



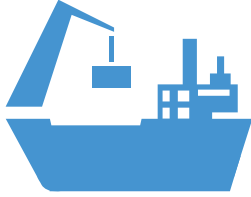
**Dairy
Australia**

Your Levy at Work

A photograph of a large herd of black and white dairy cows, likely Friesians, grazing in a field. The cows are in the foreground and middle ground, with some looking towards the camera. The background shows rolling green hills under a clear sky, with a line of trees in the distance. The entire image has a blue color cast.

Australian Dairy Industry In Focus 2016

Australian dairy industry at a glance



\$13.7b
The value of the farm, manufacturing and export industry

Dairy
is Australia's 3rd largest rural industry

Dairy export

34% of Australian milk production was exported in 2015–16

\$3b of export revenue was generated in 2015–16

6% of the world dairy trade is contributed by Australia

Major markets for Australian dairy products

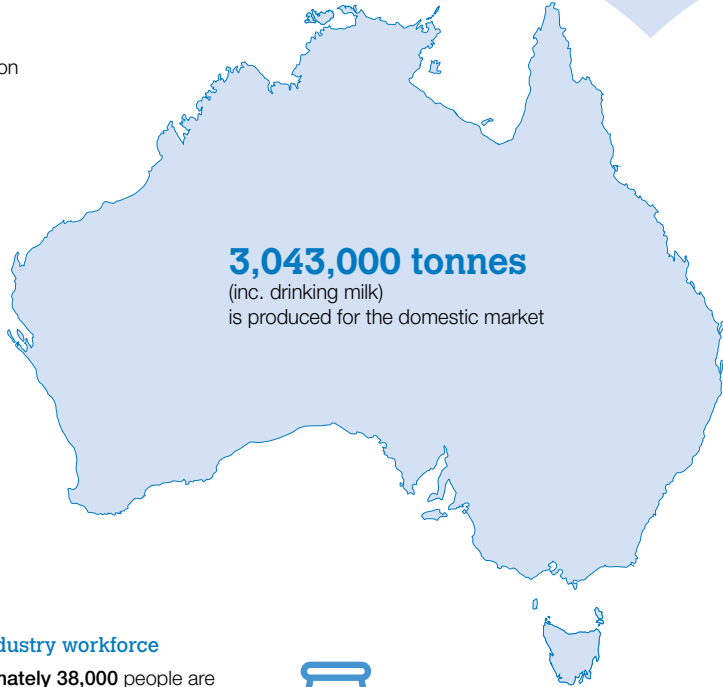
Indonesia
61,000 tonnes

Greater China
178,000 tonnes

Singapore
82,800 tonnes

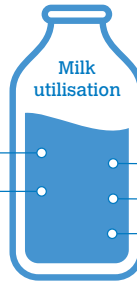
Japan
103,100 tonnes

Malaysia
58,150 tonnes

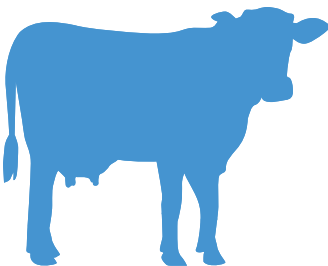


Dairy industry workforce

Approximately **38,000** people are directly employed in the industry



Other 9% Drinking milk 26%
Cheese 30% Skim milk or butter milk powder 29%
Whole milk powder 6%



Milk production
9,539 m litres

Average annual milk production per cow
5,669 litres

Average herd size
273 cows

National dairy herd
1.66 m cows

Annual per capita consumption

Drinking milk 105 litres
Cheese 13.9 kg

Annual production of main commodities

Milk powders 321,900 tonnes
Cheese 344,300 tonnes
Butter 118,600 tonnes

Contents

Foreword	2
The Australian dairy industry	3
A world-competitive industry	4
Farm facts	6
Milk production	13
Dairy manufacturing	17
Dairy markets	19
Australian consumption of dairy products	22
Drinking milk	23
Cheese	25
Butter	26
Other fresh and frozen dairy products	27
Milk powders	28
Whey products and casein	31
Industry organisations and structure	32
Industry levies	33
Acronyms	52

Appendices

Appendix 1 Dairying regions	36
Appendix 2 Grain prices	37
Appendix 3 Milk production	38
Appendix 4 Manufacturing processes	39
Appendix 5 Domestic sales	42
Appendix 6 Supermarket sales	43
Appendix 7 Australian exports	45
Appendix 8 Australian imports	50



Foreword

Dairy is one of Australia's leading rural industries in terms of adding value across the supply chain. It is a \$13.7 billion farm, manufacturing and export industry, comprising about 6,000 farms, around 120 factories and provides employment for 38,000 people.

The Australian dairy industry's farmgate value totalled AUD\$4.3 billion in 2015/16, ranking third behind beef and wheat for Australia's top performing rural industries. Internationally, Australia is a significant exporter of dairy products. It ranks fourth in terms of world dairy trade, with a 6% share behind New Zealand, the European Union and the United States.

However, 2015/16 was an extremely challenging year in the world of dairy, both internationally and domestically. Supply continued to outpace demand across the globe, with impacts of a deep and persistent trough in international commodity prices flowing through to the farmgate in Australia.

Many farmers across southeast Australia were hit by late season farmgate price step downs, which came after a difficult season due to dry conditions and increased input costs. This in turn saw farmer margins tighten, impacted on-farm investment and confidence amongst farmers fell significantly. The annual National Dairy Farmer Survey showed a decline in the proportion of farmers feeling positive about the future of the industry from 74% in 2014/15 to 67% in 2015/16. A subsequent survey towards the end of 2015/16 season indicated positivity fell to about 40% after the price downturn.

Hence, Australian milk production fell by 2.0%, to 9.54 billion litres in 2015/16— reflecting both the late price cuts and difficult seasonal conditions. Low farmgate prices are continuing into 2016/17, squeezing farmer margins further, and, despite better seasonal conditions across most regions, production is likely to decrease again.

On the export front, dairy ranks fourth in Australia, with volumes for 2015/16 finishing up almost 8% compared to 2014/15. About 817,000 tonnes of dairy product was sold overseas in 2015/16, with the biggest growth seen in the categories of milk and whey products. The total export value also rose slightly on the previous year

by about 4% to just under AUD\$3 billion. The greatest increase in value came in the categories of whole milk powder and milk.

Similar to 2014/15, Asia accounted for 80% of Australia's total dairy export value in 2015/16, with Greater China making up the largest share at 27% (AUD\$795 million). In terms of volume, Greater China is also Australia's largest market, accounting for 22% (178,000 tonnes). In the last five years, China and Malaysia have been the fastest growing export markets for Australia.

Locally, dairy demand through the supermarket channels has remained steady for 2015/16. Total milk sales volumes (including flavoured and UHT) grew 1.3% to about 2.5 billion litres, while cheese sales volumes rose 2.0%. Yoghurts have been a category of considerable growth for the dairy industry over the past two decades. There is an ongoing trend within the yoghurt category, away from sweetened and flavoured varieties as consumers pursue more natural products like unflavoured varieties of yoghurt. Sales of these unflavoured, traditional varieties have overtaken those of sweetened and flavoured yoghurts, and now account for more than 50% of the market.

I trust you will find this latest issue of Australian Dairy Industry In Focus a valuable source of knowledge and information on this important industry.

I would like to thank the dairy processors that contribute to our regular data collections. Without their participation, Australian Dairy Industry In Focus could not maintain its reputation as the most comprehensive and credible collection of Australian dairy industry statistics available. Regular monthly updates of much of the industry production data included in this publication are available at dairyaustralia.com.au.

Ian Halliday
Managing Director

The Australian dairy industry

An important rural industry

The dairy industry is one of Australia's major rural industries. Based on a farmgate value of production of \$AUD 4.3 billion in 2015/16, it is the third largest industry behind beef and wheat. It is estimated that approximately 38,000 people are directly employed on dairy farms and by dairy companies within Australia. Related transport and distribution activities, and research and development projects, represent further employment associated with the industry.

Dairy is also one of Australia's leading rural industries in terms of adding value through further downstream processing. Much of this processing occurs close to farming areas, thereby generating significant economic activity and employment in country regions.

Dairying is a well-established industry across the temperate and some subtropical zones of Australia. Although the bulk of milk production occurs in southeast seaboard states, all states have dairy industries that supply fresh drinking milk to nearby cities and towns. A range of high-quality consumer products, including fresh milks, custards, yoghurts and a wide variety of specialty cheeses, are produced in most Australian states. The manufacturing of longer

shelf life products, such as cheese and specialised milk powders, is steadily becoming more concentrated in the south-east region of Australia.

Strong growth characterised the dairy industry through the 1990s, but that growth has stalled in the last 15 years. The industry has experienced a slow recovery from the severe widespread drought of 2002/03, only to experience ongoing dry conditions; with the resulting low water storage levels significantly limiting water allocations in irrigated dairying regions over a number of years. The increased level of market and margin volatility within the industry in the last five to six years has served to undermine confidence in the outlook for many farmers who are seeking reliable returns on which to build a longer term future. There has been ongoing consolidation within the industry, with a smaller number of farms, while the average size of farms has increased.

Figure 1 provides a comparison across the major agricultural industries in Australia – comparing farmgate and export sales values. It also shows the relative importance of the dairy industry within the agricultural sector.

Table 1 details the long-term trends for a number of key industry measures.

Table 1 Australian dairy industry – long term trends

At June 30	1980	1990	CAGR 1980s	2000	CAGR 1990s	2016(p)	CAGR 2000s	CAGR 35 yrs
Milk production (m lts)	5,432	6,262	1.4%	10,847	5.6%	9,539	-0.9%	1.6%
Dairy cows ('000)	1,880	1,654	-1.3%	2,171	2.8%	1,663	-1.8%	-0.3%
Farm numbers	21,994	15,396	-3.5%	12,896	-1.8%	6,102	-4.9%	-3.6%
Value of farm production* (\$m)	\$3,625	\$3,388	-0.7%	\$4,297	2.4%	\$4,278	0.0%	0.5%
Value of ex-factory production* (\$m)	\$9,284	\$8,368	-1.0%	\$12,914	4.4%	\$13,491	0.3%	1.1%
Per capita consumption (milk equiv)	239	244	0.2%	274	1.2%	305	0.7%	0.7%
Export value* (\$m)	\$1,094	\$613	-5.6%	\$3,918	20.4%	\$2,993	-1.8%	2.9%
Export share of production	22%	31%		54%		34%		

CAGR = Compound Annual Growth Rate

*Expressed in 2015/16 dollars

Source: ABS, ADC, DA, state authorities

A world-competitive industry

Australian dairy farmers operate in a deregulated and open market and have done so for over a decade; the only government involvement being in the administration of food standards and food safety assurance systems. Despite the fact most Australian dairy is consumed domestically, international markets and events are the major factors determining Australian farmgate milk prices.

At an average of approximately US\$32 per 100 kg of milk last year, Australian dairy farmers generally received a price below that of the major producing countries in the European Union and the United States; but above those in New Zealand. This partly reflects lower levels of government support provided to Australian farmers compared to northern hemisphere counterparts, encouraging a low-cost production system. This is regularly borne out by international comparisons, where Australian farms consistently demonstrated costs of production in the lower cost category of all farms in such surveys.

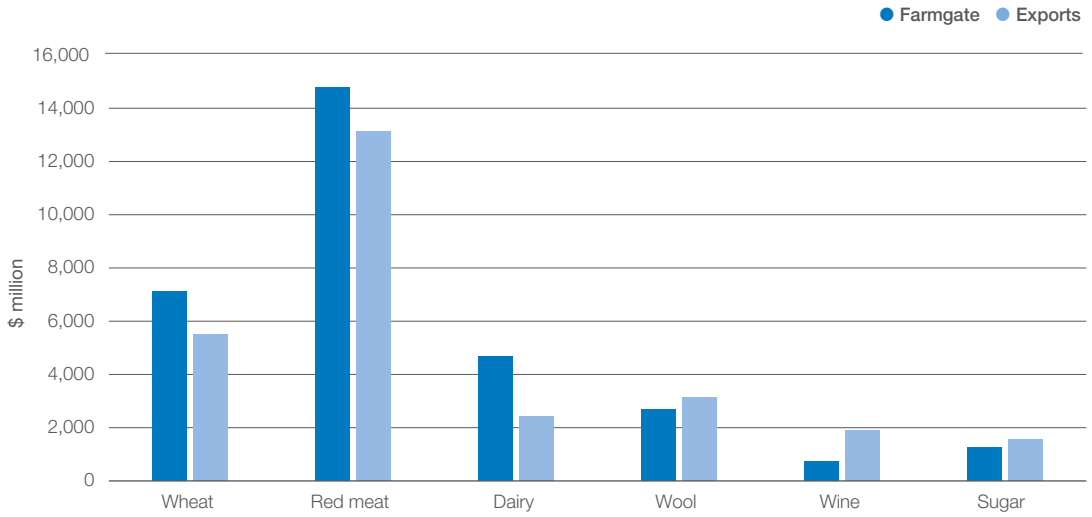
However, this status as a low cost producer has become increasingly difficult to maintain. Farm cost structures have increased in response to the need to adapt to drier conditions, with increased expenditure on purchases of supplementary feed and temporary

water allocations – particularly in northern Victoria and southern New South Wales. Despite the increased rainfall in recent seasons, farm cost structures have not returned to those of a decade ago for many reasons. As a result, Australia's share of international trade has trended lower as local milk production has contracted over the past 15 years.

As shown in Figure 2, the convergence of prices received by farmers around the world during the commodity price boom in 2007 has continued. Removal of the most market distorting industry policies and increased global trade of dairy means farmgate milk prices more closely reflect dairy commodity price trends in most of the major producing countries. New Zealand exports 95% of its production, making it the most globally exposed dairy producer. Hence, it has experienced considerably more volatility than other major producers. Whilst broadly tracking other producers, Canada's producers operate in a highly regulated environment, where prices, production and imports are set according to a system known as supply management.

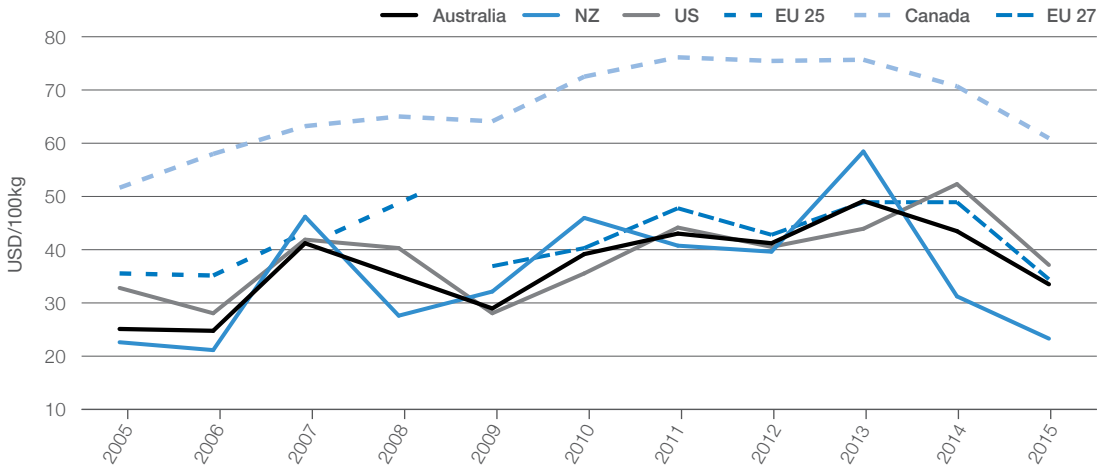


Figure 1 Farmgate value vs export sales value – 2014/15



Source: ABARES Australian Commodities Quarterly Report

Figure 2 International farmgate milk prices (USD/100kg)



Source: Dairy Australia

Farm facts

Southeast Australia's climate and natural resources are generally favourable to dairying and allow the industry to be predominantly pasture-based, with approximately 60–65% of cattle feed requirements coming from homegrown feed in a year of 'normal' seasonal conditions. This results in efficient, high-quality milk production.

