milk Exchange.

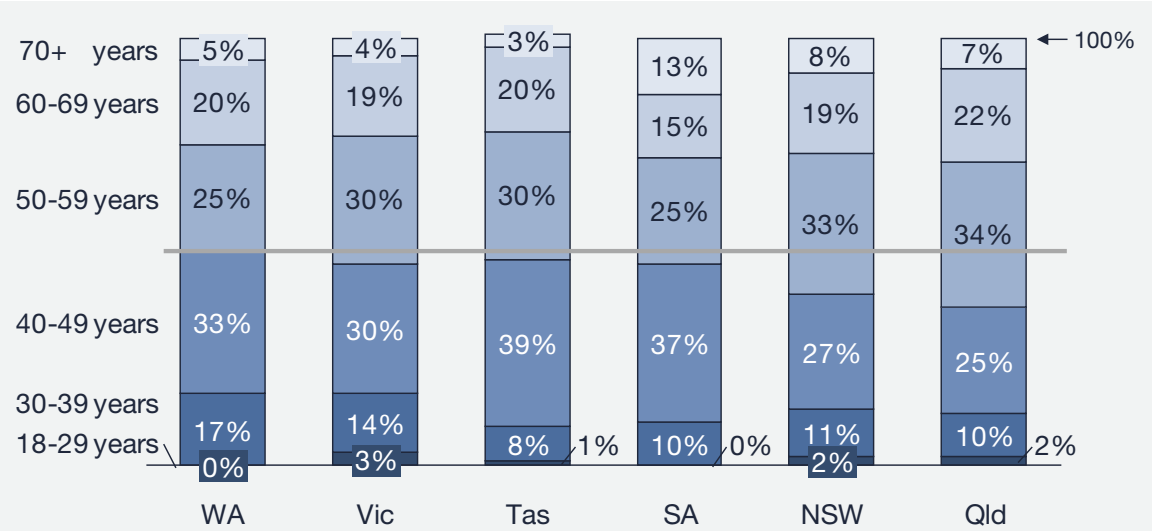
3.4.6 Farm management skills and labour supply need a boost

The dairy industry will face a critical skills shortage if the industry enters a significant growth phase. A new generation of farmers and an expanded pool of skilled labour will be required to develop a sustainable industry.

Moreover, business skills will become vital to success underpinned by improved management practices by dairy farmers. Farmers must have good knowledge of business cost structure, profit drivers and risk management. With substantial exports will come increased price volatility as a result of dairy commodity price and currency movements.

The following Exhibit 3-14 shows that WA along with Victoria and Tasmania have the youngest average age of dairy farmers below the age of 50 years. Also, WA has the largest percentage of farmers in the 30 to 50 year age group. This will be an important group for participating in the growth of the industry over the next decade. Strategies will need to be developed to attract and retain younger dairy farmers.

EXHIBIT 3-14: AGE DISTRIBUTION OF DAIRY FARMERS



Source: National Australian Dairy Farmer Survey 2011 and New Zealand Dairy Statistics 2009-10.

3.4.7 Water and land access needs to be expanded

3.4.7.1 Water

Access to and the effective use of water will be one of the key challenges for the dairy industry over the next decade, particularly if the industry is to significantly grow. Currently the property irrigation types are as follows: flood irrigation 57 farms (31%), sprinkler irrigation 26 farms (15%) and not irrigated 94 farms (54%).

Growing season rainfall is expected to decline further in the South West than other regions due to the impact of climate change. The Department of Agriculture and Food Western Australia predicts annual rainfall to be 5 to 20% lower by 2020 than the 1990 baseline.

The DAFF also predicts that, as a result of higher temperatures and lower rainfall dairy farmers will need to consider major changes to their grazing strategies, irrigation techniques and pasture or fodder mixes.

3.4.7.2 Land

There is adequate land for expansion of the dairy industry in WA, both within existing dairy production areas in the South West, as well as further east from Bunbury and to the north of Perth at Gin Gin and Dandaragan.

When compared to the Gippsland region in Victoria the South West region of WA does not achieve the same productivity levels for livestock production as shown in Exhibit 3-15 below. This leads to the conclusion that there may be an opportunity to significantly increase dairy production in the South West by increasing herd sizes on existing dairy farms, by utilising vacant land and by beef cattle enterprises switching to dairying.

EXHIBIT 3-15: COMPARISON OF LIVESTOCK PRODUCTION GIPPSLAND AND WA

Region	Agricultural area (hectares)	Dairy cattle (numbers)	Beef cattle (numbers)	Sheep & lambs (numbers)	Dairy equivalent (numbers)	Dairy equivalent (per hectare)
South West WA	876,361	62,715	395,274	1,546,046	356,980	0.4
Gippsland Victoria	462,097	229,766	376,917	252,545	434,009	0.9

Note: For calculating the **dairy equivalent numbers** one dairy cattle represents 2 beef cattle and 16 sheep

Although the comparison of productivity levels at South West region of WA and the Gippsland region of Victoria may require further analysis due to different climatic conditions, land productivity, water availability and so on it supports anecdotal comments from industry stakeholders that land in the South West is not fully utilised.

3.4.8 Herd expansion requires coordinated action

WA herd size has the highest 'mean' of the States with 388 cows compared to Victoria with 220 cows and Tasmania with 370 cows. Exhibit 3-16 compares the herd size distribution for Australian states and New Zealand. In WA 22% of dairy farmers have a herd of 150 cows or below. Although this is the lowest percentage of any state it is anticipated that many of these smaller farmers will exit the industry, significantly expand their operations or be acquired by other dairy farmers. WA and Tasmania have the highest percentage of farmers with a herd size above 700 cows (10%) compared to Victoria with only 3%. The number of large dairy

herds in WA is expected to significantly increase over the next ten years as existing farmers expand their operation and new large corporate operators enter the industry.

EXHIBIT 3-16: MILKING HERD SIZE, AUSTRALIAN STATES AND N.Z.
Per cent

Source: National Australian Dairy Farmer Survey 2011 and Dairy NZ 2009/10.

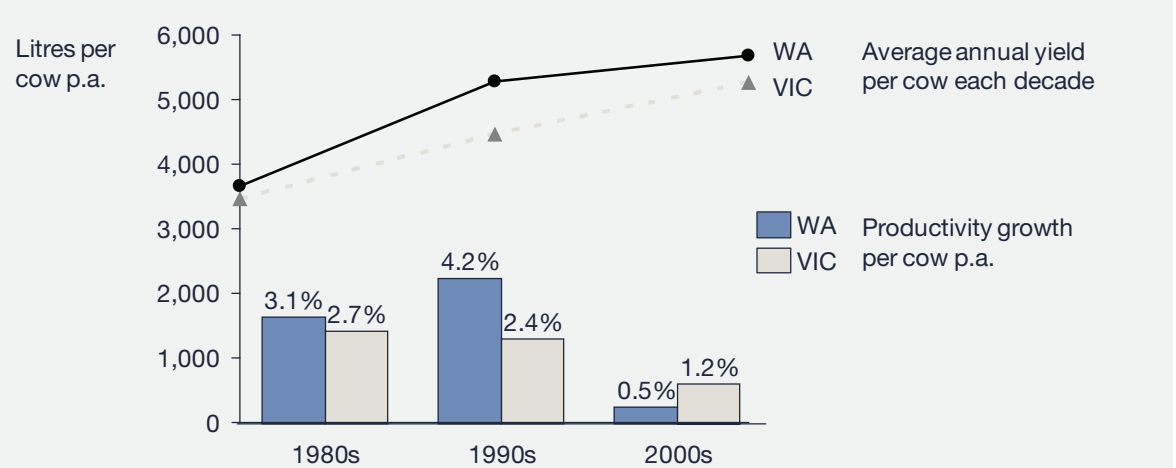
3.4.9 Climate change requires adaptation of farm practices

3.4.9.1 Climate change and its impact on WA dairy production

The sustainability of the WA dairy industry will rely on the ability of farmers to adapt to a changing climate. The industry is particularly vulnerable to drought, as there is a significant need for high-quality feed for high-producing dairy animals. By 2030, the WA climate is predicted to be characterised by increased temperatures, reduced rainfall, changes in seasonal patterns, increased evaporation, an increase in the number of drought events and a reduction in runoff (Hennessey, 2007; Cullen et al, 2009).

Yields per cow grew strongly in the 1980s and 1990s owing to improved farming practices, but tapered off in the last decade largely due to drier-than-average climatic conditions (Exhibit 3-17).

EXHIBIT 3-17: GROWTH IN ANNUAL MILK PRODUCTION PER COW



Source: Dairy Australia; Strategis Partners analysis.

