

The Australian Dairy Industry

The Basics

The Australian Dairy Industry

From family farm to international markets



Key points

- Australia is a small producer of milk but is the world's third largest dairy exporter as 50% of production is exported.
- The Australia's dairy industry is Australia's third largest rural industry, ranking behind wheat and beef, and has a gross value of \$4 billion.
- Australia produces a range of dairy products including milk, milk powder, yoghurt, butter and cheese.
- The Australian dairy industry is concentrated in the south-east of Australia, Victoria is the largest production state, however other states have significant dairy industries.
- Victorian production is typically seasonal and enters the export market which makes it prone to volatile global prices. Other dairy production areas (i.e. much of NSW) supply the domestic market which requires year-round production.
- The dairy industry is heavily reliant upon water availability; the industry is currently facing uncertainty over water policy.
- Since deregulation in 2001, the industry has undergone rationalisation. This has left a core of efficient producers that are able to compete against international competitors who are heavily subsidised.

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1 History of the industry

The first dairy cows arrived in Australia with the first fleet in 1788. The few cattle that first reached Australia were confronted with poor fodder and grazing conditions, within months they had escaped. The establishment of the colony's dairy industry was postponed due to the overriding need for meat, which meant many dairy cows were slaughtered.

The lack of refrigeration meant that the Australian industry originally served the domestic market. This meant that most dairies were located in areas close to consumers.

As refrigeration became more advanced (end of the 1800's), the industry was able to become more commercialised. As a result farmers were able to increase their efficiencies and profitability. Co-operatives were established to transport, process and market the milk of farmers.

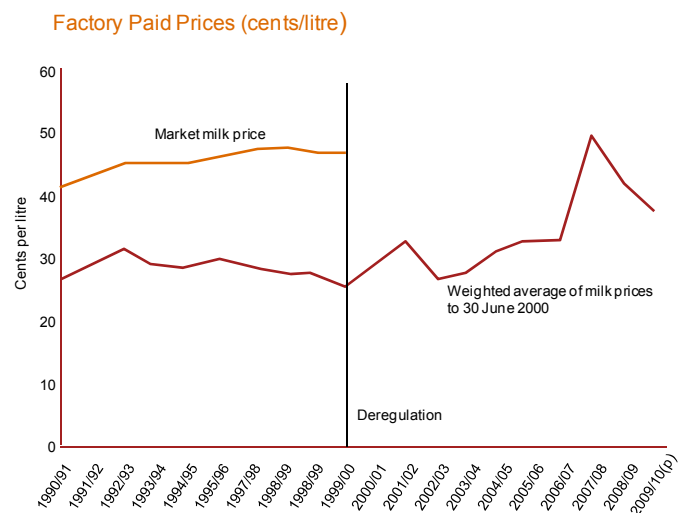
Gradually many of these co-operatives have been corporatized (e.g. Bega Cheese) and sold (e.g. Dairy Farmers). Dairy farmers continue to strive for productivity gains and efficiency, herd sizes are continually growing and technology advances continue.

The dairy industry was originally regulated by the *Dairy Produce Export Control Act 1924-1938 (Cth)*, which aimed to organise the export of Australia's dairy products. During the 1980's and 1990's state governments controlled milk pricing for the fresh milk sector. State dairy corporations were established to regulate milk quality and control production.



Up until dairy deregulation (1 July 2000) the Australian states adopted policies that maintained their fresh milk supply. This saw farmers selling their milk into the domestic market receive a higher price than those who sold milk to the export market.

Deregulation of the industry occurred in 2000, in response to the acknowledgement that prices needed to fall. Farmers received \$1.73 billion for restructuring and as a result of deregulation the number of dairy farms has fallen from 12,500 to 7,500. Since deregulation the prices that farmers receive are governed by the free market. The difference in prices received by farmers before and after deregulation is shown below.