Most dairy production is located in coastal areas where pasture growth generally depends on natural rainfall. Nevertheless, there are several inland irrigation schemes, most notably in inland northern Victoria and southern New South Wales.

Total mixed ration (TMR) dairying remains the exception in Australia, although the use of supplementary feed (grains, hay and silage) is widespread and has increased significantly over the past decade as farmers have had to adapt to drier conditions in many dairying regions. Such changes in production systems have introduced an additional level of risk in the variability of farm returns.

According to the 2016 National Dairy Farmer Survey, 97% of dairy farms fed an average of 1.6 tonnes of grain, grain mixes or feed concentrates per cow during the 2015/16 season. With the exception of

South Australia and Western Australia (slight decrease and increase, respectively), this was unchanged from the average usage recorded in the previous two seasons. Drier seasonal conditions across many dairying regions and higher hay and grain prices meant that farm outlays on supplementary feeding increased markedly across Australia in 2015/16.

See Appendix 2 for detailed tables on grain prices by state dairying regions.

The number of farms has fallen by more than two-thirds over the last three decades from 19,380 in mid-1985 to 6,102 in mid-2015. The trend in farm numbers will often follow the trend in farmgate milk prices from season to season, with strong prices either slowing the rate of attrition or even reversing the long-term trend. At times of low farmgate milk prices, farmers do choose to leave the industry or else cease dairying operations until market conditions improve.

Nevertheless, falling farm numbers do reflect a long term trend observed in agriculture around the world, as reduced price support and changing business practices have encouraged a shift to larger, more efficient operating systems.

Table 2 Number of registered dairy farms

	NSW	VIC	QLD	SA	WA	TAS	AUST
1979/80	3,601	11,467	3,052	1,730	622	1,522	21,994
1989/90	2,220	8,840	1,970	969	496	901	15,396
1999/00	1,725	7,806	1,545	667	419	734	12,896
2005/06	1,024	5,892	802	383	245	498	8,844
2006/07	924	5,346	734	354	222	475	8,055
2007/08	886	5,422	664	332	186	463	7,953
2008/09	860	5,462	648	320	183	451	7,924
2009/10	820	5,159	621	306	165	440	7,511
2010/11	807	4,588	595	286	170	437	6,883
2011/12	778	4,556	555	275	162	444	6,770
2012/13	731	4,284	518	268	160	437	6,398
2013/14	710	4,268	475	264	156	435	6,308
2014/15	704	4,127	448	252	157	440	6,128
2015/16 (p)	685	4,141	421	259	162*	434	6,102

*Estimate

Source: State milk authorities

Average herd size has increased from 93 cows in 1985 to an estimated 284 currently. There is also a steady trend emerging to very large farm operations of more than 1,000 head of dairy cattle.

The dominant breed in Australia is the Holstein, accounting for around 75% of all dairy cattle. Other important breeds include the Jersey, the Holstein/Jersey cross, Brown Swiss, Ayrshire and local breeds, the Australian Red and the Illawarra.

Most breeding is by artificial insemination and so Australian farmers have access to some of the best genetic material in the world. Herd recording is widely practiced, with around half of all dairy farms regularly recording herd performance.

The genetic evaluation of dairy cattle is conducted by the Australian Dairy Herd Improvement Service (ADHIS), using one of the most sophisticated evaluation systems available. The industry is in discussions about transitioning this into a new entity called Data Gene.

See adhis.com.au for further details and statistics.

Improved herd genetics, as well as advances in pasture management and supplementary feeding regimes, have seen average annual yield per cow double from 2,900 litres to as high as 5,900 litres over the past three decades. Nevertheless, the average yield figure does vary by state and with seasonal conditions. Recent years have also seen a slowing in the growth trend in improvements in yields.

Combining this increase in yields per cow with average herd sizes that are over two and a half times larger, the average milk production per farm has increased from 311,000 litres to 1,563,000 litres per year over the past 30 years.

Despite the strong increase in cow yields over the longer term, one of the variables placing a limit on total milk production in recent years has been a steady national herd size. One factor contributing to this situation is that the increased volatility in farm cash incomes has led many farmers to participate in the export heifer trade in an attempt to stabilise farm income.

See *Appendix 7* for detailed tables on heifer exports.

Table 3 Number of dairy cows ('000 head)

	NSW	VIC	QLD*	SA	WA	TAS	AUST
At March 31							
1979/80	311	1,047	247	103	71	103	1,880
1989/90	238	968	201	89	64	92	1,654
1999/00	289	1,377	195	105	65	139	2,171
New Series**							
2005/06	222	1,217	127	104	67	143	1,880
2006/07	210	1,150	121	114	60	140	1,796
2007/08	195	1,055	100	103	54	134	1,641
2008/09	201	1,061	107	106	52	149	1,676
2009/10	203	1,014	98	92	55	134	1,596
2010/11	195	1,010	97	90	59	138	1,589
2011/12	204	1,115	101	76	57	148	1,700
2012/13	210	1,096	96	77	62	148	1,688
2013/14 (r)	181	1,093	98	73	66	137	1,647
2014/15 (r)	177	1,147	91	68	59	147	1,689
2015/16 (e)	177	1,120	91	67	62	146	1,663

*For 1999 and 2000, Qld state figure includes Northern Territory cow numbers.

**Change in ABS data collection

From 2001 census date is June 30, NT and ACT numbers are included in national total

Source: ABS and Dairy Australia

Table 4 Average annual milk production per cow

	NSW	VIC	QLD	SA	WA	TAS	AUST
1979/80	2,870	3,012	1,984	3,163	3,105	2,958	2,848
1989/90	3,602	3,920	3,122	3,934	4,205	3,791	3,781
1999/00	4,827	4,989	4,349	6,790	6,338	4,381	4,996
2005/06	5,039	5,221	4,076	5,791	5,369	4,581	5,108
2006/07	5,151	5,261	4,033	6,417	5,235	4,696	5,182
2007/08	5,031	5,393	4,163	5,799	5,907	4,961	5,275
2008/09	5,420	5,807	5,032	6,053	6,355	5,140	5,691
2009/10	5,329	5,518	5,052	5,907	6,641	4,640	5,448
2010/11	5,409	5,860	4,980	6,257	6,637	5,379	5,758
2011/12	5,753	6,023	4,965	6,589	5,967	5,636	5,921
2012/13	5,527	5,469	4,618	7,025	5,996	5,166	5,487
2013/14 (r)	5,441	5,632	4,546	6,776	5,418	5,578	5,586
2014/15 (r)	6,437	5,776	4,264	7,220	5,696	6,400	5,872
2015/16 (e)	6,575	5,424	4,446	7,589	6,512	6,008	5,669

Source: Dairy manufacturers, ABS and Dairy Australia

Farmgate milk prices

Australian farmgate milk prices are based on the milkfat and protein solids content of the milk supplied off farm. Unlike many countries around the world, there is no legislative control over the price milk processing companies pay farmers for their milk. Since deregulation in 2000/2001 all prices within the industry are set by market forces.

Australian dairy farmers operate in an open and deregulated market, an environment that includes free trade under the Closer Economic Relations Agreement with New Zealand. Consequently, local Australian prices are driven by world dairy commodity prices which determine local export returns. Therefore, world dairy prices directly impact on the company returns for the 34% of local milk production that finds its way into export products such as butter, cheese and milk powders; as well as the additional 30–35% of production that goes into locally consumed butter, cheese and milk powders. This means that up to 75% of milk production is exposed to world prices for butter, cheese and milk powders; while the remaining 25% is consumed within Australia as liquid drinking milk.

Hence, average Australian farmgate milk prices are strongly correlated with export returns, and over the last three decades more than 90% of the annual variation in farmgate milk prices is explained by movements in average export returns.

Apart from Australia's actual export product mix and prevailing world dairy commodity prices, another layer of complexity is the value of the Australian dollar against the US dollar in foreign exchange markets. It is critical in determining company returns.

Australian dairy industry returns benefit from a 'lower' Australian dollar (compared to the US dollar) as was the case early last decade when it was as low as USD\$0.52 to \$0.55. However, over the period of high resource prices known as the mining boom, the local currency was much 'stronger' in recent years (around and even above parity with the US dollar) and this significantly lowered the Australian dollar returns to local exporters despite relatively strong \$US denominated world prices over much of this period. As commodity prices have come off their peaks since early-2014, so the Australian dollar has also fallen

significantly since early-2015, and is now closer to the long-run average of around USD \$0.75.

Farmgate milk prices will vary between manufacturing companies, with individual company returns being affected by factors such as market and product mix, marketing strategies, the utilisation and efficiencies in factory processing capacity, and exchange rate hedging policies. Competition for milk among processors will also influence farmgate milk prices from season to season, as can the dividend policies of farmer-owned cooperatives.

Furthermore, payment structures from processors to individual farmers can also vary significantly as companies operate a range of incentive/penalty payments related to milk quality, productivity, volume levels and year-round milk supply. There may be volume growth incentives in place to encourage milk supply to particular processing plants to improve operating efficiencies, or loyalty incentives to guarantee supply for longer periods.

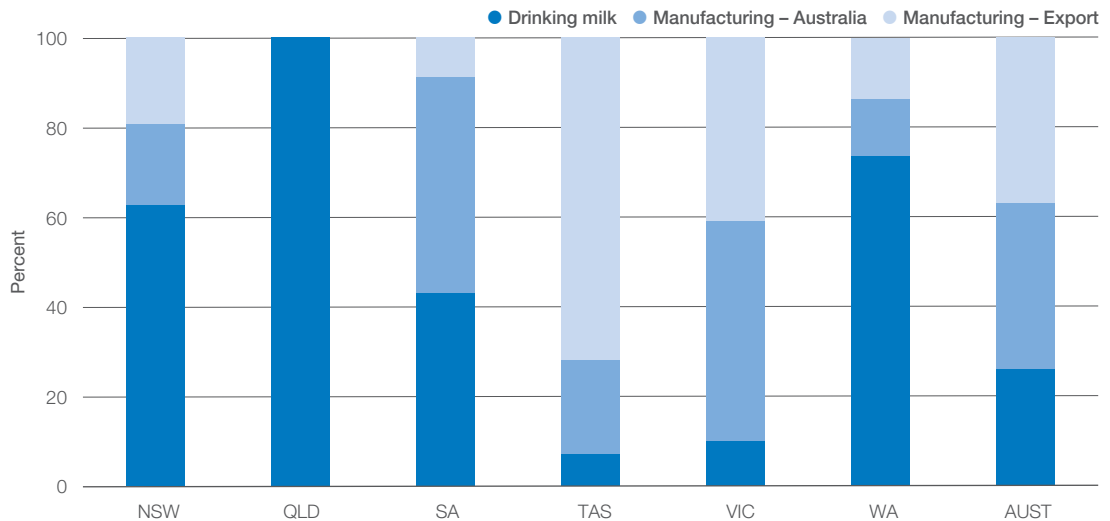
Thus, farmgate milk prices farmers receive can vary significantly around Australia and simply reflect how milk is used in the marketplace, as illustrated in

Figure 3 – Use of Australian milk by state 2015/16. This chart shows the relative importance of how raw milk is used, showing the split between drinking milk, manufacturing for locally consumed product and manufacturing of export products across the different regions around Australia.

Figure 3 shows how farmgate milk prices in southern regions are primarily driven by international commodity prices and competition for milk supply. The majority of farmers in these exporting regions receive a ‘blended’ price that incorporates returns from the milk used in manufacturing dairy products such as butter, cheese and milk powders which are exposed to international prices whether as exports or consumed locally (over 90% in Tasmania and Victoria).

Conversely, in the northern and western dairy regions, fresh drinking milk makes up a much larger proportion of the production mix (100% in Queensland and over 80% in Western Australia), and so higher farmgate milk prices are generally paid to ensure the year-round supply of milk.

Figure 3 Use of Australian milk by state – 2015/16



Source: Dairy Australia

Table 5 Indicative factory paid prices by state

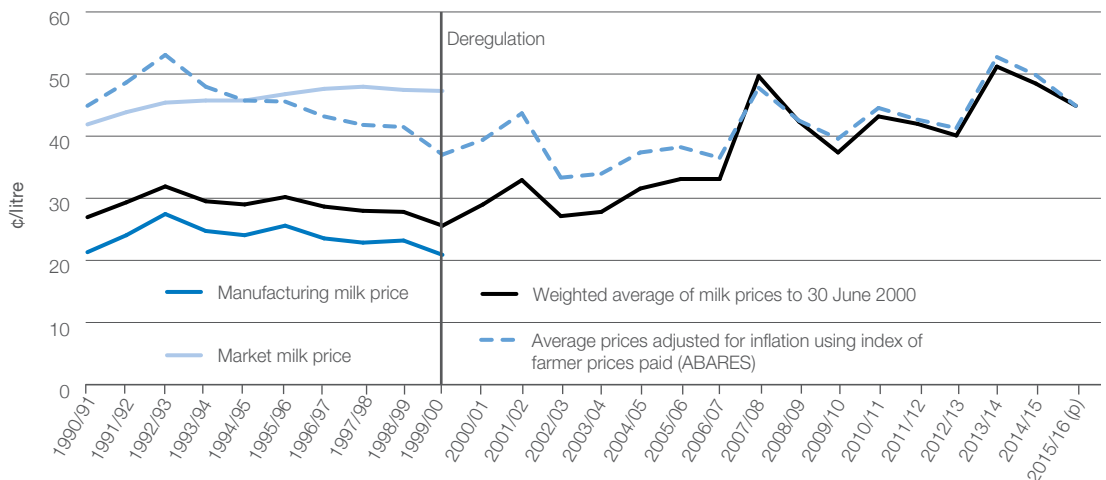
		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (p)
NSW	¢/litre	48.7	48.3	47.4	46.4	51.0	52.8	50.1
	\$/kg milk solids	6.72	6.74	6.60	6.45	7.10	7.31	7.06
VIC	¢/litre	33.9	42.0	40.6	37.8	51.0	47.1	42.8
	\$/kg milk solids	4.49	5.58	5.46	5.05	6.81	6.24	5.68
QLD	¢/litre	55.8	53.1	53.6	53.6	53.4	57.4	58.5
	\$/kg milk solids	7.57	7.26	7.33	7.33	7.36	7.84	7.99
SA	¢/litre	34.6	38.0	41.0	38.3	49.6	46.1	42.5
	\$/kg milk solids	4.73	5.36	5.76	5.42	7.02	6.53	6.03
WA	¢/litre	42.4	43.4	41.9	45.0	46.8	51.0	52.3
	\$/kg milk solids	5.96	6.03	5.97	6.37	6.63	7.17	7.32
TAS	¢/litre	34.6	43.2	39.9	40.2	54.1	49.6	43.7
	\$/kg milk solids	4.46	5.59	5.19	5.16	6.96	6.33	5.61
AUST	¢/litre	37.3	43.2	42.0	40.2	51.2	48.5	44.9
	\$/kg milk solids	4.98	5.80	5.69	5.41	6.89	6.49	6.01

Source: Dairy manufacturers

The long-term downward trend in inflation-adjusted farmgate milk prices (Figure 4) until early last decade is in line with returns from most other agricultural commodities. Despite the occasional peaks in 1992/93, 2001/02, 2007/08 and 2013/14, the line

has traditionally returned to trend and clearly illustrates the imperative to continually improve productivity throughout the industry. The level of volatility has also increased significantly over this time.