The next burst in productivity is expected to come from improved higher protein feed from next generation crops.

The Department of Agriculture and Food, Western Australia has identified a range of climate change impacts on the South West Agricultural Region by 2030 and the range of potential adaptation responses (see Exhibit 3-18).

EXHIBIT 3-18: FUTURE CLIMATE SCENARIOS FOR THE SOUTH WEST REGION BY 2030

Scenario	Likely production impacts	Potential adaptation responses
Temperature increased by 1 C	• Increased pasture growth and production • Increased livestock heat stress during summer • Capacity of current pivot irrigation systems may be insufficient • Increase in external parasites • Change in timing and type of pests and weedy species	• Breed and switch to more tolerant forage and pasture species • Introduce earlier calving, improve shade for stock • Increase sprinkler efficiency • Increase use of real time evaporation monitoring tools to improve watering efficiencies • Better canopy management strategies for fodder and pastures (e.g. nitrogen input technology) • Prepare for increased demand for water in all systems
Rainfall decreased by 20%	• Less pasture on slopes, more in low lying areas • Soil type and aspect will determine degree of impact • Increased feed costs for beef/dairy feedlots	• Increase fodder conservation and diversify feedstocks • Remove soil constraints and increase pasture water use efficiency • Switch breed or genotypes which have higher feed conversions for relevant feedstocks • Adopt grain and graze strategies where appropriate • Intensify rotational grazing management with strategic confined feeding • Invest in multi-purpose infrastructure, shading/rainfall capture/fodder storage/livestock handling
More variability	• Increased feeding regime for both dairy and beef herds • Longer dry spells, increased water and feed requirements • Increases in late breaks and early finishes • More irrigation required	• Increase fodder conservation and confined feeding of livestock; explore pasture leasing in other districts • Increase fertiliser efficiencies, fertilise to demand • Continuously monitor feed on offer and adjust stocking rates accordingly or confine feeding areas • More efficient watering systems, more flexibility in feedbase • Improve business skills to plan for variability e.g. software, training, professional support • Manage fodder reserves to minimise climate impacts

Source: Department of Agriculture and Food, Western Australia, Climate adaptation for South West Agricultural Region – Farm note 413: Table 1 Future climate scenarios for South West Region, April 2010.

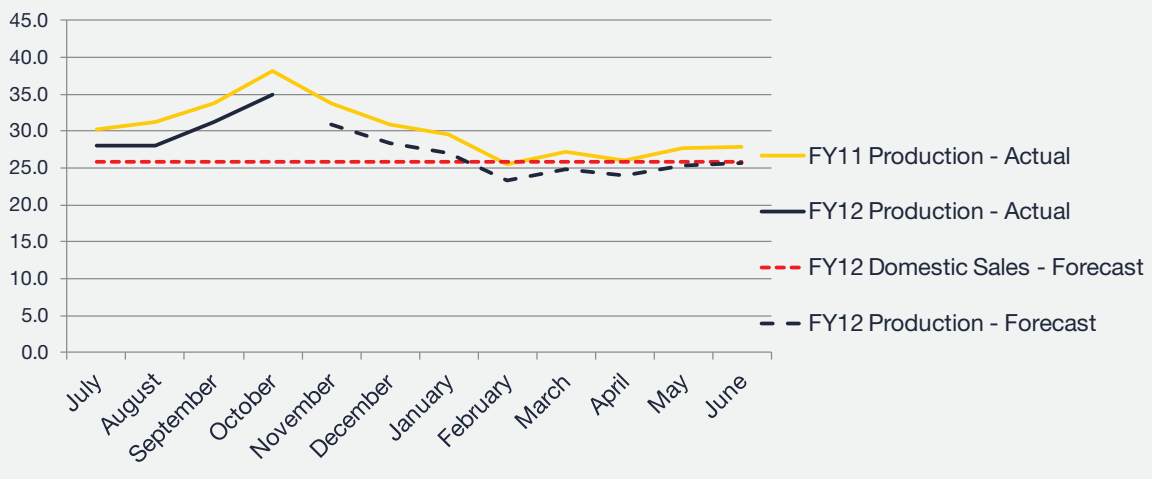
3.5 Growth needs to be implemented under a co-ordinated plan to ensure security of supply for fresh milk

The growth of the dairy industry in WA needs to be well planned and implemented under a co-ordinated industry plan to ensure sufficient milk is available for the domestic fresh milk market whilst new markets are developed.

Unless on-farm dairy production increases significantly WA will shortly not be able to supply the domestic requirements for fresh dairy products. Refer Section 3.4.1 for further details. As WA is so far away from the dairy producing regions on the east and southern Australia it is not a cost effective option to transport fresh milk from interstate.

The following Exhibit 3-19 shows that WA's current milk production is down 8% on last year and could fall below domestic average monthly sales demand by early 2012.

EXHIBIT 3-19: WA MILK SUPPLY AND DEMAND, 2011 & 2012
Million litres per month



Source: Dairy Australia; Strategis Partners analysis.

The main reasons for the sudden and unexpected fall in on-farm milk production are the recent fall in grower confidence combined with the existing inefficient mechanisms for processes providing price signals to dairy farmers. This fall in production has taken place when both Brownes and Harvey Fresh have had great success in developing new markets for milk products and dairy farmers should have responded to these initiatives by increasing production.

As the industry grows it will be important to maintain a balance between demand and supply. The way to achieve this includes a more efficient price mechanism for milk supply and the dairy farmers and processors working closely together to develop a plan to grow the industry on a sustainable basis.

Arguably the greatest threat to the dairy industry in WA is an overseas company building a powder plant, encouraging dairy farmers to increase production and then finding the plant is not of sufficient scale to compete with powder plants in New Zealand and Victoria. An example in another agricultural commodity is wool where major international wool processors built 'greenfield' plants in Australia with Government assistance in the 1990's only to close them in the early 2000's when they could not complete with new plants in China. Such plants included Geelong Wool Combers in Victoria and AusTop in NSW.

4 Strategic options for a sustainable industry

4.1 The WA Dairy industry faces two very different futures

4.1.1 The 'drift' scenario

The first scenario is to drift towards a more inward focus on the domestic liquid milk industry. Under this scenario a number of current trends continue to play out:

- Milk and dairy consumption rises steadily in line with population growth.
- The share of imported dairy products from the Eastern states continues to rise.
- Dairy exports decline as milk is required to meet domestic demand.
- One major processor exits the industry.
- The number of dairy farmers continues to fall, falling to one hundred farmers by the end of this decade, so much so that fresh milk is imported from Victoria during the low season.

4.1.2 The 'growth' scenario

The second scenario is based on a strategic intention to develop a more outward-looking industry. Under this scenario key structural shifts occur:

- Milk production expands to 700 million litres p.a. by 2022 supplying not only WA's growing needs but also expanding export markets.
- Dairy farming expands to over 90,000 head of cattle across some 200 farms.
- Dairy research station at Vasse is an industry-driven, WA project focused on developing innovative systems to increase on-farm productivity in Western Australia.
- Strategic partnerships form to expand WA's exports of dairy products to S.E. Asia, East Asia and North Asia, and partly replace imports from the Eastern states. Grounded in commercial reality, but supported by a range of government policies, these partnerships involve local processors in close collaboration with Asian food companies.
- Dairy farmers and local processors work closely together developing an overarching plan to ensure the industry is expanded in a sustainable manner. It is critical to ensure there is sufficient fresh milk to meet local demand whilst production increases to supply milk for the growing export market.
- Australia's national food retailers commit to increasing their local sourcing of dairy products – and source WA niche dairy products for Eastern markets.
- Shipping services from WA to Asia are re-engineered and a fleet of ships transport fresh dairy products and other fresh agricultural products on a daily basis to S.E. Asia.

- Dairy processing investments are made both in Asia and WA to take advantage of more open trade agreements between Australia and ASEAN, the emerging Trans-Pacific Partnership, as well as bilateral agreements between Australia and countries such as Indonesia and China.

4.2 How the industry can move forward

WA can become an innovative exporter and overcome the small size of its domestic market – as New Zealand did some thirty years ago – but with an emphasis on 'fresh'.

The guiding policy, for building a sustainable dairy industry in WA, is to increase on-farm production and increase WA's share of the dairy market in Asia.

The aim is to re-position the WA dairy industry from a predominantly domestic focus and increase its exports of value-added, mainly fresh dairy products into Asia. This needs a coordinated program of investment in market development and manufacturing and a re-engineering of the supply chain, which in turn needs to be supported by the introduction of productivity and innovation initiatives to expand on-farm dairy production.