Source: Dairy Manufacturers and ABARE

Today the industry is Australia's third largest agricultural industry with a gross value of over \$4 billion annually. Although Australia is a relatively small dairy producer it is one of the world's largest exporters. Crucial dairy facts are shown in the table below:

Key fact	Unit
National Dairy herd	1.6 million cows
Average herd size	220 cows
National milk production	9 billion litres
Dairy work force	40,000 with a multiplier of 2.5

Source: Dairy Australia

2 What and where

2.1 Map of production



Source: Dairy Australia

2.2 What is produced where

Although irrigated dairying does occur in inland regions, dairy farms are most prevalent in high rainfall coastal zones. Irrigated inland dairy farms are located in the southern-New South Wales, northern-Victoria Murray-Darling Basin area.

Milk production systems are different throughout these areas due to differing climatic conditions, market requirements and the cost of inputs. These inputs include land, feed grains and irrigation water.

Based on these features there are two main production systems used throughout Australia. The most common is seasonal production where cows calve during the peak period of pasture availability. This system is used by nearly two-thirds of Australian dairy farms and is most prominent in Tasmania, Victoria and South Australia.

The other production system is year round production. Under this system, calving is spread throughout the year, which means that milk production is stable during the year. This production system is most prominent in areas which supply fresh milk for domestic production.

3 Challenges and advantages

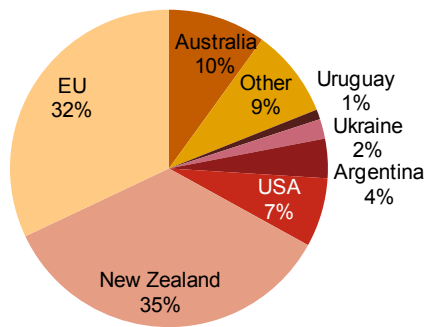
The liberalised nature of the Australian dairy industry places it in a favourable position compared to many of its competitors. This has seen the industry develop efficient production techniques and strong herd genetics. The SWOT analysis below depicts some of the challenges of the industry and the opportunities these present.

Strengths Efficient production methods Well positioned for strong export growth Major exporter	Opportunities Management of production risk Increased demand from Asia Attainment of greater efficiencies
Weaknesses Volatile climate Buy retail sell wholesale Policy uncertainty	Threats Input prices Protectionism in competitor markets Climate change

4 Major markets

Australia exports nearly half of the milk that it produces. This makes it the third largest exporter behind the EU and New Zealand, Australia accounts for 10% of the global export market.

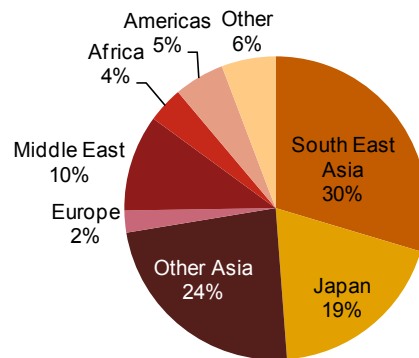
Export Share of trade (2009)



Source: Dairy Australia

Australia's major export destinations by value are Japan, Singapore, China, Indonesia and Malaysia. Australia's proximity to Asia makes means it is likely that exports to the area are likely to increase into the future as the area develops.

Australian export by region



Source: Dairy Australia

The major dairy products that the Australian domestic market consumes are drinking milk, cheese, butter and yoghurt. Drinking milk is the most popular dairy product consumed in Australia; this is followed by cheese, yoghurt and butter.

Australian Consumption Statistics

Commodity	Consumption (per capita)
Milk	102 litres
Cheese	13kg
Butter	4kg
Yoghurt	7kg

5 Milk and its products

5.1 Fresh milk

Australian fresh milk consumption has been steadily increasing; however demand is shifting from regular milk to modified milk types such as reduced and low-fat milks.

The Australian fresh milk market is now dominated by two major milk processors, National Foods and Parmalat. Although these companies dominate the Australian fresh milk market, there are a number of smaller processors that have strong brands and customer loyalty.

A change in the domestic fresh milk market is reflected by the increased dominance of the major supermarkets. In 1999, supermarkets represented 25% of the milk market, now they command over 50% of the market. This has occurred through strong growth in their private label sales.

Supermarkets have recently reduced the price of private label milk which has led to increased sales. This price reduction reflects both the supermarket's push towards \$1 per litre milk to increase patronage and the impact of the cessation of an 11c/litre levy which was imposed as part of the deregulation adjustment package.