Figure 4 Factory paid milk prices



Source: Dairy manufacturers and ABARES

Farm business performance

The annual ABARES Farm Survey estimates the financial performance of Australian dairy farms. The two main measures are farm cash income (defined as total cash receipts less total cash costs) and farm business profit (which takes into account any build-up in trading stocks, less depreciation and the value of farm labour).

Farm cash income and farm business profit have shown significant variability over the past decade.

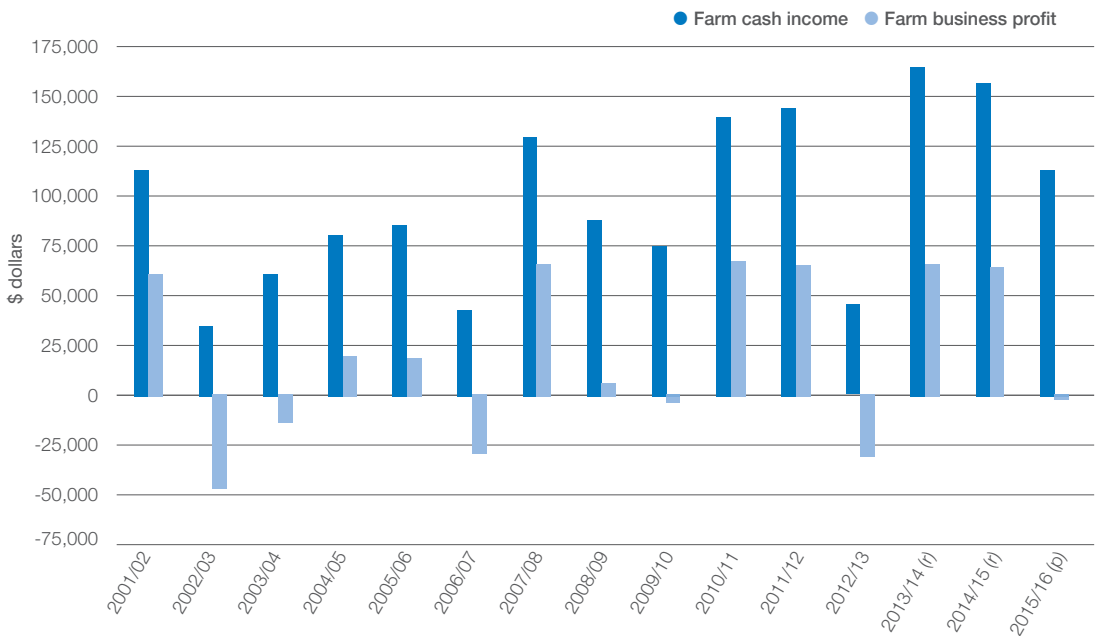
Figure 5 illustrates how both farm business profit and farm cash income were strong in the year of record high milk production volumes in 2001/02, encouraged by a combination of favourable climatic and market conditions; fell due to the dramatic impact of the drought in the 2002/03 season; slowly recovered and consolidated over the following three years, before feeling the impact of another financially significant drought in 2006/07.

Sound financial recovery occurred in 2007/08 driven by high farmgate milk prices; only to be reversed again in 2009/10 by sharply falling farmgate milk prices. Two years of relatively strong farm cash incomes in 2010/11 and 2011/12 were offset by significant falls in

2012/13. However, adverse seasonal conditions in major exporting regions subsequently supported higher international dairy commodity prices, which in turn lifted farmgate milk prices to record or near record levels in 2013/14. Financial performance declined in 2014/15, with lower farmgate milk prices delivering declines in both farm cash income and farm business profit figures. This decline became more pronounced in 2015/16 due to still lower farmgate prices and difficult seasonal conditions.

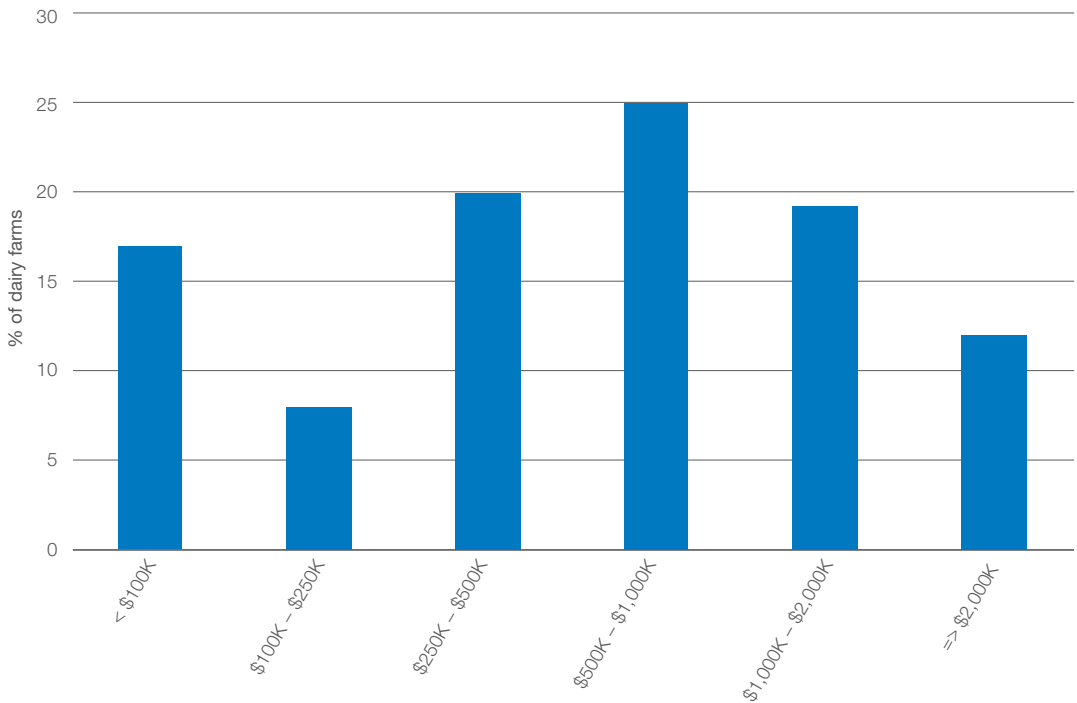
ABARES estimates that average farm cash income fell to \$124,000 in 2015/16, approximately 19% below the 2014/15 figure, while farm costs increased 3% due to higher spending on fodder. Declines in farm cash income were largest in the southern, export oriented regions of Tasmania, South Australia and Victoria. As a result, the proportion of farms recording a business profit across Australia fell, with just 44% reporting a positive business profit. Dairy farms in Queensland and northern New South Wales experienced much smaller declines in farm cash income, whilst farm incomes in Western Australia rose due to higher farmgate prices and increased production.

Figure 5 Australian dairy farm financial performance



Source: ABARES

Figure 6 Distribution of farm debt in 2014/15



Source: ABARES

After changes in trading stocks, depreciation and imputed family management and labour costs, these figures translated to a national average farm business loss estimated at around \$2,000 in 2015/16, compared to a strong average profit figure of \$64,400 in 2014/15. Farm businesses in Western Australia and New South Wales are expected to record profits in 2015/16. Meanwhile, farm businesses in all other regions are expected to record average losses; with those in Queensland expected to record a third consecutive year of negative average profits given fodder expenditure in view of prevailing drier conditions. These farm business losses were particularly concentrated amongst the smallest 20% of farms.

Along with decreased farm cash incomes, ABARES farm survey data estimates a 3% increase in average debt from \$888,200 in 2014/15 to an estimated \$914,000 in 2015/16. Over 50% of this debt is greater than \$500,000 (See Figure 6).

Over recent years, the composition of farm debt has reflected a marked trend towards the use of debt for working capital purposes, to manage climate and market volatility.

While the level of farm debt has steadily increased over many years, farm asset values have also increased so that the average level of farm business equity has remained around the long-term average of around 80%. Furthermore, ABARES estimates that some 30% of dairy farms have equity levels of 90% or above.

Milk production

While farm numbers have steadily decreased over the past three decades, milk output generally increased, due to increasing cow numbers and improved cow yields – up until the major widespread drought of 2002/03. The following decade has been a period of consolidation for the industry, with falling cow numbers and dry seasonal conditions constraining production.

Recent years have seen generally improved seasonal conditions across most dairying and grain growing regions with the exception of a dry 2015/16. However, volatility in farmgate milk prices and farm incomes have impacted farmer confidence with lower cow numbers limiting growth in milk production. Nevertheless, there has been some volume growth in three out of the last five seasons.

There have been significant on-farm adaptation strategies employed to manage the fluctuating seasonal conditions of the last decade, particularly in the inland irrigation regions of northern Victoria, and central and southern inland New South Wales. Volatility in seasonal water allocations and the price of temporary water has become another source of risk farmers must manage.

Interestingly, with improved water supplies in the last five years, many farmers have re-adjusted their production systems back towards the more traditional pasture-based systems while others continue to leverage investments made during drought years.

As Figure 7 indicates, the underlying trend has continued towards fewer farms, larger herds and increasing levels of milk production per farm.

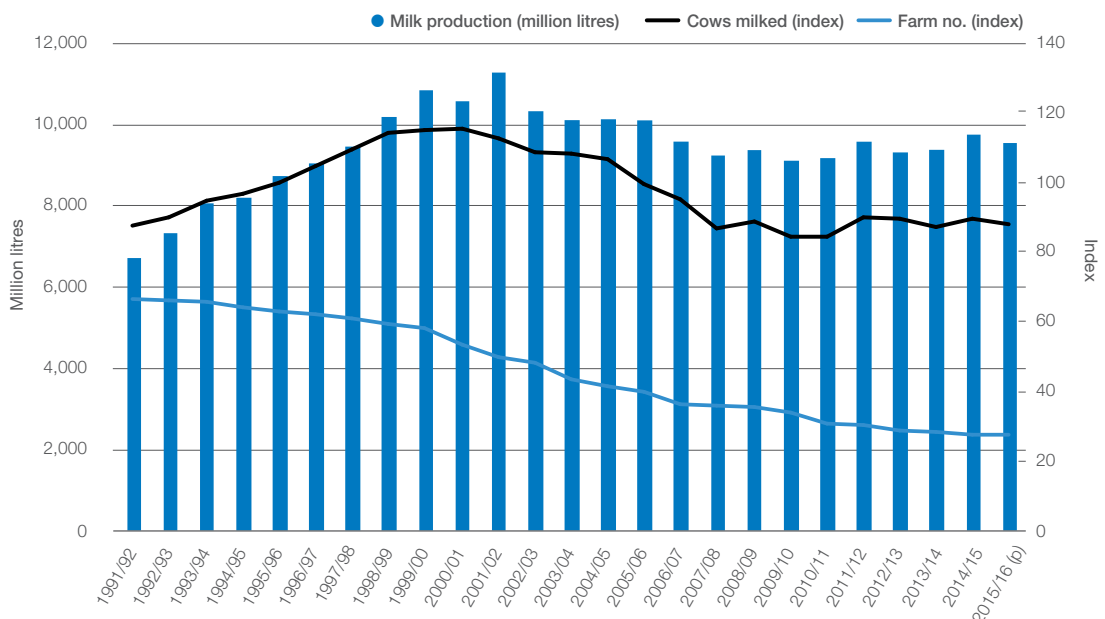
Farmers have made many changes to their general farm management practices and adopted a range of improved technologies to maintain and improve production. These include soil testing, the use of animal nutritionists to balance cow diets, improved animal genetics, new milking equipment and data analysis tools and software.

Milk production is concentrated in the temperate zone of Australia, as can be seen in Table 6 and the map of dairying regions in Appendix 3. Australian milk production remains strongly seasonal in the key south-eastern dairying regions, reflecting the predominantly pasture-based nature of the industry.

Milk production peaks in October, tapers off until late-summer, and then flattens out into the cooler winter months (refer to Figure 8). The production of long shelf-life manufactured products in these parts of the country has enabled maximum milk utilisation within the seasonal cycle. However, the seasonality of milk output in Queensland, New South Wales and Western Australia is much less pronounced, due to a greater focus on drinking milk and fresh products in these states. Farmers in these states manage calving and feed systems to ensure more even, year-round milk production.

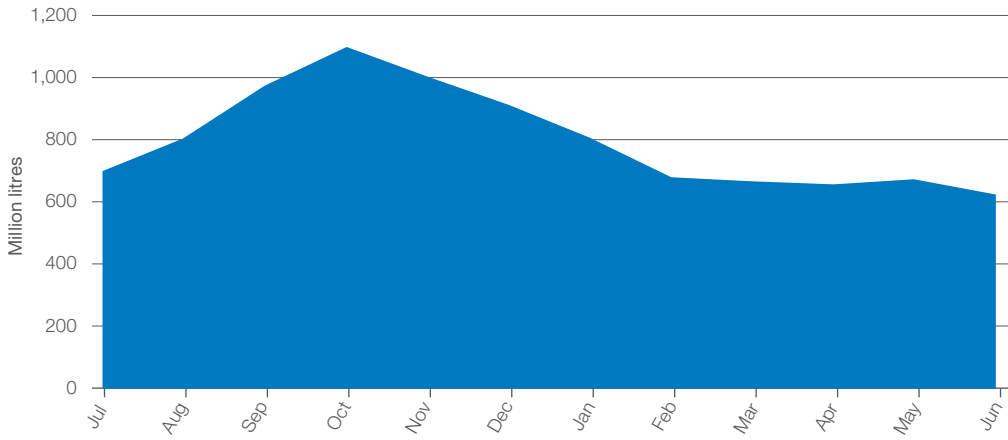
See Appendix 3 for more details on the seasonality of milk production by state dairying regions.

Figure 7 Australian milk production vs indices of farms and cows milked



Source: Dairy manufacturers, ABS, state authorities and Dairy Australia

Figure 8 Seasonality of milk production in Australia, 2015/16 (million litres)



Source: Dairy manufacturers

Table 6 Milk production by state (million litres)

	NSW	VIC	QLD	SA	WA	TAS	AUST
1979/80	907	3,151	508	329	222	315	5,432
1989/90	879	3,787	629	356	267	344	6,262
1999/00	1,395	6,870	848	713	412	609	10,847
2005/06	1,197	6,651	597	646	377	622	10,089
2006/07	1,104	6,297	537	655	349	641	9,583
2007/08	1,048	6,102	486	606	319	661	9,223
2008/09	1,064	6,135	513	628	340	709	9,388
2009/10	1,099	5,813	530	605	359	677	9,084
2010/11	1,087	5,936	487	572	372	726	9,180
2011/12	1,135	6,241	487	570	349	792	9,574
2012/13	1,136	6,071	460	536	349	765	9,317
2013/14	1,104	6,166	437	516	340	810	9,372
2014/15	1,160	6,390	411	516	364	891	9,732
2015/16 (p)	1,165	6,186	405	514	387	883	9,539

From July 2005, data collection based on farm location rather than factory location
Source: Dairy manufacturers

Australian milk production declined approximately 190 million litres, or 2.0%, to 9.54 billion litres in 2015/16 – reflecting both difficult seasonal conditions as well as the sudden price step-downs late in the season. Although seasonal conditions were initially favourable, a dry Spring and delayed Autumn break across much of the southeast increased input costs and constrained production. Consequently, national milk production was already down 1.1% YTD before late season step-downs were announced in April.

Cows' milk consists of solids (milkfat, protein, lactose and minerals) in water, with water making up about 87% of the volume. The milkfat and protein components are those on which companies base their farmgate milk prices, with protein usually the more valuable component.