4.3 Range of strategic options available

The key opportunity is for the WA industry to focus on the growth of the export market to Asia while continuing to supply the local fresh milk market.

Such growth would allow for the WA dairy industry to take advantage of economies of scale in manufacturing, marketing and supply chain operations. At present, the greatest strategic risk to the industry's future is that it lacks scale.

After reviewing the SWOT analysis for the WA dairy industry (see Appendix D) the following actions are required to exploit the strengths and opportunities and to address the weaknesses and threats:

- **Action 1.** Convene a Government and Industry task force to drive the industry expansion.
- **Action 2.** Collaborate on processing and export market development.
- **Action 3.** Re-engineer the 'fresh' supply chain from WA to Asia.
- **Action 4.** Boost productivity and innovation on-farm.
- **Action 5.** Establish an integrated dairy export business.

4.4 *Action 1.* Convene a Government and Industry task force to drive the industry expansion

Proposal:

WA Government and Dairy Industry to establish a task force made up of key industry stakeholders to review, prioritise and implement initiatives to expand the industry.

4.4.1 How to ensure the industry takes advantage of the opportunity to expand the dairy industry

Expanding the dairy industry will have substantial flow-on benefits for the WA economy. The WA Government should therefore play a critical role in creating an environment for the industry to grow.

4.4.1.1 Dairy's value to the WA economy

The dairy industry is a significant contributor to the WA economy with strong potential for growth (Exhibit 4-1 below). In many parts of the South West, dairy farming is the most efficient use of agricultural land.

EXHIBIT 4-1: CONTRIBUTION OF LIVESTOCK INDUSTRIES TO THE ECONOMY OF WA 2007-09

Industry	Gross value of production 2007-08	Output multiplier	Income multiplier	Employment	Value-added
Beef cattle	$487 M	2.33	5.17	1.80	2.50
Dairy cattle	$132 M	2.07	2.87	1.39	1.97
Poultry	$160 M	2.75	2.67	2.09	2.95
Pigs	$ 95 M	2.30	4.06	2.49	2.35
Sheep	$921 M	2.23	3.46	1.46	2.41
Meat and meat products	-	3.15	4.12	5.14	6.04
Dairy products	-	2.97	4.75	11.26	5.19

Source: Western Australian Agriculture and Food Industry Multiplier June 2006, Nazrus Islam, DAFWA.

The dairy industry has the potential to at least double in size over the next ten years. In addition to increasing the value of on-farm production there is an opportunity to significantly grow the local processing industry and to develop a major new export business.

The expansion of the industry should create major employment opportunities in the South West of Western Australia.

4.4.1.2 Industry stakeholders need to drive growth

The following Exhibit 4-2 shows the key industry stakeholders to drive the development and implementation of actions to expand the industry.

EXHIBIT 4-2: ROLE OF KEY STAKEHOLDERS IN IMPLEMENTING ACTIONS

Follow-on Actions deriving from Action 1	Stakeholder to lead implementation	Other stakeholders to play key supporting role
***Action* 2.** Collaborate on processing and export market development	Major processors	At least two processors: • Brownes • Harvey Fresh • National Foods
Action 3. Re-engineer the 'fresh' supply chain from WA to Asia	Governments of WA and S.E. Asia with supply chain advisers	Processors, Shipping Operators, Port Authorities and WA tertiary education institutions
***Action* 4.** Implement productivity initiatives to support expanded on-farm dairy production	Dairy Australia and Western Dairy	WA Government, Processors, WA Farmers and Dairy farmers
***Action* 5.** Establish an integrated dairy export business	Interested commercial parties	WA Government

4.4.2 Proposal for Government and Industry task forces to drive expansion

Policy makers and industry leaders should consider action on three fronts: firstly, re-engineering the export supply chain; secondly, branding WA foods in Asia; and thirdly, on-farm innovation. For example, three industry task forces drawn from Industry and Government could be convened to review, prioritise and develop initiatives to expand the dairy industry:

- Task Force 1: Complete a detailed study on re-engineering the supply chain for shipping fresh dairy products from WA to Asia;
- Task Force 2: Design and run a "Brand WA" food and dairy marketing campaign in Asian countries to support individual company programs with objectives to:
    - Make WA more distinctive – focus on 'fresh';
    - Raise consumer understanding of the benefits of fresh, clean, green and ethical products;
    - Communicate the WA value proposition to new customers who should value it.
- Task force 3: Review actions to expand on-farm production including water management, training, sustainable farm practices, infrastructure improvements, labour requirements; carry out feasibility studies on developing new dairy regions and the WA Milk Exchange; develop a plan for FutureDairy to establish an operation in WA with support of WA stakeholders, including the introduction of a trial robotic milking system on a dairy farm in WA; and complete a detailed study to compare the profitability of dairy farming in WA with competing regions such as New Zealand, SE Asia and Victoria.

The Task Forces would prepare a report with specific recommendations on implementation within six months.

4.5 *Action 2.* Collaborate on processing and export development

Proposal:

Existing processors to address the problem of sub-scale operations: (1) by identifying initiatives to capture consolidation opportunities in processing, (2) by consolidation of logistic operations, and (3) by developing a joint venture to capitalise on export opportunities. The export joint venture could also provide services to small-scale dairies such as Bannister Downs and Margaret River Dairy Company.

4.5.1 There are opportunities for the processors to work together

As industries evolve, a succession of changes can unfold that put pressure on all companies in the sector.

The most effective countermeasure to a squeeze on margins is to shift the 'compete / collaborate ratio' among the relevant firms. When an industry is growing and margins are good, companies can afford to compete on nearly all fronts and eschew collaboration; but this should shift when margins erode.

Collaboration can take many forms without violating trade practices laws, including co-production or asset-sharing agreements, purchasing and supply chain coordination, or joint research and development. For the dairy processors here are some specific opportunities to work together in three areas:

1. Capture consolidation opportunities in processing;
2. Develop export opportunities through joint venture arrangements;
3. Consolidate transport and service logistics.

4.5.1.1 Capture consolidation opportunities in processing

WA plants are relatively small when compared to Victoria as shown in Exhibit 3-3 in Chapter 3. The milk processing capacity of the three WA processors is some 800 million litres p.a. compared with current processed volumes of 340-360 million litres p.a. In contrast, Victoria's largest fresh milk plant processes some 320 million litres p.a. (and has a capacity of 400 million litres p.a.), while Victoria's largest dairy manufacturing plant at Koroit processes more than one billion litres p.a. into milk powder.

Possible ways for the industry to overcome the problem of sub-scale operations are as follows:

- Consolidate the processing industry through merger or acquisition;
- Establish a common user facility managed by one operator who provides services to all individual processors on one site. This shared platform could comprise inbound and outbound logistics, utility services (energy, power, steam, water and effluent management). Individual processors would continue to contract with milk producers, as well as produce and market their own branded products. The facility ownership could be structured as a joint venture of the processors or contracted out to a third party. For an example of shared production facilities Exhibit 4-3 describes the Big River Pork consortium in South Australia.

EXHIBIT 4-3: BIG RIVER PORK – A CONSORTIUM OF COMPANIES

Big River Pork

Big River Pork is a consortium of four major Australian pork industry players:

- Auspork, a producer-owned company delivering services such as marketing and export development to enhance the viability of Australia's pig producers;
- B. E Campbell, a meat wholesaler supplying markets in Asia and supermarket chains in Australia;
- George Weston Foods, one of Australia and New Zealand's largest food manufacturers;
- Hurstbridge Abattoirs, meat exporters and packers.

The state-of-the-art export pork processing facilities located at Murray Bridge, South Australia manages pork production from the farm to retail ready product. The plant began operation December 2001.

The supply of pigs from partner owned farms include most of the major (1000 Sow+) herds in the state.

Source: based on published information from www.bigriverpork.com.au; accessed 15 November 2011.

4.5.1.2 Develop export opportunities through joint venture arrangements

One option for WA processors to expand their exports to East Asia and S.E. Asia is to form a joint venture. WA's share of Australia's liquid milk exports to East Asia and S.E. Asia is the largest and in recent years the fastest growing (see Exhibit 2-7 in Chapter 2).

Some possible ways forward for the processors to work together to increase exports are as follows:

- Processors to provide milk surplus to their domestic requirements to a joint venture that would export dairy products to S.E. Asia;
- Focus to be on exporting Extended Shelf Life (ESL) and Ultra High Temperature (UHT) milk;
- UHT milk to be processed at the Harvey Fresh plant;
- Joint venture to invest in developing and servicing new export markets.