The short shelf-life of milk means that Australia's export of fresh milk is limited mostly to UHT product. About 80% of Australia's fresh milk exports go to Asia with a further 15% going to the Pacific region.

5.2 Butter

Australian butter production varies significantly each year due to milk availability and international commodity prices. Butter also includes anhydrous milkfat (AMF), which is simply dehydrated butter. AMF is primarily used for export and domestic food processing. Health concerns have caused the table spread market to shrink over the last decade.

Australia's most important overseas markets for butter and AMF include Egypt, Singapore, South Korea, Morocco and Singapore.

5.3 Cheese

Cheese is a major product of the Australian dairy industry, domestic sales are typically more than \$1.5 billion and exports are worth over \$715 million. Although this product is significant to the dairy industry its importance is diminishing. Due to lower milk availability, production has decreased and there has been a marked move away from cheddar towards non-cheddar cheeses.

Japan is Australia's most important export market consuming over 50% of exports. This market is followed by China, South Korea, Saudi Arabia and Taiwan. Whilst Australia exports a significant portion of cheese production, 25% of domestic sales are imported cheeses. These typically come from New Zealand, the US and Europe.

5.4 Milk powder

Australia produces an array of different milk powders. These powders include wholemilk powder (WMP) and skim milk powder (SMP). Production of these powders has decreased significantly over recent years due to falling milk production. However, strong milk powder prices have seen production increase over the last few years.

The export market consumes over 80% of Australia's milk powder production. This is due to the ready supply of fresh milk within the domestic market. Domestically, milk powder is typically used as a food ingredient.

5.5 Whey products and Casein

Whey is the residual product after milk is processed. Traditionally whey was disposed of; however recognition of the value of whey's components has seen the demand increase significantly. Whey powders and its proteins are nutritious and useful in food production.

Whey powder is typically found in ice-cream, chocolate flavouring, beverages and animal feed. Whey proteins are used in the production of foods such as confectionary, biscuits and protein drinks. It is also used in the production of cosmetics, soaps and detergents.

The domestic market consumes about 30% of Australia's whey production. The remaining 70% is exported to markets such as China, Singapore, Philippines, Indonesia and Japan.

6 The supply chain and major stakeholders

6.1 Pre-production

For many producers purchased feed is the largest single cost item, typically representing 30% of each farm's cash costs. Due to the international nature of grain markets the costs of feeds are impacted upon by international crop prices.

Corn is a major feedstock in other parts of the world. Its price has been pushed up by the fact that 40% of US production is used by the ethanol industry. As corn is the largest crop in the world, it indirectly affects feed grain prices. Therefore, dairy input costs are impacted by the global corn price.

The dairy industry is heavily focused on genetic progress. The intensive nature of the dairy industry means that artificial insemination (AI) is used widely. The major providers of straws of semen are ABS and Semex. The sires that these companies use are sourced from around the world. This gives Australian producers access to the best genetics globally. These genetics can lift production significantly, herds that use AI widely generally average more than 1,000 litres more milk per cow per year than herds that do not.

Fertiliser is a major input for most dairy farms to support pasture growth. It amounts to around 10% of the cash costs of dairy farmers. The major suppliers of fertiliser in Australia include Hi-Fert (purchased by an American company in 2011) and Incitec Pivot.

The importance of pastures makes agronomy important to maximising production. Agronomy is the science of soil for the management of crops and pasture. There are many small agronomic providers, however major service companies such as Landmark offer agronomic services, as do state governments.

Dairy Australia is the research and development corporation (RDC) that services the dairy industry. It is focused on commissioning research that progresses the dairy industry. It focuses on market development, maintaining and opening markets and promoting Australian dairy.

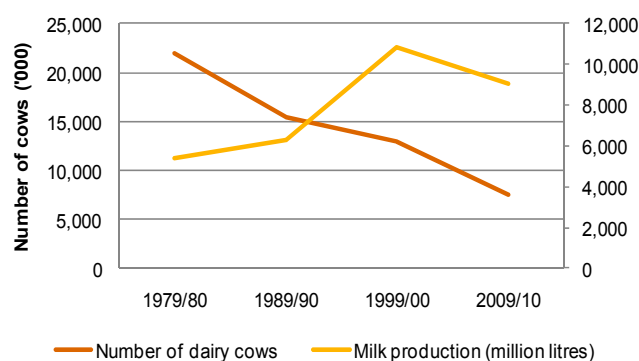
6.2 Production of fresh milk

While about half of Australia's production is consumed in the domestic market, prices for about 70% of Australia's production are linked to international prices.