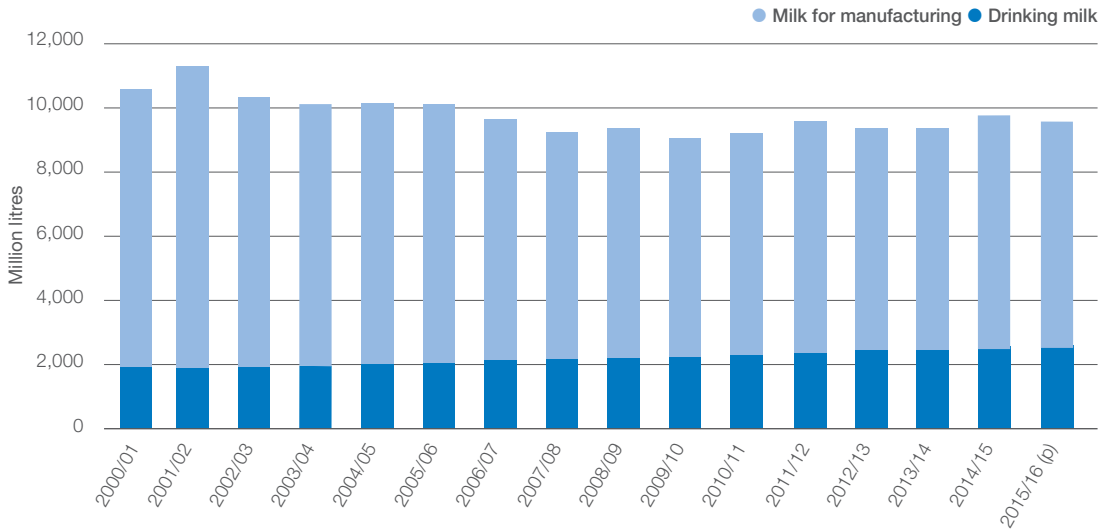
Milk composition varies between regions due to a number of factors, such as cow breed and age, nutrition and feed quality, as shown in Table 7.

Table 7 Average protein/fat composition by state (%)

	NSW	VIC	QLD	SA	WA	TAS	AUST
Milk fat							
2007/08	3.97	4.14	4.01	3.95	3.95	4.20	4.10
2008/09	3.93	4.22	3.97	3.93	3.99	4.25	4.15
2009/10	3.97	4.20	4.05	4.05	3.91	4.34	4.15
2010/11	3.92	4.15	4.00	3.82	3.96	4.28	4.10
2011/12	3.90	4.08	4.00	3.85	3.86	4.25	4.05
2012/13	3.92	4.12	4.02	3.81	3.87	4.32	4.08
2013/14	3.91	4.10	3.98	3.80	3.88	4.30	4.07
2014/15	3.93	4.15	4.01	3.77	3.89	4.35	4.11
2015/16 (p)	3.92	4.12	4.00	3.77	3.92	4.30	4.08
Protein							
2007/08	3.25	3.34	3.25	3.25	3.19	3.39	3.32
2008/09	3.26	3.38	3.28	3.28	3.24	3.39	3.35
2009/10	3.27	3.35	3.33	3.27	3.20	3.41	3.34
2010/11	3.26	3.38	3.31	3.28	3.23	3.44	3.35
2011/12	3.28	3.36	3.31	3.27	3.16	3.44	3.34
2012/13	3.27	3.36	3.29	3.26	3.20	3.47	3.35
2013/14	3.28	3.39	3.29	3.27	3.18	3.47	3.37
2014/15	3.29	3.40	3.32	3.29	3.22	3.49	3.38
2015/16 (p)	3.29	3.40	3.32	3.28	3.23	3.48	3.38

Source: Dairy manufacturers

Figure 9 Drinking and manufacturing milk production (million litres)



Source: Dairy manufacturers

With ongoing population growth since 2001/02 in Australia, the amount of milk destined for domestic consumption as either drinking milk or manufactured products (e.g. cheese and butter) has increased. In 2015/16, 25% of Australia’s production was used for drinking milk, compared to 18% in 2001/02. While 41% of milk produced was used for manufactured products last financial year; up from 26% in 2001/02. Conversely, the surplus volume of milk and proportion available for export as manufactured product has declined from 56% in 2001/02 to around 34% in 2015/16, as shown in Figure 9.

The use of milk varies significantly between the states, as mentioned previously in the discussion around farmgate milk prices (see page 8) and graphically illustrated in Figure 3 Use of Australian milk by state – 2015/16 (see page 9). This chart shows the relative importance of the drinking milk, domestic manufactured and overseas manufactured dairy product markets for the different dairying regions around Australia.



Dairy manufacturing

The Australian dairy manufacturing sector is diverse and includes farmer-owned co-operatives, public, private and multinational companies. Farmer-owned cooperatives no longer dominate the industry and now account for less than 40% of Australia's milk production. Murray Goulburn (MG) is the largest co-operative as well as the single largest milk processor, accounting for around 37% of all milk produced in Australia.

The lack of growth in milk production over the past decade or so relieved the pressure on Australian dairy companies to invest in increasing processing capacity – at least in the short to medium term. At the same time, some processors have encountered difficulties in meeting demand for certain products, particularly in milk powder and cheese.

Around 63% of manufactured product (in milk equivalent terms) was exported and the remaining 37% sold on the Australian market in the 2015/16 season. This contrasts with drinking milk, where some 94% is consumed in the domestic market.

Cheese is consistently the major product stream, utilising just under a third of Australia's milk production in 2015/16 and has remained around this level for a number of years. Drinking milk and skim milk powder/butter production were the two next largest users of milk, each taking around a quarter of the total milk produced in Australia.

As in the farm sector, the milk processing sector has undergone significant changes in the past 12 months, with a number of long-term investment decisions being made or otherwise changed.

MG has decided to review its decision to invest in a new greenfield facility for UHT and consumer beverages, citing increased European competition and lower prices in the Chinese liquid milk market. As of August 2016, MG remains committed to constructing a new 45,000 tonne milk drying facility in Koroit to supply powder for the infant formula and nutritionals market, following the conclusion of agreements with international partners Mead Johnson and Kalbe Nutritionals.

Large multinational companies have operated in the Australian dairy industry for many years and currently include Fonterra (New Zealand), Kirin (Japan) and Lactalis (France).

Fonterra has made significant changes to its manufacturing capabilities in the past 12 months, citing a desire to refocus on key product lines such as cheese, spreads, and milk powders. In December 2015 Fonterra announced the sale of its yoghurt and dairy dessert division to Parmalat, along with production facilities in Echuca and Launceston.

In August 2016, Fonterra sold its Wagga Wagga based Riverina Fresh business to Blue River Group, an impact investment firm. Production of Riverina Fresh will continue. Fonterra has also announced \$AUD 4.3 million worth of new upgrades at its Wynyard cheese and whey plant in Tasmania (boosting production capacity by some 8,000 tonnes), and \$AUD 6.2 million for increased cold-store capacity at its Cobden spreads plant.

Lion Dairy & Drinks (owned by Kirin) has folded its separate export-oriented subsidiary Lion Asia Dairy into its central operations, as part of organisational restructuring. Lion has also signalled renewed focus on its core business activities, ear-marking some \$87 million to revitalise its white milk and milk-based beverage business operations, as well as \$40 million to revamp its manufacturing and distribution facility in Bentley, WA.

Australian Consolidated Milk (ACM) has announced plans to expand production of organic liquid milk and is seeking new suppliers. ACM indicated that a significant premium would be offered, and a willingness to cover the costs of organic certification. In further developments, Pactum Dairy Group which is part-owned by ACM, will supply UHT milk to Vietnamese company, International Dairy Products, from its plant in Shepparton. Pactum Dairy Group was also awarded a contract to supply around 400,000 litres of UHT milk for the Victorian Government's School Breakfast Club initiative.

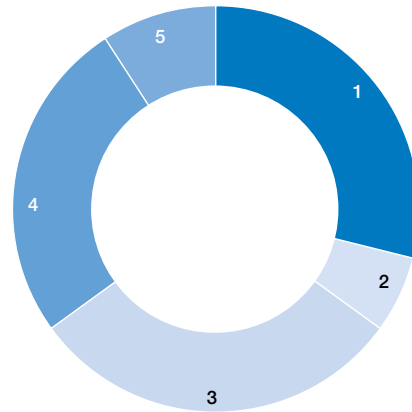
Camperdown Dairy International (CDI) in Camperdown, western Victoria, has announced it is re-assessing plans to establish a \$500m vertically integrated operation. Intended to span on-farm milk production through to manufacturing and export of milk and nutritional powders, the company has cited ongoing market volatility and concerns around changes in the Chinese regulatory framework.

Meanwhile, the Midfield Group's project to establish two milk powder plants in Penola in south-eastern South Australia and Warrnambool, western Victoria continues. Construction is underway, and expected to have a processing capacity of around 220 million litres when completed in mid-2017. Midfield Group has taken on a subsidiary of the large international commodities broker Louis Dreyfus Company as a partner in the joint venture. Louis Dreyfus Company Dairy Asia will provide risk management and expertise in marketing of agricultural commodities to complement Midfield's knowledge of farming and processing.

Beston Global Food Company has purchased Australian Provincial Cheeses for \$2.2 million, and will continue to produce its Mable's and Grange Peak brands at Murray Bridge.

Burra Foods has also announced significant changes recently, with China-based Inner Mongolia Fuyuan Farming Co Ltd (Fuyuan), taking a majority shareholding in the South Gippsland processor, following approval by the Foreign Investment Review Board (FIRB) in August 2016. Fuyuan's biggest shareholder is Mengniu, one of China's largest dairy companies. Existing shareholders including Burra Foods' founders, The Crothers family and Japanese dairy trading company Itochu, will maintain a combined 21% interest in the company with Mr Crothers remaining CEO.

Figure 10 Australian milk utilisation in 2015/16



1 SMP/Butter **29%**

2 WMP **6%**

3 Cheese **30%**

4 Drinking milk **26%**

5 Other **9%**

Source: Dairy Australia

Dairy markets

Over recent decades Australian milk production has been well above the volume required for domestic consumption, creating marketable surplus destined for export markets. The share of total production exported has ranged from around 30–60% over the period shown in Figure 11. Over recent years Australia has exported closer to 30% of its milk production – the lowest proportion since the mid-1990s, with the combination of a declining milk production base, and a larger domestic market due to population growth resulting in less milk available for export.

Although Australia accounts for less than 2% of the world’s estimated milk production, it is a significant exporter of dairy products. Australia currently ranks fourth in terms of world dairy trade – with a 6% share – behind New Zealand, the European Union as a bloc and the United States.

Greater China (including China, Hong Kong and Macau) is now Australia’s largest market, accounting for 22% of exports by volume. Japan remains a vital trade partner for Australian exporters, as a mature, high-value market with long-established business

relationships. Australian exports are overwhelmingly concentrated in Asia, which accounted for 80% of the total dairy export value of almost \$3 billion in 2015/16.

This concentration of exports in Asia reflects both Australia’s geographic proximity to these markets and the extent to which Australia has been excluded from other major markets by direct restrictions (as in the case of the European Union) or the impact of the export subsidy programs of major competitor countries.

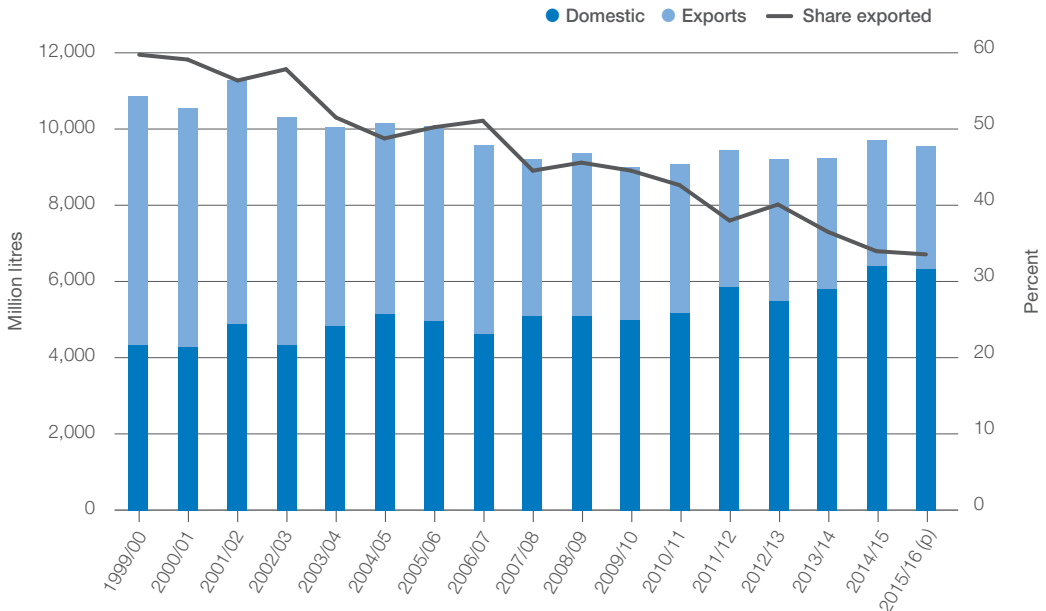
Asian markets have considerable potential for consumption growth as incomes rise and diets become more ‘westernised.’ Australian dairy companies have proven track records in supplying these markets over a number of decades.

Australia’s top five export markets by value in 2015/16 were Greater China, Japan, Indonesia, Singapore and Malaysia. The top five by volume differed only slightly by order: Greater China, Japan, Singapore, Indonesia and Malaysia.

The fastest growing export markets for Australia in the last five years have been Greater China and Malaysia.

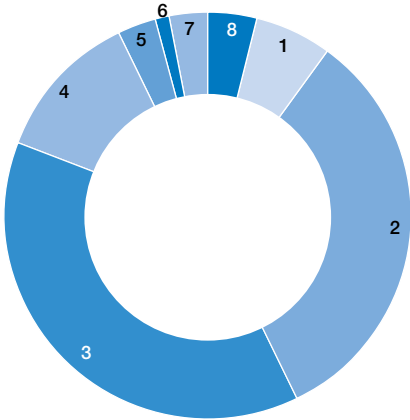
See Appendix 7 for detailed tables of Australia’s export markets.

Figure 11 Australian consumption and exports (milk equivalents)



Source: Dairy manufacturers and ABS

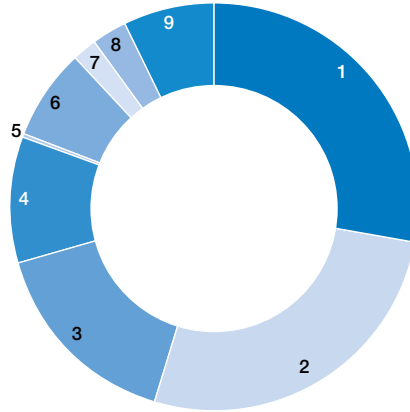
Figure 12 Exporters' share of world dairy trade in 2015 (milk equivalents)



- 1 Australia **6%**
- 2 EU **33%**
- 3 NZ **38%**
- 4 USA **12%**
- 5 Argentina **3%**
- 6 Ukraine **1%**
- 7 Uruguay **3%**
- 8 Other **4%**

Source: Dairy Australia

Figure 13 Australian exports by region, 2015/16 (A\$ million)



- 1 South East Asia **\$838**
- 2 Greater China **\$795**
- 3 Japan **\$464**
- 4 Other Asia **\$294**
- 5 Europe **\$11**
- 6 Middle East **\$215**
- 7 Africa **\$66**
- 8 Americas **\$99**
- 9 Other **\$211**

Source: ABS

Table 8 Australian dairy markets by product, 2015/16 (A\$ million)

	SE Asia	Other Asia	Europe	Middle East	Africa	Americas	Other	Total
Butter/AMF	56	51	2	18	4	19	6	157
Cheese	147	577	2	47	21	35	27	856
Milk	85	121	0	2	1	0	23	232
SMP	297	125	0	66	15	2	12	516
WMP*	57	480	2	15	1	15	25	595
Other	195	199	5	67	24	28	119	637
Total	838	1,552	11	215	66	99	211	2,993

*Also includes infant powder

Source: Dairy Australia estimates and ABS

Table 9 Top 10 Australian export destinations, 2015/16

Country	Volume (tonnes)	% of Total	Country	Value (A\$ million)	% of Total
Greater China*	178,101	22%	Greater China*	795	27%
Japan	103,140	13%	Japan	464	16%
Singapore	82,794	10%	Indonesia	202	7%
Indonesia	61,025	7%	Singapore	188	6%
Malaysia	58,147	7%	Malaysia	181	6%
Philippines	40,257	5%	New Zealand	168	6%
New Zealand	37,052	5%	Philippines	107	4%
Thailand	27,048	3%	South Korea	99	3%
Vietnam	24,569	3%	Taiwan	96	3%
United Arab Emirates	23,003	3%	Thailand	91	3%

*Includes China, Hong Kong and Macau

Source: Dairy Australia and ABS

Australian consumption of dairy products

The major Australian consumer dairy products are drinking milk, cheese, butter and butter blends, and yoghurt.