The export joint venture could also include small scale integrated dairies such as Bannister Downs Dairies and Margaret River Dairy Company. The joint venture could provide export services to these companies.

4.5.1.3 Consolidation of transport and service logistics

There are a number of opportunities for processors to work together to capture cost savings in milk supply and service logistics.

The three processors independently collect milk from farmers for transport to their plant. In terms of in-bound logistics the feasibility of a single contractor for milk pick-up from farms should be investigated. The South Australian model may be appropriate for WA.

In addition there are potential benefits in creating an independent entity to test milk. This could yield cost savings for processors, but more importantly create greater farmer confidence particularly if milk is traded via a new entity such as the proposed WA Milk Exchange.

Opportunities also could be reviewed to have a joint logistics operation to deliver milk products from the plants to retailers and other customers. The joint logistics operation could also service the proposed export joint venture.

4.6 *Action 3.* Re-engineer the 'fresh' supply chain from WA to Asia

Proposal:

Re-engineer the shipping supply chain system to transport fresh dairy products and other fresh food products from WA to S.E. Asia, on a more regular basis, possibly daily.

4.6.1 Responding to emerging opportunities

WA has an opportunity to exploit its proximity to S.E. Asia. This gives WA a natural advantage against competition from Eastern Australia and New Zealand, particularly for perishable food and fresh dairy produce.

However, WA's fresh food advantage is constrained by current shipping services which are not frequent enough for WA to take advantage of its close proximity to S.E. Asia and which provide few direct links from Fremantle other than to Singapore and Port Kelang. Only two lines ship from Fremantle to Singapore each week and they currently depart on Friday and Saturday.

On the other hand, WA has a potential cost advantage in shipping produce to S.E. Asia via the backhaul of empty containers from the Port of Fremantle. More than 80,000 containers shipped out of Fremantle in 2007 were empty with the bulk of these going to Singapore, Indonesia and Malaysia.

Investment in transportation systems and technology is necessary to expand WA's trade in fresh dairy products. This would involve streamlining the export logistics chain, increasing frequency of shipping to Asia and more closely aligning the export supply chain with the WA 'brand promise'.

4.6.2 Scope of project

The scope of the project is to carry out a major feasibility study on how WA fresh dairy products and other fresh agricultural products can be transported on a regular basis, possibly daily, to S.E. Asia.

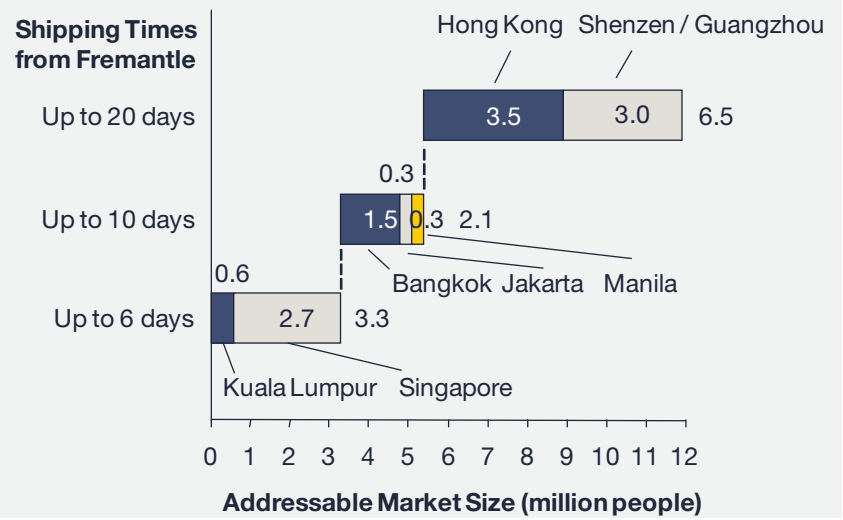
Initially the ships could leave WA twice weekly on Tuesday and Friday and increase to daily as volumes of fresh produce increase. Also the ships could carry general cargo until the fresh food export market grows.

The study would include reviewing the cost of establishing the fleet of ships carrying frozen cargo, chilled cargo and cargo at controlled temperatures. The fleet of ships could be owned and operated by a shipping line or via a joint venture with an Asian partner. The feasibility study could be funded by the Federal Government or the State Government, and in conjunction with ASEAN country Governments.

4.6.3 Why a dedicated fleet of ships?

This strategy facilitates WA's integration into Asian food markets, particularly for fresh foods. It enables WA to capitalise on its clean, green, ethical image and take advantage of its close proximity to major population centres in S.E. Asia (Exhibit 4-4).

EXHIBIT 4-4: CURRENT SCOPE OF SOUTH EAST ASIAN MARKETS BY SEA TRANSPORTATION
Days



Source: Asian Development Bank statistics; Strategis Partners analysis. The "Addressable Market Size" in each of these cities is an estimate of the number of middle class and affluent people who would shop in supermarkets in which fresh dairy products are sold.

Reduced shipping times may be achieved through the establishment of a dedicated 'fresh food' fleet of vessels and / or through point-to-point shipment rather than transhipment via hub ports such as Singapore. For some markets such as Hong Kong and Jakarta a fifty to seventy per cent reduction in shipping times may be achievable through point-to-point shipment. The benefits of such supply chain innovations for WA's dairy and fresh foods industries are that it offers the prospect for higher prices for higher quality, access to more markets with a wider product range, more consumer demand and reduced waste in supermarkets.

It is also proposed that the operator of the ships would work closely with the maritime, customs and other authorities, in both WA and S.E. Asia, to develop the optimal operating procedures to ensure the fresh and perishable products are quickly processed at port.

The proposal is similar to the initiative shown by livestock exporters when they built dedicated ships to export livestock from WA to Middle East. This was a critical part of the logistics platform for developing a major export industry.

Another benefit of a dedicated fresh logistics system is that it would lower the barriers to entry for small and medium enterprises (SMEs) wanting to sell their produce into markets in Asia. Anecdotal evidence suggests that SMEs face significant logistical transaction costs in exporting fresh products by sea to Asia. [10]

[10] M. Partridge, interview with the authors, 20th December 2011.

4.6.4 Export development supported by tertiary training

To support the development of WA's exports in dairy (and other fresh produce), investment in skills will be needed. Consideration should be given by Universities, TAFE colleges and Governments to establish export business, marketing and logistics courses in selected WA tertiary education institutions.

4.7 *Action 4.* Boost productivity and innovation on-farm

Proposal:

Develop and implement a set of actions to encourage dairy farmers to increase production substantially over the next decade.

4.7.1 Responding to emerging opportunities

WA has a great opportunity to develop a major industry focused on exporting fresh dairy products to the growing Asian markets.

WA can become an innovative exporter to overcome the small size of its domestic market – like New Zealand did 30 years ago.

To take full advantage of the emerging opportunities, co-ordinated support from the WA Government, Dairy Australia, processors and major retailers will be needed to give dairy farmers the confidence to expand.

4.7.2 Description of the proposal

The objective is to increase on-farm milk production from currently around 360 million litres to a minimum of 650 million litres by 2022. This represents an increase of 290 million litres or 80%. The growth in production represents increased herd size combined with increased productivity per cow (Exhibit 4-5).

EXHIBIT 4-5: ASSUMPTIONS FOR INCREASED PRODUCTION

Key indicator	Current 2011	Projection 2022
Cattle numbers – WA dairy herd	53,000	87,000
Productivity per cow – litres of milk	6,800	7,480
Production on-farm - litres	360 million	650 million

4.7.3 Actions to expand the industry

To expand the size of on-farm dairy production whilst developing a sustainable industry will be a challenge requiring support from industry stakeholders and careful planning. Exhibit 4-6 outlines the kinds of support needed to place the WA dairy industry on a sustainable growth path.

EXHIBIT 4-6: INDUSTRY SUPPORT FOR SUSTAINABLE GROWTH

Initiative	Actions
Training	• Develop specialised dairy farming training courses at TAFE colleges; • Continue to improve level of farm management business skills; • Improve expertise and number of specialist dairy consultants to service a larger industry;
Innovation	• Establish operation similar to FutureDairy in WA to increase on-farm productivity and innovation; • Establish a robotic dairy operation at Vasse Research Station in the South West;
Production	• Promote sustainable practices on farm (WA Government); • Carry out feasibility study on developing new dairy regions; • Lease land from mining companies; • Establish a market in forage;
Improve infrastructure	• Improve infrastructure; roads and power; • Consolidate milk collection services;
Boosting grower confidence to invest	• Establishment of new processing plant focused on export key to increasing dairy farmers confidence; • Develop a transparent pricing model for fresh milk –establish WA Milk Exchange; • Processors and retailers to enter into long term supply contracts;
Water management	• Government to develop a clear water strategy; • Improve farm practices to maximise utilisation of water;
On-farm labour	• Recruit farm labour from overseas; • Develop a training programme for overseas labour.