Australian milk prices are based on the milkfat and protein solids contained in the milk produced. Farmgate prices can vary between manufacturers, between states, and among individual farmers, as firms operate a range of incentive/penalty payments related to milk quality, productivity and out-of-season supplies.

The Australian dairy industry is still typified by relatively small producers. However, there are increasing numbers of large herds; some operations are now milking over 1,000 cows. It is likely that this progression will continue into the future as farmers strive to attain economies of scale. The US has seen a dramatic increase in the number of larger operations with herds of over 1,000 cows.

Milk production vs. number of cows



Source: Dairy Australia

Many of Australia's larger dairy herds are still family owned. However, the industry is receiving continued interest from corporate players. Warakirri asset management milks 7,500 cows across 11 farms in South East Australia. The Sustainable Agriculture Fund has also purchased land in Tasmania allowing it to milk over 3,500 cows.



A major dairy producer is Tasman Farms Limited which owns a majority stake in Van Diemen's Land Company. Tasman Farms is owned by a New Zealand local council and milks around 15,000 cows on 23 farms in Tasmania.

6.3 Processing and distribution

Warrnambool Cheese & Butter (WCB) is the oldest dairy processor in Australia. The company is listed on the ASX and sources milk from south-western and central Victoria, the Fleurieu Peninsula, Adelaide hills and south-eastern regions of South Australia. Two other dairy processors hold significant stakes in WCB, Bega Cheese holds 15% and Murray Goulburn 10%.

Bega Cheese is a milk processor that is based in Bega on the far south coast of NSW. The company processes milk into Cheese, but also sells milk to other milk processors. Bega subcontracted marketing of the Bega brands to another large processor, Fonterra in 2001. This allowed Bega to focus on Cheese processing. Bega owns Tatura Milk Industries (a milk powder and butter producer) and holds a 15% stake in WCB.

National Foods buys 2.3 billion litres of milk each year to produce a number of dairy products. Brands include Dairy Farmers, Yoplait, Dare, Coon and Pura. The company is owned by Kirin Holdings and is rationalising operations after an extensive review. National Foods has a supply arrangement with WCB, where WCB supplies National Foods with about 20,000 tonnes of bulk cheddar p.a.

Murray Goulburn is a cooperative that processes around 35% of Australia's milk production per year. It is based in Victoria and is focused on the export market. It's presence in Australia is led by the Devondale brand. In 2010 it also entered a joint-venture with French food company Danone, to manufacture, market and sell yoghurt and other products under the Danone brand from 2011.

The processing sector continues to undergo consolidation, however other smaller companies have entered the market. For example, New Zealand's A2 Corporation has announced plans to expand its Australian operations. Furthermore, Aussie Farmers Dairy is expanding and its parent company, Aussie Farmers Direct is one of the fastest growing businesses in Australia.



The tightening supply-demand dynamic together with increased volatility in the international market has encouraged a number of international dairy companies to examine Australia's industry. This is driven by increasing food security concerns and the availability of assets in Australia. The processing sector is also set to be impacted by the price discounting offered by major retailers private labels.

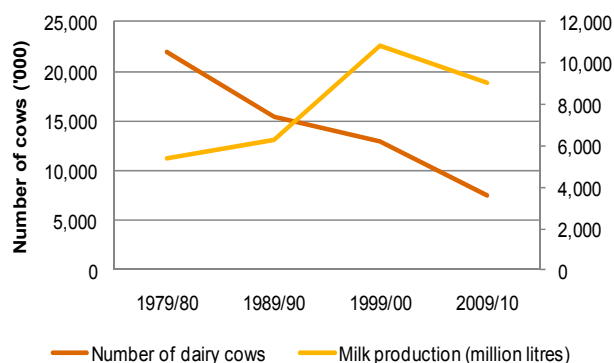
7 Mechanics of milk production

Milk production is essentially the conversion of pasture to milk. This transformation is complex as farmers try to maximise pasture production whilst maintaining and managing cattle in a way that maximises their conversion capacity.