Per capita consumption trends over the past two decades have varied quite significantly by individual product. These trends reflect changes in consumer tastes and preferences in response to a number of factors such as multicultural influences on food trends, health perceptions around dairy products and manufacturers' responses (with low-fat variants), new product development, flavour and packaging innovations, competitive category offerings, and the distribution and hence availability of products.

Per capita consumption of drinking milk is currently estimated at 105 litres. It remains at very high levels compared to other comparable countries – thanks in no small part to the relentless expansion of the 'coffee culture' in Australia during the last decade.

Cheese consumption has stabilised in recent years at around 13.5 kg per person, as has the split between cheddar and non-cheddar varieties. Almost 55% of cheese consumption is made up of cheddar types and the remaining 45% is spread across the wide range of non-cheddar cheese varieties available in Australia.

Annual per capita consumption of butter in Australia is around 4.0 kgs. Consumers continue to remain interested in the 'naturalness' of butter, together with its superior taste and cooking functionality.

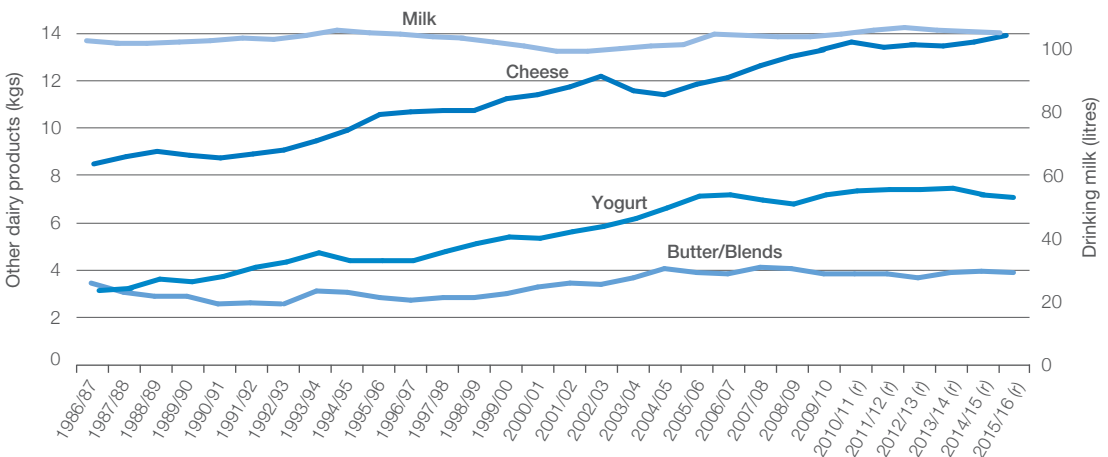
Yoghurt is the ultimate 'healthy snack' for time-pressed consumers, combining both convenience and health attributes, with per capita consumption at 7.1 kg per year.

Table 10 Per capita consumption of major dairy products (litres/kg)

	Milk (lts)	Cheese (kgs)	Butter / Blends (kgs)	Yoghurt (kgs)
2011/12 (r)	106.0	13.4	3.9	7.4
2012/13 (r)	106.7	13.5	3.7	7.4
2013/14 (r)	105.8	13.5	3.9	7.4
2014/15 (r)	105.3	13.6	4.0	7.2
2015/16 (p)	105.0	13.9	3.9	7.1

Source: Dairy manufacturers and Dairy Australia

Figure 14 Per capita consumption (litres/kg)



Source: Dairy manufacturers and Dairy Australia

Drinking milk

Regular or full cream milk is standardised to a milkfat content of around 3.4 to 3.6%. Modified, reduced and low-fat milks are standardised to other specifications, with varying milkfat and solids non-fat levels. The cream removed during standardisation can be bottled as table cream or manufactured into butter or other dairy products.

Australian milk consumption of fresh milk has steadily shifted from regular full cream milk to modified milks, such as reduced and low-fat milks, over many years. Over the last two decades, full cream white milk volumes have consistently lost share in the white fresh milk market from 67% in the early – 1990s to 49% share of total drinking milk in 2013/14. More recently however this trend appears to be reversing, with the share climbing to 54% in 2015/16. The share trends across the other segments have been steadily downwards; with total white modified milks' share down from 43% in 2013/14 to 36% in 2015/16. Flavoured milk increased its share of the drinking milk market from 7% to 10%; and the UHT milk volume share of supermarket sales has increased from 3% to 14% over the 20 years.

There are now two major players in the Australian drinking milk market: Lion Dairy & Drinks (with the Pura and Dairy Farmers brands) and Parmalat (with the Pauls and Harvey Fresh brands). Murray Goulburn and Fonterra Australia have recently increased their presence in the milk market with supply contracts for the supply of supermarket private label milks. In addition, there is also an increasing number of smaller players in the marketplace with strong specialty and regional brands, with most showing significant growth in recent years as many consumers have chosen to support local brands.

The supermarket channel's share of Australian drinking milk sales has been relatively steady over the last five years at around 53-54%. Supermarket sales volumes grew by 1.3% in 2015/16; with the comparative sales performance between private label milks (+2%) and dairy company branded milks (+0.5%) delivering marginal market share growth to private label milks of 0.1% share points to 54.8%.

The private label brands' share of total supermarket milk volumes has been relatively stable over the last couple of years; and up from around 25% back in 1999/2000. Looking more closely at the fresh white milk segments, where the majority of the pricing activity of recent years has occurred, private label brands currently account for 64% of fresh white regular full cream milk and 51% of modified fresh

white milk sales. However, this changed quite dramatically in May 2016, with consumers responding to prominent social media campaigns to support Australian dairy farmers through increased purchases of branded milk.

In 2015/16, the average price of company branded milk rose very slightly from \$2.17 to \$2.18 per litre, with increases in modified fresh white and flavoured milks offsetting a fall in the average prices of UHT milks. Average private label milk prices have been stable at \$1.02 per litre since early 2011. In line with the volume growth seen during the year, the total retail value of all supermarket milk sales increased by 1.3% to more than \$2.1 billion.

The average price of private label products is significantly less than company branded products, due to a combination of product and pack size mix – with a greater proportion of private label purchases being larger plastic bottles of regular full cream milk.

On the packaging front, plastic bottles account for nearly 80% of all milk sales in supermarkets, with the balance split between gable-top cartons (6%) and UHT cartons (14%).

There have been significant movements within the pack sizes bought by consumers in supermarkets over the last decade. However, the 2-litre plastic bottle remains the most popular size, with 47% share. The combined share of 1-litre cartons and plastic bottles has slipped from 33% to 16%. The major change has been in the rapid growth of the 3-litre plastic bottle, increasing its share of all supermarket milk sales from 13% when it first appeared in June 1998 to around 31% currently.

See Appendix 6 for more details of supermarket milk sales and average prices.

Australia exports relatively small volumes of liquid milk; however, these showed strong growth of 21% in 2015/16; with exports of almost 185 million litres of milk. This product was predominantly UHT, although some smaller companies are now air-freighting fresh milk to customers in Asia. Nearly 90% of the total volume exported went into the broader Asian region, with most of the balance into the island countries of the Pacific region.

See Appendix 7 for more details of drinking milk exports.

Table 11 Drinking milk sales by type (million litres)

	Regular	Reduced	No fat	Flavoured	UHT	Total
1989/90	1,257	322		111	40	1,730
1999/00	1,099	498		173	164	1,933
2009/10	1,134	592	117	215	211	2,269
2010/11	1,140	632	109	227	208	2,316
2011/12 (r)	1,160	679	104	236	208	2,387
2012/13 (r)	1,172	690	100	240	243	2,445
2013/14 (r)	1,193	691	93	240	250	2,467
2014/15 (r)	1,242	659	87	240	257	2,485
2015/16 (p)	1,308	623	74	246	265	2,516

Source: Milk processors and state milk authorities

Table 12 Drinking milk sales by state (million litres)

	NSW	VIC	QLD	SA	WA	TAS	AUST
1979/80	531	437	249	127	119	41	1,504
1989/90	582	449	316	150	164	47	1,730
1999/00	597	440	383	185	190	48	1,933
2009/10	708	545	499	213	247	57	2,269
2010/11	715	566	502	213	262	58	2,316
2011/12 (r)	721	582	531	221	274	58	2,387
2012/13 (r)	719	600	563	222	280	61	2,445
2013/14 (r)	712	612	584	221	279	59	2,467
2014/15 (r)	714	623	582	221	284	61	2,485
2015/16 (p)	731	635	583	222	285	60	2,516

State figures exclude interstate traded milk prior to 2001, NSW includes ACT after June 2000.

Source: Milk processors and state milk authorities

Cheese

Australia produced 344,000 tonnes of cheese in 2015/16 – virtually unchanged from last year. Production volumes were significantly less than early in the 2000s as milk production has declined since that time. Another significant factor in more recent years, as milk production has stabilised at lower levels, has been the impact of dairy companies opportunistically changing their export product mixes to take advantage of favourable movements in international dairy commodity prices.

Cheese is a major product for the Australian dairy industry, with sales of around 260,000 tonnes of domestic product within Australia, for an estimated value approaching A\$1.85 billion; and export sales of a further 171,000 tonnes, worth A\$855 million in 2015/16.

There has been a long-term trend in production away from cheddar cheeses and toward non-cheddar cheese types. The non-cheddar share of total production volumes has steadily increased from 30% three decades ago, to between 45% and 50% in recent years.

It is estimated that nearly 45% of the domestic sales of Australian cheese are through the major supermarket chains. Consequently, a significant proportion – of predominantly specialty cheeses – are sold through the smaller independent retail trade made up of delicatessens and specialty food stores. The remainder is used in the food service sector and in food processing applications.

Total cheese sales volumes through the supermarket channel grew by around 2.0% in 2015/16. However, average retail prices decreased by 1.7% on the previous year, so that the total value of retail sales through the supermarket channel remained more-or-less unchanged, at slightly more than \$2.1 billion.

In 2015/16 the volume of cheese imports grew by 8.4% to 89,300 tonnes of cheese, which accounted for an estimated 28% of the Australian cheese market. Some 55,000 tonnes was sourced from New Zealand, representing approximately 62% of all imports into Australia. Around 24% of imports came from Europe with the 13% remainder from the United States. Five years ago these country shares saw New Zealand with 78%, Europe with 19% and the United States with just 3%.

Japan remained Australia's most important overseas cheese market in 2015/16 and accounted for nearly 55% of product exports, overwhelmingly of fresh and cream cheese varieties for processing. Other significant markets include Greater China, Malaysia, South Korea and Singapore. Australian cheeses were exported to 60 countries around the world last year.

The long-term trend away from cheddar cheeses and toward non-cheddar varieties is also evident in Australia's cheese exports, with the non-cheddar share of total export sales steadily increasing from around 60% two decades ago, to more than 75% in recent years.

Table 13 Australian cheese production by type of cheese (tonnes)

	2010/11	2011/12	2012/13	2013/14 (r)	2014/15 (r)	2015/16 (p)
Cheddar	154,720	160,683	157,996	151,721	178,836	171,590
Semi hard	68,176	67,023	57,190	44,749	43,938	49,559
Hard grating	13,591	13,871	14,681	13,762	9,885	5,040
Fresh	95,431	99,024	102,342	95,764	104,992	110,767
Mould	6,739	5,930	6,103	5,504	6,491	7,300
Total cheese	338,657	346,530	338,312	311,500	344,142	344,257

Source: Dairy manufacturers

Butter

In 2015/16, Australia produced 118,600 tonnes of butter and anhydrous milkfat (AMF) or butteroil in commercial butter equivalent terms (CBE) – almost unchanged from the previous year.

AMF is butter with the water removed. It is produced mainly for export and domestic food processing applications, such as bakery and confectionery. While these sectors also use butter, the majority of domestic butter sales are through retail and foodservice outlets.

The introduction of spreadable butters and vegetable oil-based dairy blends, which are easier to spread and lower in saturated fat, has helped to stabilise domestic market sales in the last two decades, after a sustained decline through the 1970s and 1980s.

Nevertheless, Australia's total retail market for tablespreads has generally contracted over the last decade. Consumer concerns about margarine consumption have meant a continuing decline in share, with dairy spreads taking further retail market share from margarine. This has been a continuing trend over the last decade, as dairyspreads' share of the category has steadily increased from 30% in 2000/01 to 50% in recent years.

It is estimated that around 50% of the domestic sales of Australian dairyspreads were through supermarkets. Supermarket sales volumes increased 3.6% in 2015/2016, together with a 3.0% increase in

average retail prices during the year, delivered an increase in retail sales value of 3.8% over the previous year to more than \$432 million.

See Appendix 6 for more details of supermarket butter and dairy blend sales.

Imports accounted for approximately a quarter of the Australian butter market by volume. In 2015/16, over 90% of the 23,400 tonnes of butter and butteroil imported into Australia was sourced from New Zealand.

Australian exports of butter and AMF can vary significantly from year to year, depending on milk availability during the season and local dairy company responses to international prices for competing products.

Export volumes were down more than 20% last year to 34,000 tonnes and generally low prices saw the value of exports fall to \$154 million – the lowest in a decade.

Australia's most important overseas markets for butter/ AMF were Singapore, Greater China, the United Arab Emirates, Malaysia and Thailand; out of approximately 50 countries.

See Appendix 7 for more details of butter and AMF exports.

Table 14 Butter and AMF production (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Butter/Butter blends (CBE)	96,326	100,551	99,035	101,705	101,641	99,015
AMF (CBE)	26,160	19,164	19,193	14,417	16,943	19,610

Source: Dairy manufacturers

Table 15 Australian exports of butter and AMF (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Butter	33,403	33,602	39,297	39,790	30,755	23,501
AMF (CBE)	22,440	14,978	14,316	9,460	11,867	10,425

Source: Dairy Australia and ABS

Other fresh and frozen dairy products

Australian manufacturers produce a range of fresh dairy products, including yoghurts, dairy desserts, chilled custards and creams, dairy dips and frozen products such as ice-cream.

Yoghurts have been a category of considerable growth for the dairy industry over the past two decades, due to their ability to meet consumer requirements for convenient, healthy snacks in an environment of time-poor lifestyles. The segment includes strong international brands, such as Ski, Yoplait and Nestlé. There is an ongoing trend within the yoghurt category, away from sweetened and flavoured varieties towards more traditional, unflavoured varieties of yoghurt, such as Greek-style yoghurts, which is perceived to be healthier and more 'natural'. Sales of these unflavoured, traditional varieties have overtaken those of sweetened and flavoured yoghurts, and now account for more than 50% of the market.