One of the key opportunities for growing the dairy industry in WA could be to expand the operations of the dairy unit at the Department of Agriculture and Food research station at Vasse. The operations could be similar to FutureDairy, focused on dairy innovation. FutureDairy is an industry-driven, national project developing innovative alternative systems to increase on-farm productivity. FutureDairy's principal investors are Dairy Australia, Industry and Investment New South Wales (formerly Department of Primary Industries), The University of Sydney and DeLaval. In addition, the project receives support from Dairy NSW and The Dairy Research Foundation.

For further information on FutureDairy refer to Appendix B.

In September 2011 the Department of Agriculture and Food announced it is seeking a new ownership model for dairy operations at Vasse. Refer to Appendix E for details.

4.7.3.1 Enlisting the resources of government to facilitate industry growth

Access to land, water, gas, labour and skills are critical if the industry is to grow. Support from government is needed in the following areas:

- Improve infrastructure including upgraded roads, power and access to water;
- Provide financial support to trial a WA Milk Exchange (see Appendix C below for details on the role of a Milk Exchange);
- Carry out a feasibility study on developing new dairy regions including Far North WA;
- Support development of new processing plant;
- Complete a detailed study to compare the on-farm profitability of dairy farming in WA with competing regions in New Zealand, SE Asia and Victoria.
- Opportunity for WA Government to support the development of a major new export industry.

A clean, green, ethical brand strategy for the WA dairy industry could also provide a model for developing export markets for other WA agricultural products.

4.7.4 Expanding the industry requires a significant investment from farmers

To expand the WA dairy industry from currently producing around 360 million litres of milk to 650 million litres by 2022 will require a major investment from farmers. The total required expenditure to increase production could range from $ 300 to $350 million.

4.8 *Action 5.* Establish an integrated dairy export business

Proposal:

Establish a joint venture with an Asian partner to build a processing plant in WA, secure on-farm supply and export fresh premium dairy products to the Asian markets (and over time to the Middle East) exploiting WA's clean, green, ethical reputation.

4.8.1 Next step in developing a sustainable dairy industry

Once the industry has set the framework to boost productivity on-farm and commenced re-engineering the supply chain from WA to Asia the next step would be to review establishing an integrated dairy export business. This opportunity could be driven by existing Australian dairy companies in conjunction with an Asian partner.

4.8.2 Responding to emerging opportunities

WA has a great 'food story' to tell Asian consumers but more investment in international market development will be needed. The opportunities are two-fold:

- For consumers in Asia, there are growing preferences for fresh products, safe foods and foods produced using sustainable practices.
- For food manufacturers and governments across Asia, there is an increasing need for food security, for example through closely integrated supply chains. These might extend to on-farm investments in WA.

To move to respond to emerging opportunities in Asia the following actions are needed:

- Develop and market products that meet Asian consumer preferences for fresh products, safe foods and foods produced using sustainable practices.
- Expand the range of 'fresh' products and extend the potential market to countries such as China, Hong Kong, Indonesia, Philippines and Thailand, where there is an increasing demand for liquid milks, cultured foods, cheese, ice-cream, and other dairy ingredients.
- Attract partners from Asia to invest in WA. Explore opportunities for marketing partnerships and strategic alliances with ASEAN, Chinese, Hong Kong, Indian, Japanese and Korean companies.
- Create a WA food export marketing alliance to share best practice, for example building on the work of companies such as the Craig Mostyn Group, a WA exporter of pork to Singapore.
- Build the local marketing skills needed for launching new dairy products in Asia.
- Design and run 'WA' food and dairy marketing campaigns in Asian countries.
- Encourage dairy farmers to increase supply to meet increased demand from Asian consumers. It may be necessary for processors to provide long-term contracts to encourage farmers to invest in increasing production (more details on this in Section 3.3.3, *The 'chicken-and egg' investment problem*.)

4.8.3 Scope of project

Build a new 'green-fields' state-of-the-art processing plant in WA or expand the processing capacity and product range of one of the existing processors. The plant is to initially process 150 million litres of milk into fresh dairy products, including fresh cheeses and speciality powders. It is envisaged the plant will be expanded to process around 250 million litres of milk within 5 years.

An extension of this opportunity could be to develop an integrated business model that would include long-term supply agreements with dairy farmers, processing facilities and distribution and marketing operations in S.E. Asia. This initiative should ensure supply for the processing facility and could provide confidence to other dairy farmers to invest in increasing production.

The long-term supply agreements could attract corporate investors to acquire and expand existing dairy farms or establish large new dairy operations.

4.8.4 Why become an innovative exporter of premium fresh dairy products?

Even with an expanded industry, WA will not have the scale to compete with NZ and Victoria in manufacturing and exporting commodity dairy products to Asia and the Middle East. The opportunity for WA is to exploit its close proximity to S.E. Asia to supply fresh milk and other perishable dairy products as shown in Exhibit 4-7.

EXHIBIT 4-7: EXPORT MARKETS FOR WA FRESH PRODUCTS

4.8.5 Outline of an integrated business model

An example of a possible structure could be to form a Joint Venture with two shareholders:

- An Australian Partner with 50% shareholding; could be a consortium of existing WA processors &/or dairy companies from Eastern Australia.
- An Asian Partner with 50% shareholding; to be a reputable Asia company with knowledge of Asian markets and with access to a wide distribution network.

Exhibit 4-8 explains how the Joint Venture could operate.

EXHIBIT 4-8: ILLUSTRATION OF HOW THE JOINT VENTURE COULD OPERATE

Function	How the Joint Venture could operate
How fresh milk is sourced from farmers	• Contracted dairy farms supply 50% (via long term contracts to ensure continuity of base supply). • Contracted dairy farms supply 25% (via short/medium term supply contracts). • Sourcing via the proposed Milk Exchange for 25% (source 'spot' and short term requirements).
How milk is processed	• Joint Venture to build a new state of the art processing plant in the SW region of WA. • Plant to process value-added premium fresh dairy products for sale in the S.E. Asia, Northern Asia, China and the Middle East. • Some dairy products could be shipped in bulk and re-packaged at a distribution centre in S.E. Asia.
How fresh dairy products can be sold	• Joint Venture to have a distribution centre and marketing office in S.E. Asia. • The key role of the marketing office is to provide market intelligence to ensure the joint venture identifies trends in dairy consumption. • Products to be sold to a number of countries in Asia and Middle East and preferably to a number of distributors within those countries. • Joint Venture to also supply products to domestic market but focus to be on export market.

4.8.6 Establishing an integrated dairy business requires significant capital

A preliminary financial analysis indicates that it would require a total capital investment of around $95 million to establish a new state-of-the-art processing plant in WA that could supply a range of premium fresh dairy products for the Asian market.

Also to secure its supply it is proposed the joint venture would source around 50% of its milk direct from dairy farmers under long-term supply agreements. Based on the projected growth of exports the details of volumes of milk required are set out in Exhibit 4-9.

EXHIBIT 4-9: MILK SECURED VIA LONG TERM SUPPLY CONTRACTS
Million litres p.a.

Milk Supply	2015	2016	2017	2018
Plant to process - million litres of milk	150	175	200	250
Milk sourced from long term supply contracts with dairy farmers (50%)	75	87.5	100	125

Source: Strategis Partners analysis.

To provide the additional milk required by the joint venture it will require a significant investment expanding existing operations and establishing new dairy farms as shown in Exhibit 4-10. Assuming the new processing plant requires 250 million litres of milk the on-farm investment will be around $342 million. The 250 million litres of milk can be produced by some 34 000 cows each producing an average of 7,300 litres of milk p.a.