Pastures are where the production system begins. The intensive nature of dairy farming means that pasture production must be maximised throughout the year in the most efficient way possible. Farmers will typically sow (plant) significant amounts of their land to specific grass types that suit their area and needs. The grass varieties that are sowed are either annual (produce for one year) or perennial (grow for numerous years).

Pastures are often harvested as hay or silage. This practice allows farmers to conserve feed for situations where feed stocks may run low. For example, Victoria experience significant spring pasture production. Farmers respond to this by either increasing production (shown below) or harvesting pasture produced in spring and then using this at other times.

Milk production vs. number of cows



Source: Dairy Australia

Another equally important aspect of milk production is the cattle themselves. Cattle typically graze the pastures between milkings, which typically take place in the early morning (5am) and mid-afternoon (after 2pm). Dairy farmers will only milk those cows that are producing milk.

Cows will produce milk in the months following the delivery of a calf. When the calf is a few days old and has had a few feeds, the farmer will take the calf off their mother. At this point the calf will join other similarly aged calves in a 'calf nursery'. Here calves will have access to ample food and milk. The mother will join the milking herd where she will enter the routine of morning and afternoon milkings.

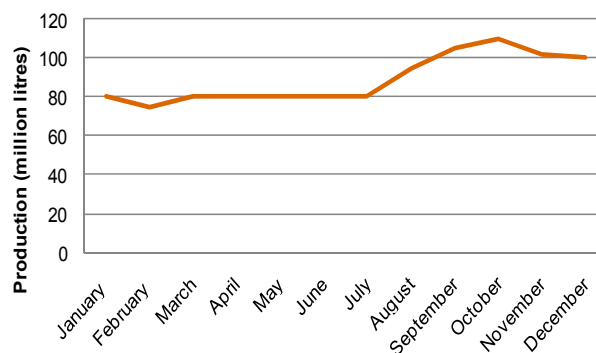
The production of calves is important to farmers for two reasons. Firstly, it ensures that the cow produces milk which can be harvested. Secondly, it allows farmer to breed replacements which can enter the herd at a later age. This continuity means that farmers take great care in selecting the specific bull that should be mated with a cow to produce a specific type of calf. Farmers typically select bulls on their genetic potential, structure and longevity.

Cows will only go on heat when they are in reasonable condition. Therefore, it is important for farmers to maintain the nutrition of cows throughout the year, from before conception right through to 9 months after calving. The importance of nutrition is evident from the resources and time that is spent on maintaining pasture quality and production.

Farmers will typically try to maximise production when pasture is most nutritious and bountiful or when market premiums exist. For example, many Victorian dairy farmers will aim to calve in August and September.

Conversely, farmers in NSW produce large amounts of milk for the fresh milk market. This means that milk production must be maintained year round. Farmers will therefore use supplementary feeding to ensure that nutrition and condition are maintained during periods of low quality or quantity of pasture.

New South Wales milk production



Source: Dairy Australia

8 Industry bodies

8.1 Dairy Australia

Dairy Australia is an industry-owned research and development organisation (RDC) that invests money into research and development (R&D) projects on activities throughout the supply chain.

The money that Dairy Australia receives is generated through the collection of levies which are imposed on farmers on a cents per litre basis. These levies are matched dollar for dollar by the federal government.

The RDC is fully accountable to its members and peak industry bodies. The company targets areas where there is a market failure or under-investment. These areas are identified as human resource skills, research, development and extension, trade policy and information provision.

Dairy Australia has identified three core business objectives that cover the whole dairy supply chains. These are reflected in the strategic plan of the current planning cycle which focuses on:

- Increasing farm productivity
- Maintaining and developing value-added, high-margin markets, channels and products
- Promote and protect the unique benefits of Australian dairy.