Growth in yoghurt sales has been underpinned by regular product innovation in the areas of packaging, flavour combinations and the use of probiotic cultures, as well as new products, such as drinking yoghurts.

Dairy desserts are a low volume/high value dairy category with steadily declining volumes in recent years. Marketed as an indulgence or treat item, these products are generally targeted to adult consumers and include mousses, crème caramels and fromage frais. Children's products include fromage frais and flavoured custards that often feature popular cartoon characters on-pack.

Chilled custards, a traditional favourite, have shown marginal declines in recent years despite manufacturers expanding their product offerings into small, snack-sized, single-serve plastic cups sold in multi-packs.

The grocery market for cream has expanded in recent years – with increased interest in cooking seeing more people preparing meals at home and hence supporting sales. Regular and sour creams are both used extensively as accompaniments or ingredients; but face significant competition on the health front, often from other dairy products, such as natural yoghurt. Nevertheless, like butter, consumers remain interested in cream's superior taste and cooking functionality.

See Appendix 5 for more details on cream, custard and dairy dessert sales.

Dairy dips are another low volume / high value dairy category; this one showing steady volume growth in recent years. Flavour innovations have been particularly successful in maintaining the consumer appeal of another traditional favourite in the dairy case.

Australia's consumption of ice-cream is relatively high by world standards – around 18 litres per head and third only to New Zealand and the United States. The market is stable in volume terms and highly seasonal in certain stick line or single serve segments.

The major market development for ice-cream in recent years has been in premium indulgent treats, in both stick lines and smaller-sized take-home tubs. Refreshing fruit-based, ice-cream products are also popular with consumers seeking a healthy option within the category.

Strong international brands, such as Streets (from Unilever), Peters (from R&R Ice Cream) and Cadbury (from Mondelez) dominate the category.

Milk powders

Australian manufacturers produce a range of milk powders. The technology used in both the production and use of powders has seen the range of specifications available from Australian manufacturers expand in line with customers' needs.

In the years up until the peak milk production season of 2001/02, the most obvious trend in local milk powder production was a steady increase in the share of whole milk powder (WMP) output – from a low of 25% in the early-to-mid 1980s to a peak of almost 50% share of all milk powders produced in Australia in 2001/02. Since then, the trend reversed with skim milk powder (SMP) production regaining share to reach just under 80% of total milk powder production in 2015/16.

The limited availability of milk during the first half of the last decade and a stabilisation of milk production volumes in recent years has seen local dairy companies opportunistically changing their product mixes to take advantage of the relative movements in international dairy commodity prices. Differing market access arrangements also impact on the competitiveness of product pricing. For example, local producers will be at a competitive disadvantage where Australia may not have negotiated a Free Trade Agreement, but a competitive supplier country has already done so. This impacts on local production mixes because the bulk of Australia's milk powder production volumes are sold into export markets.

Only about 15–20% of Australia's powder production is sold domestically, with local usage mainly as a food ingredient and retail outlets accounting for only a small percentage of domestic sales. Infant formula is a high-value product that has shown strong growth recently, both in Australian supermarket sales (largely attributed to the so-called grey market trade), as well

as through direct Australian exports. In 2015/16 Australian exports of WMP, in the form of both regular powder and infant formula exceeded domestic WMP production, and meant that Australia itself imported some 32,000 tonnes of infant formula, and 13,000 tonnes of WMP in 2015/16 to make up the shortfall.

Exported milk powder is often recombined into liquid milk products, particularly in tropical climates where fresh milk supplies are not readily available due to limited local production and/or restricted development of cold chain distribution facilities. It is also used in bakery products (improving the volume and binding capacity of bread, and ensuring crisper pastry and biscuits), confectionery and milk chocolates, processed meats, ready-to-cook meals, baby foods, ice-cream, yoghurt, health foods and reduced-fat milks. Industrial grade powder is used for stockfeed.

The major export markets for Australian milk powders are concentrated in Asia, with over 80% of SMP and WMP exports destined for the region in 2015/16.

See Appendix 7 for more details on milk powder exports.

Indonesia was the largest single export market for Australian-produced SMP in 2015/16, followed by Greater China, Malaysia, Singapore, and the Philippines out of some 35 export destinations.

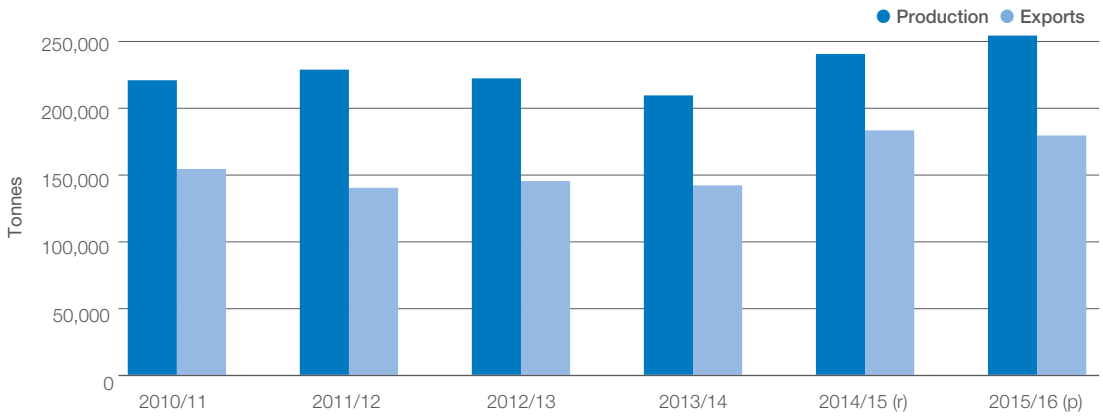
Singapore was the largest single export market for Australian-produced WMP, followed by, Sri Lanka, Bangladesh, Oman and El Salvador, out of a total of 55 export destinations.

Table 16 Australian production of milk powders (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Skim milk powder	222,484	230,286	224,061	210,964	242,266	255,792
Whole milk powder*	151,269	140,424	108,838	126,322	96,840	66,125

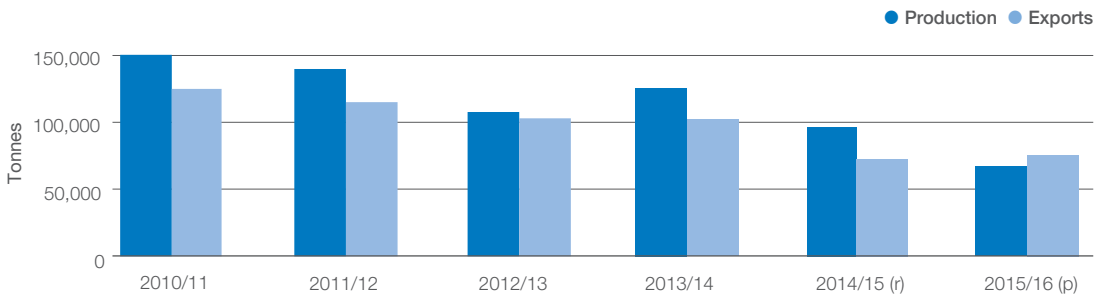
*Includes infant powders
Source: Dairy manufacturers

Figure 15 Australian production and exports of skim milk powder (tonnes)



Source: Dairy manufacturers and ABS

Figure 16 Australian production and exports of whole milk powder (tonnes)



Source: Dairy manufacturers and ABS

Table 17 Australian exports of skim milk powder by region (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia	124,176	111,396	109,232	107,956	150,124	147,847
Middle East	21,496	23,529	28,313	31,429	26,927	23,268
Africa	2,307	2,083	3,830	1,392	386	5,829
Pacific	4,385	2,612	3,478	1,584	5,376	3,857
Americas	1,461	889	1,331	244	1,473	552
Europe	1,510	810	732	563	540	43
Others	0	0	0	0	0	0
Total	155,335	141,319	146,916	143,169	184,825	181,396

Source: Dairy Australia and ABS

Table 18 Australian exports of whole milk powder by region* (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia	84,468	68,022	76,572	91,226	57,963	62,696
Middle East	21,329	31,619	9,488	3,872	6,510	5,050
Africa	9,344	4,629	5,744	3,344	2,761	368
Pacific	1,447	1,629	1,995	1,371	1,634	4,350
Americas	8,458	9,782	8,545	2,089	6,031	4,227
Europe	807	429	1,468	345	230	511
Total	125,853	116,110	103,812	102,247	75,129	77,202

*Includes infant powders

Source: Dairy Australia and ABS

Whey products and casein

Whey is a by-product of the cheese making process. Traditionally, this product was disposed of in liquid form. However, recognition of the value of whey's components has led to a variety of uses.

Food-grade whey powder is used in the manufacture of ice-cream, bakery products (cakes, biscuits), chocolate flavouring, infant formula, yoghurt, beverages and processed meat. Industrial uses include animal feed (for pigs, horses and poultry), calf milk replacer and even as a carrier for herbicides.

Whey protein concentrates are used in snack foods, juices, confectionery, ice-cream, biscuits, processed meats, (milk) protein drinks, desserts, infant foods and dietetic products. Products such as cosmetics, skin creams, bath salts and detergents also contain protein concentrates.

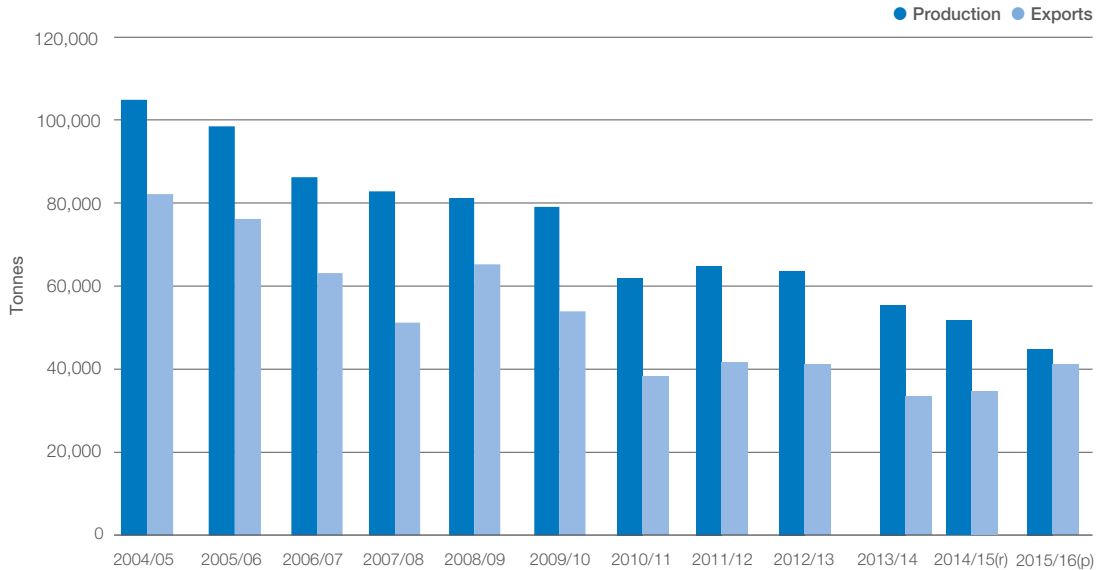
Around 30% of Australia's whey production is used domestically in the manufacture of infant formula, biscuits and ice-cream. The remainder is exported,

with Singapore, Greater China, Japan, Indonesia, and Malaysia being the largest export markets for Australian whey powders in 2015/16.

Casein and caseinates are ingredients in noodles, chocolate, sweets, mayonnaise, ice-cream and cheese manufacture. They are used as binding ingredients, emulsifiers and milk substitutes in processed foods. Industrial uses of casein and caseinates include: plastics (buttons, knitting needles); the manufacture of synthetic fibres and chemicals (plants, glues, glazed paper, putty and cosmetics); as a reinforcing agent and stabiliser for rubber in automobile tyres; a nutritional supplement and binder in calf milk replacers; and a range of other technical applications.

Australia is no longer a significant producer of casein and imports the vast majority of its requirements; mainly from New Zealand (over 70% of the total volume), with the balance from Europe in 2015/16.

Figure 17 Production and exports of whey products (tonnes)



Source: Dairy manufacturers and ABS

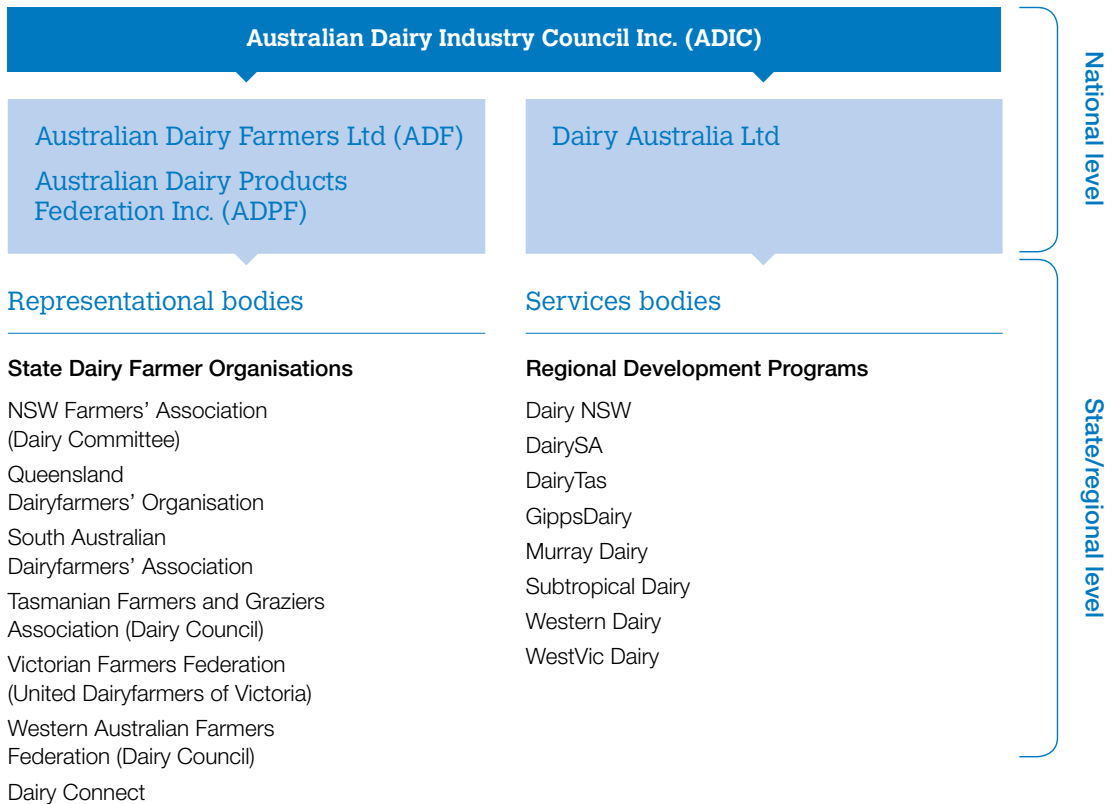
Industry organisations and structure

Dairy Australia

- > is the industry-owned national services body
- > is funded through the Dairy Service Levy with matching funding from the Australian Government on research and development activities
- > invests in essential activities across the dairy supply chain to deliver the best outcomes for dairy farmers, the dairy industry and the broader community
- > focuses investment on pre- and post-farmgate research, development, extension and industry services. This includes education, trade policy, information, issues management, technological innovation, promoting the health and nutrition benefits of dairy products and marketing of the industry.

Dairy Australia is one of a number of regional and national organisations that support the Australian dairy industry. It is essential that these organisations work together to help achieve the dairy industry vision. In addition to contributing to the funding, planning and management of the eight Regional Development Programs, Dairy Australia is committed to working closely with state and national representational bodies to collectively deliver on this goal.