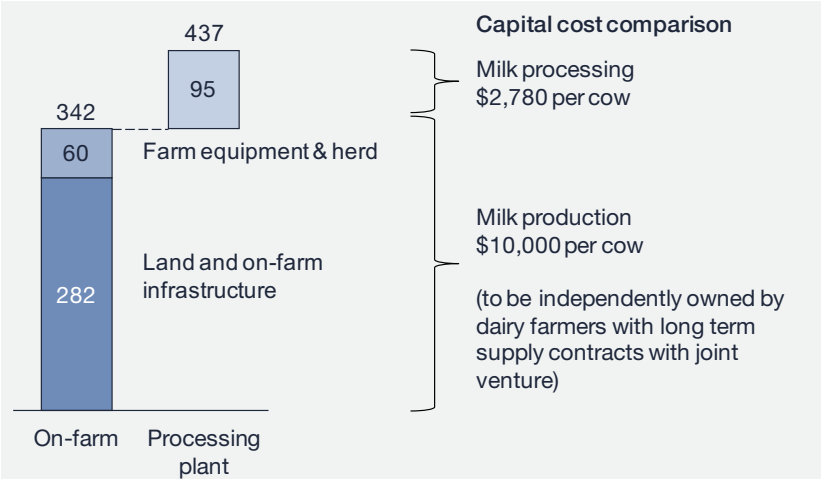
EXHIBIT 4-10: DAIRY INVESTMENT ON-FARM

Features of On-Farm Investment	2015	2016	2017	2018
Milk supply (million litres p.a.)	150	175	200	250
Litres of milk p.a. for each cow	7,000	7,100	7,200	7,300
Dairy cows required	21,428	24,648	27,778	34,247
Total capital investment on-farm	$214M	$247M	$278M	$342M

Source: Strategis Partners analysis.

Exhibit 4-11 shows the component capital costs of an integrated dairy business.

EXHIBIT 4-11: CAPITAL INVESTMENT F0R INTEGRATED DAIRY BUSINESS
$ million



Notes: Processing plant only represents the capital costs for the plant. It does not include working capital for the export business. Sources of data: Colin Bosustow of Primary Consulting Services Pty Ltd, and Tony Brady of A Brady Consulting Pty Ltd; Strategis Partners analysis.

4.9 Conclusion

The story of milk in WA can open a new chapter, one that sees WA as the distinctive fresh dairy producer to Asia. The expansion of dairy exports will be driven by income growth and trade liberalising measures in the high- and middle income markets of South East Asia and East Asia.

WA's natural advantage is quality dairy product, and quality includes not only the safety and nutritional balance of the milk products, but also the way it is produced – ethically and sustainably. The use of animal and natural resources is becoming important to the consumer, and those with discretionary income are looking for the premium label. WA's dairy future lies in targeting and hitting the premium market.

The goal is to achieve superior long-term returns on investment that will come from expanding the WA dairy industry, by producing products which deliver hard-to-imitate benefits to Asian consumers who have always demanded fresh foods.

WA's dairy growth strategy will be based on a distinctive supply chain that maximises the state's potential as the temperate climate fresh food supplier to the region. By reducing delivery times, maintaining freshness and minimising shipping costs, advances in sea borne transportation will facilitate trade of fresh dairy products.

Governments also have a critical role to play. Over the next 20 years, food security will be a key public policy issue across the region. Moreover, the development of WA's dairy industry is fundamentally about structural change. It involves extensive innovation to produce more milk using more sustainable production systems on-farm, and to develop, process and ship new products via new international logistics chains. To facilitate the structural change needed, Governments have a role to play in skills, infrastructure and trade development.

To ensure the WA dairy industry continues to have enough fresh milk to supply the domestic market it is important that dairy farmers, Western Dairy and local processors work closely together to develop an overarching plan to grow on-farm production whilst export markets are developed.

In fact this unfolding story is about continuity of direction which was set more than a decade ago with the export of premium ice-cream to Japan and bulk fresh milk to South East Asia pioneered by Peters and Brownes. WA should not go for commodity markets that dairy regions such as Victoria and New Zealand have captured. WA will succeed on a 'fresh' value proposition which competitors struggle to deliver.

5 References

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Appendix A
Information on small scale dairies in WA

Bannister Downs Dairy

Bannister Downs Farm is an integrated dairy business producing fresh milk, flavoured milk and fresh cream. The farm runs over 1500 Holstein Friesian, the milk from which is processed on-farm to produce fresh milk, flavoured milk and fresh cream which is sold directly to supermarkets, other retail outlets and coffee shops.

During milking the fresh milk is piped only 10 metres, directly from the dairy, to the milk processing facility, where traditional processing techniques take place.

Bannister Downs is the first milk processing facility in the Southern Hemisphere to use the Ecolean packing system. Imported from Sweden, this system is at the forefront of environmentally sustainable packaging.

For further information visit: www.bannisterdowns.com.au

Margaret River Organic Creameries

Margaret River Organic Creameries supply milk to many retailers in Perth and in the South West. The full cream milk is pasteurised but unhomogenised, which allows for the cream to rise to the top. The cheese range includes Feta, Romano, Havarti, Cheddar and Camembert.

Organic production starts from the ground up, using mineral fertiliser that promotes soil microbes and organic carbon in the soil. The cattle graze on organic pastures supplemented with organic grain in summer. Pesticides, fungicides or insecticides are not used on the property. The cattle are free from additional hormones and antibiotics.

The farm in Treeton, South Western Australia, began the organic certification process in 2004 with guidance and thorough and frequent testing of soils by the nationally accredited certification body **NASAA** (National Association for Sustainable Agriculture Australia). The operation became fully certified organic in early 2008.

For further information visit: www.margaretriverorganiccreameries.com

Margaret River Dairy Company

The Margaret River Dairy Company produces premium quality, award winning, boutique cheese and yogurt products. The cheeses range from Brie, Camembert and Cheddar, to Feta and Baked Ricotta. The European style yogurts are 'pot-set' and come in a range of high quality flavours.

The Margaret River Dairy Company welcomes over 600,000 visitors per year through two boutique shops located in Margaret River, WA. One shop is located at the manufacturing site 6.5kms north of Cowaramup and the other at The Margaret River Dairy Company's historical site (original manufacturing plant) 4km up the road.

For further information visit: www.mrdc.com.au

Miller's ice cream

The Miller family are a third-generation family who have run a dairy farm in Cowaramup, Margaret River since 1932. They run around 450 head of dairy cattle.

Millers make over 30 flavours of ice cream at their dairy at Margaret River. In addition to handmade ice cream they also supply fresh milk to outlets in the South West of WA.

For further information: www.millersmargaretriver.com.au

Mundella Foods

Mundella Foods operates an integrated dairy business on their property at Mundijong. The milk travels fresh from local paddocks to their production line.

Mundella Foods was established in 1974 by local dairy farmers, Peter and Anne Hector, who found they had a surplus of milk. They built a small factory and Mundella Foods began its life, a small soft cheese factory supplying local shops. Over the years they have upgraded and extended the operation to include yogurts and drinking yogurts, which they supply to supermarkets all over the state.

For further information: www.mundellafoods.com.au

Ravenhill Dairy

The Ravenhill family operates an integrated dairy business on their property located in the Great Southern region near Albany.

Full milk production for Ravenhill Dairy commenced in April 2005 with their first range of products being Traditional Full Cream Milk, Full Cream Milk, Low Fat Milk and two varieties of cream, Old Style Whipping Cream and Old Style Thick Cream.

They have diversified and now produce a further range of products which include a no-fat Skim Milk, flavoured milks such as Iced Coffee and Choc Milk, as well as traditional creamy ice creams available in 10 different flavours depending on seasonal availability and public demand.

For further information: www.ravenhilldairy.com.au

Appendix B
FutureDairy Research Program

FutureDairy is focused on industry innovation

FutureDairy is a great example of the industry working together to develop innovation. FutureDairy is a research program to help Australia's dairy farmers manage the challenges they are likely to face during the next 20 years.

FutureDairy is an industry-driven, national project investigating alternative systems to increase on-farm productivity and innovations that have the greatest potential to impact on farmers' economic well-being and lifestyle. FutureDairy's principal investors are Dairy Australia, Industry and Investment New South Wales (formerly Department of Primary Industries), The University of Sydney and DeLaval. In addition, the project receives support from Dairy NSW and The Dairy Research Foundation.

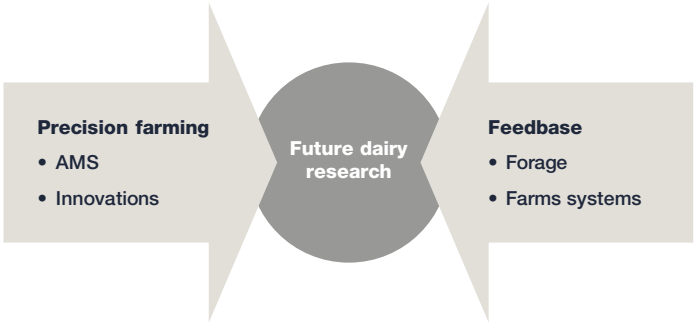
The logic behind FutureDairy's research is based on the need to increase:

- **Labour efficiency and lifestyle** to make the industry a more attractive one in which to work in order to encourage future generations of farmers to remain on-farm. In the long term, this will be achieved only if the currently predominant perception of dairying as a low-appeal, 365-day routine is changed towards a more attractive perception of a profitable, dynamic, technology-driven business which can combine high labour productivity with a good lifestyle for the farmer.