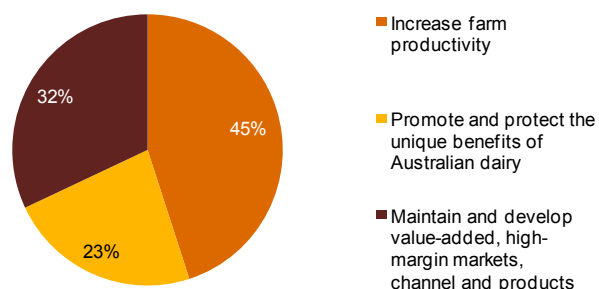


8.2 Australian Dairy Farmers Ltd (ADF)

ADF is a not-for-profit company that represents the interests of Australian dairy farmers. Their mission is to provide leadership and representation to ensure the continued growth of Australia's dairy businesses. The ADF is formed by state dairy farmer organisations; dairy farmers who are members of state dairy farmer organisations attain benefits from the ADF.

The ADF is funded partly (30%) by voluntary fees from the state dairy farmer organisations members, plus interest income from a fund it owns.

Dairy Australia spending



Source: Dairy Australia

9 What the future of the industry may hold

9.1 Production factors

The medium term presents some complex challenges to the industry. The adaptation of production systems to climatic uncertainty and increasing market volatility is important. The ability to react is somewhat clouded by current policy uncertainty with respect to carbon and water, and the difficulty of sourcing appropriate labour.

After the GFC milk prices fell substantially, prices have recovered somewhat and are trading above the long term average. It is likely that if dairy prices lift to pre-GFC levels, substitutes may be used in many applications. Experience shows that it is difficult for the dairy industry to recover from increased use of substitute products.

Notwithstanding this, the deregulated nature of Australia's dairy industry together with its strong export focus places it in a favourable position to supply increased global demand. Demand for dairy products in developing markets has remained strong despite increased and volatile prices.

As mentioned earlier, it is also likely that consolidation will continue. In 1980 there were 22,000 farms and the average herd size was 85 cows. In contrast, in 2010, there were 7,500 farms with an average herd size of 220. Herd sizes are likely to become larger as margins decrease and farmers are forced to strive for economies of scale.



International and domestic dairy prices have become quite volatile. This is because of the dynamic supply-demand response together with the reliance of dairy production on inputs such as grains, whose price has also been volatile.

With regard to the feedstock sector, the growth of the biofuel industry will be a key driver of grains and other feed grains. The future of the biofuel industry will alter land-use choices of producers which may lead to increased/decreased feed grain production. The feed grain sector will also be put under pressure by a growth in world demand for food.

9.2 International demand

As a major dairy exporter, demand markets are important to the health of Australia's industry. The south-east Asian market is Australia's largest export market. Demand from this market has led to a 33% increase in global dairy consumption over the last 10 years. Although there are challenges to servicing this market, confidence in demand growth is high. It is expected that as education and economic prosperity spreads throughout the region, there will be a steady increase in demand.

The Middle East is another major export market that looks set to grow in coming years. Increased oil prices are likely to drive income growth which is likely to increase demand.

The African market is currently small however population and economic growth is set to increase consumption in this region. Local production growth is likely to be limited which means that most of the demand growth will be met by imports. Although refrigeration outside metropolitan areas is limited, Africa still presents a future opportunity for Australia. Chinese import growth has been significant, milk imports have increased from 600,000 tonnes in 2006 to 1,000,000 tonnes in 2010. Whilst, the local herd has increased, domestic production is unlikely to keep up with demand. This presents another opportunity for Australia to cater for this demand.

The Australian dairy industry has strong relationships with developing markets. This will lead to export growth in the future. Furthermore, demand from these markets is likely to continue to increase in the future as the awareness of milk's nutritional value increases.

All these prospects available to the industry, while exciting are highly contingent on a number of factors. These include, expansion of China's production and consumption, EU's trade balance and protectionist policies, US' trade balance, New Zealand's production levels and of course, international economic conditions.

Appendix A PwC and agribusiness

PwC has a long history of servicing the Australian agricultural industry. Our track record is founded on our intricate knowledge of the industry, attained from working with clients from family-owned and operated farms to large publicly traded agribusinesses. We have travelled the long and sometimes troubled road with our clients, continually helping them to rise to their challenges and capitalise on their opportunities.

Our experience and knowledge of the industry together with the fact that PwC is a leading professional services firm places us in a unique position to meet the needs of the agricultural industry.

If you would like to speak to one of our agribusiness specialists please contact your usual PwC contact or visit www.pwc.com.au/industry/agribusiness