The structure of Australian dairy industry organisations



Industry levies

Dairy services

Dairy Australia is funded by farmer-paid levies that are imposed on the fat and protein content of all milk produced in Australia.

The Australian Government matches expenditure on the industry's research and development activities that meet established criteria.

Animal Health Australia

Australian dairy farmers also contribute to the funding of Animal Health Australia (AHA), as do farmers in all other livestock industries. AHA is a non-profit public company limited by guarantee. Members include the Australian, state and territory governments, and key commodity and interest groups. AHA's task is to facilitate partnerships between governments and livestock industries, and provide a national approach to animal health systems. The Animal Health Levy is the dairy industry's contribution to AHA programs.

Table 19 Average rate of milk levies for 2015/16

	Milkfat (¢/kg)	Protein (¢/kg)	Milk* (¢/litre)	Milksolids (¢/kg)
Animal health	0.0580	0.1385	0.007	0.09
Dairy services	2.8683	6.9914	0.353	4.74

**Based on average 2015/16 Australian milk composition of 4.08% milkfat and 3.38% protein*



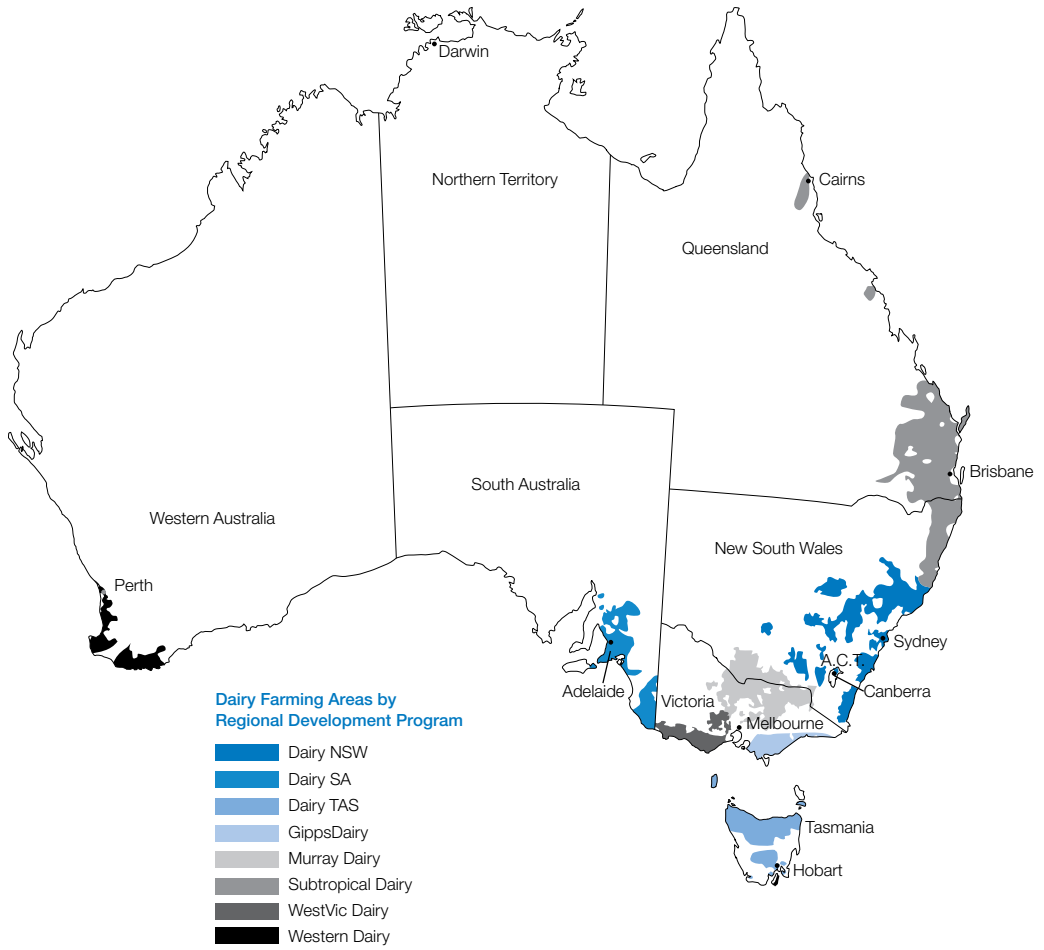


Appendices

Appendix 1 Dairying regions	36
Appendix 2 Grain prices	37
Appendix 3 Milk production	38
Appendix 4 Manufacturing processes	39
Appendix 5 Domestic sales	42
Appendix 6 Supermarket sales	43
Appendix 7 Australian exports	45
Appendix 8 Australian imports	50



Appendix 1 Dairying regions



Appendix 2 Grain prices

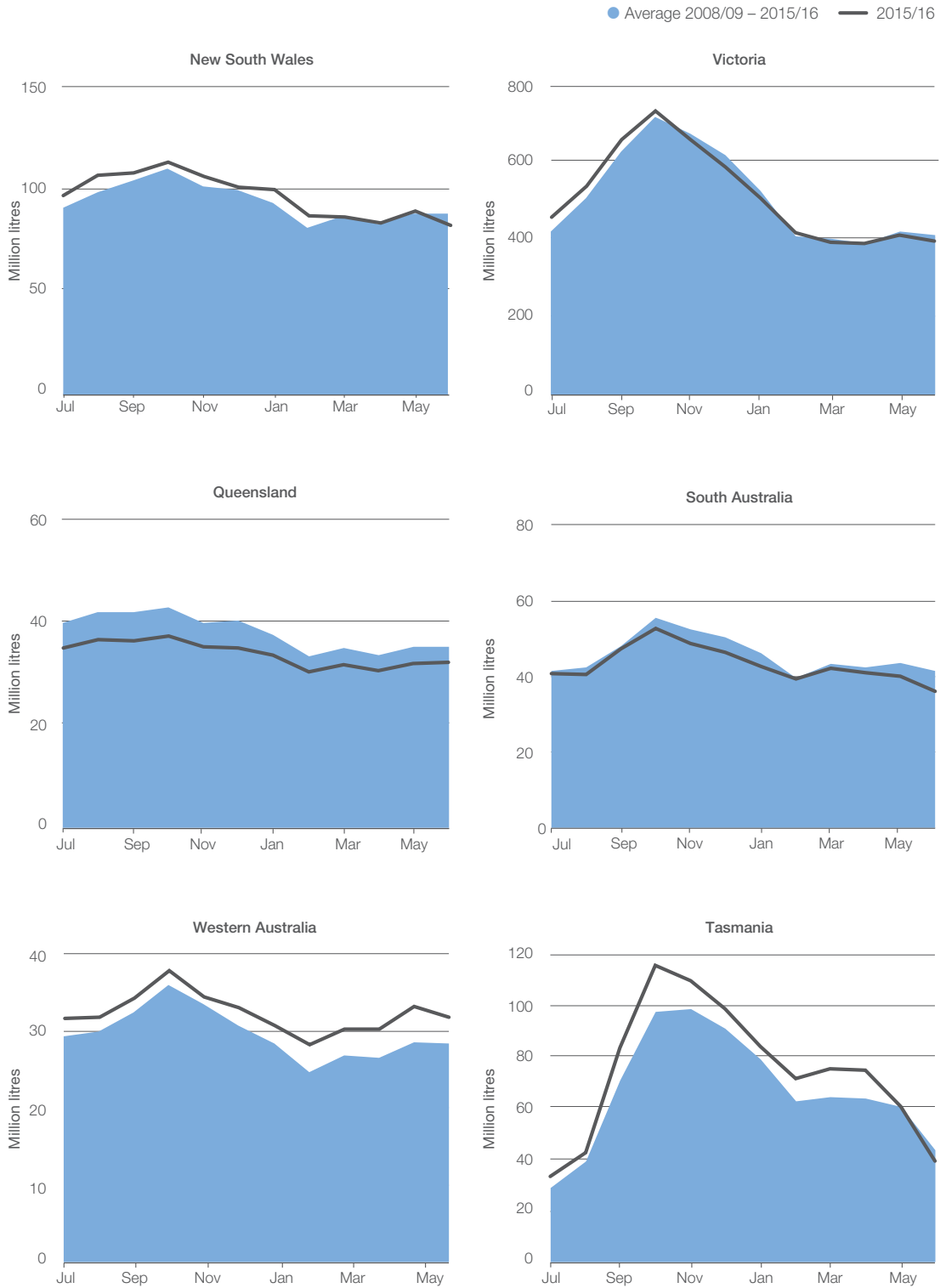
Table A1 Indicative Australian grain prices (\$ per tonne)

	NSW	VIC	QLD	SA	WA	TAS
Barley						
1989/90	158	157	152			
1999/00	141	140	136	135	138	
2009/10	220	170	234	145	151	236
2010/11	238	225	251	222	251	290
2011/12	208	210	220	201	230	266
2012/13	284	258	297	238	270	342
2013/14	282	253	345	222	250	325
2014/15	284	267	330	247	269	339
2015/16	247	253	284	206	248	331
Sorghum						
1989/90	154	169	143			
1999/00	130	152	125			
2009/10	226	250	211			
2010/11	256	292	234			
2011/12	219	267	210			
2012/13	284	293	279			
2013/14	327	332	336			
2014/15	321	289	319			
2015/16	275	274	279			
Triticale						
1989/90	161	164	154			
1999/00	139	141		136	133	
2009/10	227	204		157	169	
2010/11	234	228		216	242	
2011/12	215	202		194	215	
2012/13	296	273		252	274	
2013/14	295	266		237	259	
2014/15	289	269		252	268	
2015/16	266	264		244	260	
Wheat						
1989/90	175	175	175			
1999/00	154	158	141	152	146	
2009/10	235	221	235	203	219	285
2010/11	266	253	271	247	301	320
2011/12	226	211	232	203	239	273
2012/13	306	286	305	270	301	360
2013/14	310	286	357	258	284	353
2014/15	294	280	343	254	285	349
2015/16	279	284		257	287	360

Source: Dairy Australia

Appendix 3 Milk production

Figure A1 Seasonality of milk production 2015/16 (million litres)



Source: Dairy manufacturing

Appendix 4 Manufacturing processes

The milkfat and solids contained in manufacturing milk can be used to produce a wide variety of dairy products. There are four major production processes. The first two are for butter/skim milk powder production and butter/casein production which are joint product processes. The other two are whole milk powder production and cheese production. Furthermore, for each of these separate product lines, numerous other dairy products can be made from the residual milk components.

The first step in making butter is to separate whole milk into cream and skim milk. The liquid skim milk is evaporated and spray dried to produce skim milk powder (SMP). The cream is churned until the fat globules form into solid butter, and leaving a liquid by-product, buttermilk. This liquid can be dried to make buttermilk powder (BMP).

There are various ways of making casein. A common method is to set the skim milk by mixing with acid to produce curd. The curd is shaken to remove large clumps. The remaining liquid whey by-product is removed and the curd is repeatedly rinsed in water and then drained. Excess moisture is extracted by pressing the curd. It is then milled and dried. The curd is broken down to particle size by grinding it and passing it through a sieve.

Whole milk powder (WMP) is made by evaporating milk that has had some of the cream removed. The evaporated milk is concentrated and dried either by roller or spray process to form a powder. Spray drying is more commonly used and involves spraying a fine mist of concentrated milk into a current of hot air to form granules of powder. The granules can be treated with steam to “instantise” the powder and make it easier to reconstitute into milk.

Cheese production techniques vary substantially. To make cheddar cheese, some of the cream is removed from the pasteurised milk. Starter culture is added to the milk to produce both acid and flavour. Then rennet is

added to form curd and whey. The curd is cut, heated and stirred to allow the whey to drain. A process called cheddaring then takes place, and involves the curd being allowed to mat together, before it is milled, salted, pressed and packed. The cheese is stored to develop the desired maturity and flavour. The longer it is stored, the stronger the flavour. Mild cheddar is matured for about three months, semi-matured cheddar for three to six months and mature or tasty cheddar for up to a year.

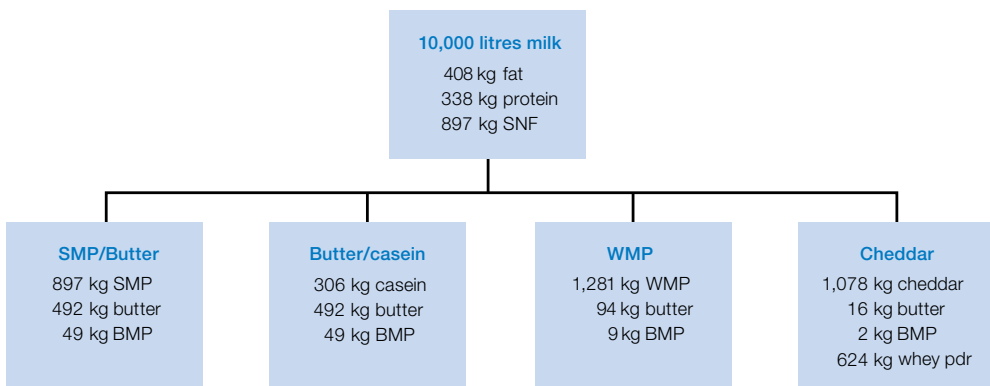
The liquid whey extracted during cheese manufacture contains protein, lactose and a little fat. It can be dried to make products for pharmaceutical purposes, as a useful supplement in stock feed, and in the manufacture of ice-cream.

The cream from the standardisation of milk for whole milk powder, casein and cheddar production can be used to make butter and BMP.