- **On-farm productivity** to counteract the adverse effects of the increasing cost of resource inputs. The key pressures on farmers in the future (identified in phase 1 of the project), are even more applicable now: land, water, labour availability and cost, and impact of dairying on the environment. In addition, recent global (e.g. grain demand for biofuel) and Australian (drought) factors have resulted in increased cost of supplementary feed – particularly grain-based concentrates – and, as a consequence, the Australian dairy industry will need to increase its reliance on home-grown feed.

Accordingly, research activities in FutureDairy have been designed within two key areas: Precision Farming and Feedbase (Exhibit B-1).

EXHIBIT B-1: FUTUREDAIRY RESEARCH PROGRAM



Source: FutureDairy.

An example of a research and development project for FutureDairy is the development of the world's first robotic dairy.

Labour innovation - robotics and automation. Developed by DeLaval in collaboration with Australia's FutureDairy program, this project was revealed in Germany and Australia in November 2010. A pilot of the robotic rotary is operating at the Elizabeth Macarthur Agricultural Institute, Camden, NSW. Developed for Australia's pasture-based dairy systems, the robotic rotary is suited to herd sizes between 300 and 800 cows. The robotic rotary automates most milking tasks, enabling the job to be performed as a background activity, without the presence of a human operator.

The robotic rotary has the potential to be widely used by dairy farmers in WA over the next decade. It is expected to assist significantly with the growth of the industry by reducing labour costs and improving the lifestyle of dairy farmers.

Appendix C
The WA Milk Exchange – a new industry growth platform

The objective of the WA Milk Exchange is to provide buyers and sellers of raw milk with a new industry growth platform that facilitates (via 'look ahead' price signals):

- The efficient use of farmers' resources in producing milk over the year on their individual farms, and
- The most valuable uses of milk via its various processing options over the year.

How would the WA Milk Exchange work?

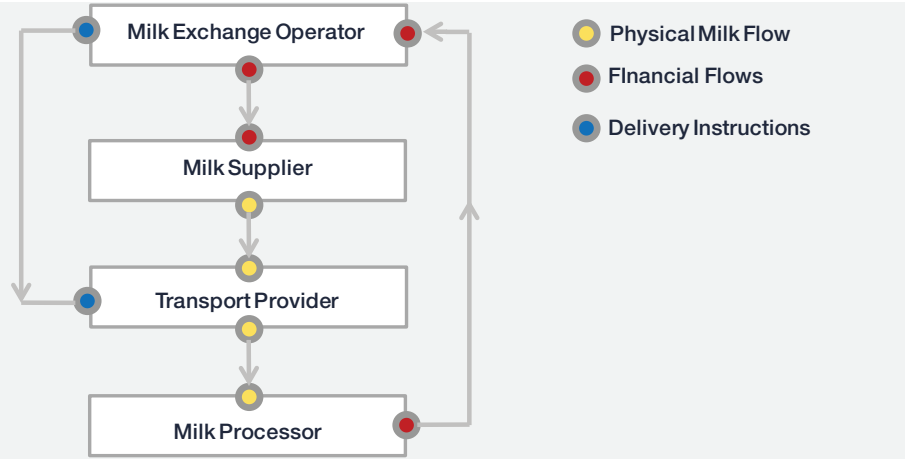
Operating the WAMEX involves conducting a sequence of activities to facilitate trade between the producers and wholesale buyers of milk. These activities include receiving offers to supply from producers and offers to buy from wholesalers, calculating the spot price, scheduling deliveries and financially settling the market.

It would operate as a short-term milk pool with voluntary participation of suppliers and buyers. Producers / buyers offer to supply / buy specific amounts of milk at particular prices. Offers are submitted say on a daily, weekly or monthly basis[11]. From all offers and bids submitted, the Operator determines the market-clearing price or prices, and runs an optimisation program to find the most cost-efficient way to deliver the milk from producers to processing centres[12]. The Operator would be the counter-party for financial transactions both on the buy-side and the sell-side. See Exhibit below showing the milk and financial flows in WAMEX.

11 The most suitable operating cycle for the market would have to be determined based on how quickly suppliers and processors can respond, what sort of advance notice that they would require and how long they would need the changes in production to be maintained.

12 There be a need for more than one price depending on whether solids and somatic cell count or fat and protein are priced rather than just used to set bounds on quality.

EXHIBIT: MILK AND FINANCIAL FLOWS IN WAMEX



Processors and farmers would continue to operate the existing bilateral long term contracts. These would remain outside of the scope of WAMEX which would operate as a *net pool* that would allow suppliers and buyers to contract short term for the delivery of part or all of their milk volumes.

The net pool arrangement would allow suppliers with potential supply in excess of their contracted amounts to sell this additional milk to WAMEX. On the other hand, suppliers who were short of production capability to meet their contractual amounts could purchase the additional milk required from WAMEX. Similarly, processors could adjust the amount of milk they take for processing. If milk prices are high a processor may prefer to sell some of its contracted capacity back to WAMEX and reduce its processing. Alternatively, if prices are low, a processor may prefer to buy additional milk for processing from WAMEX. These short-term WAMEX contracts would be entered into weeks or days prior to supply.

Before the trading day, suppliers inform the WAMEX of the quantity of milk to be sold under contracts and to whom it will be sold so the Operator can schedule deliveries.

As an alternative or adjunct to long term physical processing contracts WAMEX members may also enter into formal hedge contracts to manage spot market risk. If the form of these contracts is standardised then a futures market in milk supply contracts could be developed, if there were any value in doing so.

The milk pool is not a physical location; rather, it is a set of procedures that the WAMEX Operator manages according to its Design Rules and in conjunction with market participants and regulatory agencies.

Given the standardisation of trading through WAMEX, the net position of all suppliers and processors can be determined, which in turn would facilitate optimising transport arrangements whereby milk deliveries and pick ups need not correspond to any of the long-term supply contracts but just to the net position of each dairy farmer and processor. Transport services for milk deliveries would be contracted out[13].

13 There could be a blending issue here that might need to be considered if the quality of milk from different farms varied too much. Thus there would be a joint logistics and blending quality problem that would need to be solved. Milk quality measurements from one day should be reasonable forecasts of quality for the next day thus data from the previous day's collection would be input to the transport and blending optimization the next day.

WAMEX would contract for *ancillary services* to manage the milk supply system safely, securely and reliably. Ancillary services maintain key technical and quality characteristics of the system, including standards for quality measurement and system risk management.

The WAMEX Operator would be constituted as a private company owned by industry participants.

Benefits of the WA Milk Exchange

WAMEX can stimulate the growth and profitability of the milk industry in WA by providing pricing signals that reflect more accurately the seasonal supply and demand conditions. It can provide processors with a way to manage short-term supply and demand imbalances (and risks) more economically; farmers with a new channel to market to enable them to expand supply when it is most profitable for them to do so; and new processors or major milk customers a point of entry to contract directly for milk supply.

Scope of a design study for a WA Milk Exchange

When setting up a market there are many issues that need to be looked at in the market design. Further, whatever is proposed needs to be tested with the potential market participants and stakeholders. There would be several phases in determining WAMEX design:

- Determine key aspects of the milk production system in WA that need to be accounted for in any market design;
- Provide some education forums to familiarise stakeholders with potential trading markets and trading arrangements;
- Determine an initial market design;
- Test-market design with participants; and
- Revise market design.

In designing a milk market the following design aspects would have to be considered:

1. Define what is being traded:
    - How is milk quality to be managed? Is there a need for more than one price?
2. Determine the market governance arrangements:
    - Who would own or manage WAMEX?
    - How are the market rules developed or changed?
    - What is required to become a participant?
    - How are financial risks managed? Prudential requirements? Loss sharing?
    - Are only organisations that have a physical presence allowed to trade or can financial organisations be involved in the market?
3. Define how participants trade:
    - How would bids to buy and offers to sell be set up?
    - How many bids or offers could an organisation make?
    - Could the market be a simple Web based system like Watermove (https://www.watermove.com.au/Default.aspx) or would it need to be more sophisticated? What can be learnt from experience with the more sophisticated markets like the electricity markets in WA and eastern Australia (National Electricity Market) and the various gas markets?
4. Determine the trading interval and trading horizon:
    - How far ahead in time should the market go? How much notice is required to implement any changes to supply or production given the results of the market clearing: 1 day, 1 week, 1 month, 2 months?
    - What would be the trading interval or period that the market prices are determined for: 1 day, 1 week, 1 month?

5. Determine the mechanism for setting prices and traded quantities
    - How would prices and quantities traded be set? Would it be by an optimisation?
    - Would there be a common clearing price based on a marginal cost of supply or would there be a pay-as-offered or bid approach?
    - How to avoid the market mechanism being gamed for financial advantage?
6. Determine how transport would be included in any arrangements.
7. Determine whether any ancillary services would be required to ensure quality and reliability.
8. Determine the settlement arrangements:
    - How would settlements be undertaken?
    - What would be the settlement timetable? Draft accounts and final accounts?
    - What would happen in the event of a default on payment?
9. Determine the principles of any prudential arrangements.
10. Provision of market information:
    - What market information should be published? Clearing prices and clearing quantities? Bids and offers? Price forecasts? History of market information?
    - Better information makes the market more transparent and will encourage economic entry.

Appendix D
Strengths, weaknesses, opportunities and threats

A SWOT analysis – the strengths, weaknesses, opportunities and threats of WA's dairy industry – provides a useful lens to focus efforts on what needs to be done to achieve success (Exhibit D-1).

EXHIBIT D-1: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS IN THE WA DAIRY INDUSTRY

STRENGTHS	WEAKNESSES
• Core of committed, professional and low cost dairy producers • Proximity in time and distance to rapidly growing Asian markets via sea and air transport • Scope for dairy farm expansion in the State • WA's clean, green, ethical and sustainable dairy farming practices • WA produces a great milk product	• Insufficient investment in international market development • Sub-scale processing facilities and aging plants • Milk supply system from dairy farmers to processors does not encourage growth and innovation • Potential shortages of resources on farm (capital, water, skills and labour) to expand in line with domestic and international growth • Low density of dairy farming raises milk transport costs • Low frequency and bunching of shipping services to Asia • WA not seen as a 'world class' dairy producer

OPPORTUNITIES	THREATS
• Increasing demand for dairy products in Asia based on rising incomes, strong urban population growth and westernisation of diets • On-going concerns regarding Asia's local food quality including fresh milk • Asia's desire for food security • Increasing domestic demand due to WA's strong population growth over the next 10 years	• Competition for land from other agricultural sectors and from recreational/hobby farms • Improvements in local milk quality in countries such as Thailand and Indonesia • Fonterra investing in dairy farms in S.E. Asia • Trade barriers in Asia • High rate of lactose intolerance in Asia's population

Strengthening WA's competitive advantages

To strengthen WA's competitive advantages the following actions are needed:

- Attract partners to invest in WA dairy's future;
- Develop a supply chain model allowing fresh milk, fresh dairy products and storable dairy products to be shipped frequently into Asia;
- Develop specialised vocational, technical, college, and university curricula, including courses for managers on international marketing and logistics;
- Enlist the resources of Government and Dairy Australia to facilitate industry innovation and promote sustainable practices on-farm.

Re-engineering international and local logistics

By reducing delivery times, maintaining product quality and reducing shipping costs, investment in transportation systems and technology can expand WA's trade in fresh dairy products. This involves initiatives to streamline the export logistics chain, to increase frequency of shipping to Asia and to more closely align the export supply chain with the WA brand promise.

In terms of local logistics the feasibility of a separate entity for farm milk pick-up similar to the South Australian model, needs to be investigated.

Enlisting the resources of Government to facilitate industry growth

Access to land, water, gas, labour and skills are critical if the industry is to grow. Support from government is needed in the following areas:

- Provide financial support to carry out a feasibility study to investigate improving frequency of transport services by sea from WA to S.E. Asia;
- Improve infrastructure; roads, power, access to water;
- Provide financial support to develop a WA Milk Exchange (see Appendix C for details on the role of a Milk Exchange);
- Provide financial support to carrying out Asian market development and new product development;
- Carry out feasibility study on developing new dairy regions including Far North WA;
- Support investment in upgraded processing capacity and skills;
- Opportunity for WA Government to support the development of a major new export industry.

The dairy industry could be a role model for developing export markets for other WA agricultural products based on 'WA clean, green, ethical'.

Harnessing the resources of Dairy Australia to promote productivity and innovation

Dairy Australia will benefit from a larger WA dairy industry with increased levies which currently are some $1.1 million per annum. WA dairy farmers can continue to receive good value from levies paid to Dairy Australia. The priority areas for support are as follows:

- Provide financial support to carrying out Asian market development and new product development;
- Provide financial support for a feasibility study on developing new dairy regions;
- Fast track the development of robotic milking to address the issue of labour shortages.

Responding to emerging opportunities

WA has a great 'food story' to tell Asian consumers but more investment in international market development will be needed. The opportunities are two-fold:

- For consumers in Asia, there are growing preferences for fresh products, safe foods and foods produced using sustainable practices
- For food manufacturers and governments across Asia, there is an increasing need for food security, for example through closely integrated supply chains. These might extend to on-farm investments in WA.

To respond to emerging opportunities in Asia the following actions are needed:

- Develop and market products that respond to Asian consumer preferences for fresh products, safe foods and foods produced using sustainable practices
- Expand the range of 'fresh' products and across countries such as China, Hong Kong, Indonesia, Philippines and Thailand. This may involve growing exports of liquid milks, cultured foods, cheese, ice-cream, milk powders and other dairy ingredients
- Attract partners from Asia to invest in WA. Explore opportunities for marketing partnerships and strategic alliances with ASEAN, Chinese, Hong Kong, Indian, Japanese and Korean companies
- Create a WA food export marketing alliance to share best practice, for example building on work of companies such as the Craig Mostyn Group, a WA exporter of pork to Singapore
- Build the local marketing skills needed for Asia
- Design and run a 'Brand WA' food and dairy marketing campaign in Asian countries to support individual company programs
    - Make WA more distinctive – focus on 'fresh'
    - Raise consumer understanding of the benefits of fresh, clean, green and ethical products
    - Communicate the WA value proposition to new customers, who should value it.

Neutralising external threats

To neutralise external threats the following actions are needed:

- Establish marketing operations in Asia and invest in Joint Ventures with Asian Dairies;
- Deal with skills and labour shortages through immigration programs for the WA dairy industry;
- Development of new products to cater for the preferences of Asian consumers, such as lactose-reduced and lactose-free dairy products;
- Promote the health and environmental benefits of milk as a source of animal protein.

Dealing with the industry's internal weaknesses

To deal with the industry's internal weaknesses the following actions are needed:

- Invest in manufacturing to process the seasonal milk surplus, for example through manufacturing Joint Ventures between WA companies and Asian companies;
- Improve coordination at the 'milk producer-milk processor' stage;

- Deal with long-term water supply and water security issues;
- Continue to improve the level of farm business management skills;
- Apply the resources of Government to ensure adequate industry infrastructure in the South West of WA.

Appendix E
Vasse Research Dairy

UNIQUE COMMERCIAL OPPORTUNITY AT VASSE RESEARCH DAIRY
7 September 2011

The Department of Agriculture and Food has called for expressions of interest from parties to lease or enter into a sharemilking contract to run the dairy unit at its Vasse Research Centre.

The department's Director of Livestock Industries Innovation Bruce Mullan said the new management model was designed to ensure continued research and development at the centre while building on already strong links with industry.

"The department has worked with Western Dairy and WAFarmers to identify a new commercial model for the operation of the dairy unit at the Vasse Research Centre," Dr Mullan said.

"This offers a unique commercial opportunity to work at the forefront of dairy research with both the department and Western Dairy."

Dr Mullan said the department was taking an innovative approach to working with industry as part of the National Research Development and Extension Strategy with Dairy Australia.

The Vasse Research Centre is recognised nationally for the high-quality dairy research undertaken by the department in conjunction with the WA dairy industry through projects such as Greener Pastures and the Vasse Milk Farmlets.

Dale Hanks, Chair of Western Dairy, said broad-ranging changes in the structure and relationships of dairying research are now occurring at a national level, changes that will see a much closer alignment with WA based dairy research programs and those conducted in the larger dairy states.

"The department, Western Dairy, WAFarmers and Dairy Australia are confident that the new Vasse Research Centre management model will ensure the future of Vasse Research Centre to continue to deliver world-class dairy research for the benefit of both the WA and Australian dairy industry and the WA economy," Mr Hanks said.

Expressions of Interest documents are available from the department by emailing bruce.mullan@agric.wa.gov.au or calling 9368 3578.

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Source: www.agric.wa.gov.au/PC_94698.html?s=1001.

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