Table A2 Product composition

	% fat	% SNF
Skim milk powder	1.0	94.5
Butter	80.5	2.0
Ghee	99.6	0.1
Casein	1.5	88.5
Whole milk powder	26.0	70.4
Cheddar cheese	33.0	31.0
Gouda	31.5	23.5
Edam	21.2	31.8
Parmesan	21.8	46.2
Cottage cheese	4.0	16.0
Brie	25.0	25.0
Mozzarella	23.1	30.9

Figure A2 Product yield from 10,000 litres of milk 2015/16



Source: Dairy Australia

Table A3 Australian cheese production by state (tonnes)

	NSW	VIC	QLD	SA	WA	TAS	AUST
1989/90	14,198	103,216	12,842	22,774	4,129	18,172	175,331
1999/00	26,441	239,029	26,011	40,782	7,680	33,399	373,342
2005/06	21,140	268,925	7,308	31,394	6,411	37,638	372,816
2006/07	22,690	266,102	4,542	29,503	2,618	38,183	363,638
2007/08	24,591	268,206	2,888	18,350	2,547	44,340	360,922
2008/09	26,584	245,028	2,273	16,774	3,985	47,959	342,603
2009/10	26,138	260,060	1,111	14,736	4,240	43,354	349,639
2010/11	28,297	247,806	1,467	15,304	3,638	42,144	338,657
2011/12	25,174	260,342	909	12,192	1,656	46,257	346,530
2012/13	24,073	266,493	831	5,865	2,102	38,948	338,312
2013/14 (r)	23,382	239,631	670	7,283	1,988	38,545	311,499
2014/15 (r)	23,157	269,948	610	8,071	2,082	40,274	344,142
2015/16 (r)	23,081	280,280	618	4,287	2,305	33,685	344,256

Source: Dairy manufacturers

Table A4 Australian production of dairy products (tonnes)

	Butter*	AMF (CBE)	SMP	WMP**	Whey products
1989/90	78,053	26,105	130,976	56,476	19,895
1999/00	110,325	71,295	236,322	186,653	66,258
2005/06	92,850	52,904	205,495	158,250	98,436
2006/07	101,666	31,434	191,475	135,364	86,198
2007/08	99,202	28,416	164,315	141,974	82,652
2008/09	109,753	38,742	212,030	147,544	81,136
2009/10	100,134	28,245	190,233	126,024	79,094
2010/11	96,326	26,160	222,484	151,269	61,488
2011/12	100,551	19,164	230,286	140,424	64,645
2012/13	99,035	19,193	224,061	108,838	63,440
2013/14	101,705	14,417	210,964	126,322	55,506
2014/15 (r)	101,641	16,943	242,266	96,840	51,806
2015/16 (p)	99,015	19,610	255,792	66,125	44,669

*Includes butter blends as CBE

**Includes infant powders

Source: Dairy manufacturers

Table A5 Australian cheese production by variety (tonnes)

	2010/11	2011/12	2012/13	2013/14 (r)	2014/15 (r)	2015/16 (p)
Cheddar						
Cheddar (1)	126,888	135,540	126,551	132,669	153,208	149,863
Reduced fat cheddar	22,799	18,885	25,708	12,681	18,275	15,360
Cheedam	389	438	111	235	490	306
Other cheddar type cheese (2)	4,645	5,820	5,626	6,136	6,863	6,061
Total cheddar	154,720	160,683	157,996	151,721	178,836	171,590
Semi hard						
Mozzarella	50,028	44,929	38,616	31,732	33,096	37,928
Pizza	5,402	5,502	5,316	3,537	3,052	3,205
Other stretch curd and shredding	1,585	1,852	1,143	763	769	1,796
Edam	621	347	423	408	588	1,488
Gouda	8,963	12,757	10,615	7,279	5,547	4,803
Other eye type cheese (3)	1,154	1,334	972	928	762	241
Other semi hard cheese (4)	424	301	105	103	124	100
Total semi hard	68,176	67,022	57,190	44,749	43,938	49,559
Hard grating						
Parmesan	9,225	8,906	9,156	3,522	1,765	200
Pecorino	1,315	1,066	938	704	427	287
Romano	1,219	1,460	1,526	5,804	2,501	22
Other (5)	1,832	2,438	3,061	3,732	5,192	4,531
Total hard grating	13,591	13,871	14,681	13,762	9,885	5,040
Fresh						
Cottage	4,600	2,204	2,502	1,717	1,195	116
Cream cheese	66,631	76,390	79,343	72,874	86,251	88,733
Fetta	6,681	5,707	5,684	7,853	4,773	7,229
Neufchatel	4,489	4,820	5,170	4,101	4,192	4,670
Ricotta	9,130	6,487	6,965	5,730	5,987	7,373
Other fresh types (6)	3,899	3,416	2,678	3,488	2,594	2,646
Total fresh	95,430	99,024	102,342	95,764	104,992	110,767
Mould ripened						
Blue vein	792	680	627	513	536	603
Brie and camembert	5,457	4,914	5,118	4,591	5,539	5,960
Other mould ripened	491	336	358	399	416	737
Total mould ripened	6,739	5,930	6,103	5,504	6,491	7,300
Total cheese	338,657	346,530	338,312	311,499	344,142	344,257

(1) Includes: Vintage

(2) Includes: Colby, Cheshire, Gloucester, Lancashire, Leicester, Nimbin and semi processed cheddar

(3) Includes: Swiss, Emmenthal, Fontina, Raclette, Havarti, Samsøe, Tilsit, Buetten, Vacherin.

(4) Includes: Bakers, Casalinga, Goya.

(5) Includes: Fresh Pecorino, Melbourne, Pepato, Parmagiano.

(6) Includes: Quark, Stracchino, Mascarpone.

Revisions due to reclassification of cheeses and revisions of specialty cheese production

Source: Dairy manufacturers

Appendix 5 Domestic sales

Table A6 Dairy company domestic sales* (tonnes)

Major dairy products - excl drinking milk	Sales channel	2013/14 (r)	2014/15 (r)	2015/16 (p)
Butter	Grocery	47,615	53,176	55,575
	Non-grocery	21,497	23,773	20,770
Butter total		69,112	76,948	76,345
Cheese	Grocery	130,424	136,886	128,183
	Non-grocery	124,833	131,691	115,835
Cheese total		255,257	268,578	244,018
Cream	Grocery	58,868	60,774	63,102
	Non-grocery	74,170	68,159	64,901
Cream total		133,038	128,933	128,003
Custard	Grocery	20,822	20,722	21,597
	Non-grocery	2,732	2,614	1,875
Custard total		23,554	23,336	23,472
Dairy desserts	Grocery	14,162	11,295	9,608
	Non-grocery	217	207	146
Dairy desserts total		14,379	11,502	9,755
Milk powder	Grocery	8,303	13,148	17,072
	Non-grocery	51,495	42,156	39,930
Milk powder total		59,799	55,304	57,002
Yoghurt	Grocery	118,715	117,757	118,208
	Non-grocery	18,153	14,772	12,347
Yoghurt total		136,868	132,529	130,555

*This data is dairy company wholesale sales to distributors/warehouses/retailers

*Grocery refers to major supermarket chains

*Non-grocery refers to other retailers including convenience stores, the food service and industrial channels

Source: Dairy manufacturers

Appendix 6 Supermarket sales

Milk

Table A7 Supermarket milk sales by state (million litres)

	NSW	VIC	QLD	SA	WA	TAS	AUST
2013/14 (r)	376	332	321	120	138	35	1,322
2014/15 (r)	376	337	330	123	139	36	1,341
2015/16 (p)	383	343	332	122	142	36	1,359

Source: Information Resources (Australia) Pty Ltd

Table A8 Supermarket milk sales by type (million litres)

	Regular	Reduced fat	No fat	Flavoured	UHT	AUST
2013/14 (r)	567	417	52	104	182	1,322
2014/15 (r)	595	397	46	109	194	1,341
2015/16 (p)	636	373	40	120	190	1,359

Source: Information Resources (Australia) Pty Ltd

Table A9 Supermarket milk sales – Branded vs private label (million litres)

	2013/14 (r)		2014/15 (r)		2015/16 (p)	
	Million litres	Price/litre	Million litres	Price/litre	Million litres	Price/litre
Branded milk						
Regular whole	182	\$1.84	182	\$1.86	200	\$1.84
Reduced fat	174	\$2.01	157	\$2.04	146	\$2.01
No fat	46	\$2.00	39	\$2.03	34	\$2.02
Flavoured	99	\$3.79	104	\$3.82	115	\$3.72
UHT	112	\$1.60	129	\$1.50	120	\$1.53
Total branded milk	613	\$2.17	611	\$2.17	614	\$2.18
Private label						
Regular whole	385	\$1.01	413	\$1.02	437	\$1.03
Reduced fat	243	\$1.01	241	\$1.01	227	\$1.02
Low fat	6	\$1.25	6	\$1.24	6	\$1.24
Flavoured	5	\$1.88	5	\$1.88	6	\$1.76
UHT	70	\$1.02	65	\$0.99	70	\$0.95
Total private label milk	709	\$1.02	730	\$1.02	745	\$1.02
Total milk	1,322	\$1.55	1,341	\$1.55	1,359	\$1.55

Source: Information Resources (Australia) Pty Ltd

Dairy spreads

Table A10 Supermarket dairy spreads sales by type (tonnes)

	2013/14 (r)		2014/15 (r)		2015/16 (p)	
	Tonnes	Price per kg	Tonnes	Price per kg	Tonnes	Price per kg
Dairy						
Butter	22,764	\$8.45	24,432	\$8.45	25,530	\$8.35
Blends	20,736	\$9.22	21,441	\$9.73	22,089	\$9.88
Ghee	14	\$14.07	8	\$16.37	37	\$16.91
Total dairy spreads	43,514	\$8.82	45,881	\$9.05	47,656	\$9.07

Source: Information Resources (Australia) Pty Ltd

Table A11 Supermarket dairy spreads sales by pack size (tonnes)

	2013/14 (r)		2014/15 (r)		2015/16 (p)	
	Tonnes	Price per kg	Tonnes	Price per kg	Tonnes	Price per kg
250 gram	12,133	\$9.00	12,821	\$9.26	13,479	\$9.31
375 gram	5,241	\$12.70	4,930	\$13.26	5,172	\$13.29
500 gram	25,936	\$7.88	27,801	\$8.15	28,751	\$8.09
Other sizes	205	\$17.41	329	\$14.09	254	\$20.99
Total dairy spreads	43,514	\$8.82	45,881	\$9.05	47,656	\$9.07

Source: Information Resources (Australia) Pty Ltd

Table A12 Supermarket dairy spreads sales by form (tonnes)

	2013/14 (r)		2014/15 (r)		2015/16 (p)	
	Tonnes	Price per kg	Tonnes	Price per kg	Tonnes	Price per kg
Pats	19,423	\$7.36	21,107	\$7.41	22,170	\$7.29
Tubs	24,075	\$9.99	24,774	\$10.45	25,486	\$10.62
Total dairy spreads	43,514	\$8.82	45,881	\$9.05	47,656	\$9.07

Source: Information Resources (Australia) Pty Ltd

Appendix 7 Australian exports

Table A13 Australian exports of cheese (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
China, Hong Kong	9,708	11,482	14,474	19,552	17,945	21,306
Indonesia	3,708	3,256	3,296	2,875	2,757	2,809
Japan	84,450	95,558	103,870	73,598	85,808	90,698
Korea, South	8,845	7,302	6,979	4,841	5,318	7,942
Malaysia	7,103	6,762	5,819	7,907	7,536	7,841
Philippines	3,792	2,344	3,041	2,655	3,556	4,934
Singapore	5,789	5,773	4,900	5,364	5,381	5,427
Taiwan	5,302	3,759	4,048	3,072	3,638	3,863
Thailand	2,276	2,700	2,333	2,848	3,016	2,845
Other Asia	1,656	1,337	1,149	1,218	1,312	1,579
Total Asia	132,629	140,273	149,909	123,930	136,267	149,244
Middle East						
Saudi Arabia	6,870	3,917	2,952	4,203	3,005	2,076
U.A.E.	2,177	1,284	1,315	1,588	1,697	1,530
Other Middle East	4,029	5,235	5,794	6,082	5,026	4,591
Total Middle East	13,076	10,436	10,061	11,873	9,728	8,197
Africa						
Algeria	1,580	0	0	0	0	0
Egypt	1,915	675	122	138	157	34
Other Africa	2,529	2,729	3,485	2,971	2,579	3,168
Total Africa	6,024	3,404	3,607	3,109	2,736	3,202
Pacific						
New Zealand	2,892	2,035	2,283	2,177	2,267	2,960
Others	388	522	815	703	825	1,057
Total Pacific	3,280	2,557	3,098	2,880	3,092	4,017
Americas						
Caribbean	1,252	1,071	399	508	589	69
United States	2,325	572	2,753	1,891	4,577	6,203
Others	507	329	370	349	445	384
Total Americas	4,084	1,972	3,522	2,748	5,611	6,656
Europe						
Eastern Europe	828	550	804	2,110	81	0
EU 27	3,076	1,671	3,060	3,789	162	265
Other Europe	0	0	0	0	0	0
Total Europe	3,904	2,221	3,864	5,899	243	265
Total	162,997	160,863	174,061	150,439	157,677	171,581

Source: Dairy Australia and ABS

Table A14 Australian exports of whole milk powder* (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
Bangladesh	6,557	4,708	4,941	9,180	8,581	6,295
China, Hong Kong	17,847	5,935	17,598	31,633	6,896	26,399
Indonesia	10,338	9,357	5,469	6,930	2,414	795
Japan	404	2,572	5,767	326	12	2
Malaysia	2,426	4,857	4,827	3,885	3,322	1,919
Philippines	471	570	471	385	690	252
Singapore	16,671	17,926	14,298	16,238	13,528	8,180
Sri Lanka	11,219	11,120	11,459	13,547	12,097	12,776
Taiwan	4,749	2,977	3,920	3,125	2,477	1,982
Thailand	4,240	2,132	2,804	2,740	2,061	1,387
Others	9,546	5,868	5,018	3,237	5,885	2,709
Total Asia	84,468	68,022	76,572	91,226	57,963	62,696
Africa	9,344	4,629	5,744	3,344	2,761	368
Americas	8,458	9,782	8,545	2,089	6,031	4,227
Europe	807	429	1,468	345	230	511
Middle East	21,329	31,619	9,488	3,872	6,510	5,050
Pacific	1,447	1,629	1,995	1,371	1,634	4,350
Total	125,853	116,110	103,812	102,247	75,129	77,202

*Also includes infant powder
Source: Dairy Australia and ABS

Table A15 Australian exports of butter* (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
China, Hong Kong	3,024	4,099	3,622	3,944	4,924	4,441
Japan	876	1,960	1,136	348	587	437
Korea, South	2,073	1,578	1,551	1,181	1,477	2,346
Malaysia	1,717	2,303	1,385	2,082	2,650	2,446
Singapore	4,575	4,048	4,292	5,594	5,199	3,476
Taiwan	1,204	1,758	1,594	1,159	1,871	1,623
Others	1,612	1,823	2,248	1,475	1,197	1,333
Total Asia	15,081	17,569	15,828	15,783	17,904	16,102
Middle East	7,101	6,499	10,727	4,137	7,310	4,097
Africa	2,294	2,662	2,739	587	2,039	1,026
Pacific	339	848	356	658	1,250	691
Americas	144	20	811	72	995	1,225
Europe	8,444	6,007	8,835	18,554	1,257	360
Total	33,403	33,602	39,296	39,791	30,755	23,501

*Includes butter blends converted at the rate of 1 kg butter blend = 0.7 kg butter
Source: Dairy Australia and ABS

Table A16 Australian exports of skim milk powder* (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
China, Hong Kong	13,165	16,632	10,708	22,814	17,746	19,878
Indonesia	24,689	20,919	21,578	25,586	39,684	40,812
Japan	454	579	1,553	3,222	8,359	1,637
Malaysia	8,268	10,830	13,392	11,378	17,641	19,179
Philippines	9,817	10,348	10,861	8,251	13,973	10,304
Singapore	15,709	18,772	18,446	12,567	15,368	14,422
Taiwan	7,824	6,474	4,890	3,542	1,442	1,563
Thailand	11,462	9,552	12,115	10,177	11,317	10,471
Others	32,788	17,290	15,688	10,420	24,594	29,581
Total Asia	124,176	111,396	109,232	107,957	150,124	147,847
Africa	2,307	2,083	3,830	1,392	386	5,829
Americas	1,461	889	1,331	244	1,473	552
Europe	1,510	810	732	563	540	43
Middle East	21,496	23,529	28,313	31,429	26,927	23,268
Pacific	4,385	2,612	3,478	1,584	5,376	3,857
Total	155,335	141,319	146,916	143,169	184,826	181,396

Source: Dairy Australia and ABS

Table A17 Australian exports of butter oil (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (p)
Asia						
Bangladesh	70	202	50	202	101	218
Indonesia	756	72	50	302	410	86
Malaysia	1,645	1,210	545	687	907	974
Philippines	4,914	1,150	50	102	101	50
Singapore	925	332	166	240	128	69
Others	4,389	4,723	2,724	3,476	3,013	3,056
Total Asia	12,699	7,689	3,585	5,009	4,660	4,453
Middle East	1,147	720	1,008	386	829	446
Africa	1,005	198	429	86	101	67
Americas	3,171	3,152	5,015	517	3,512	3,007
Europe	19	254	1,432	1,530	433	363
Pacific	23	44	55	87	19	54
Total	18,064	12,057	11,524	7,615	9,554	8,392

Actual product weight (not CBE)
Source: Dairy Australia and ABS

Table A18 Australian exports of liquid milk ('000 litres)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
Singapore	24,620	30,919	31,762	30,474	33,254	36,590
Philippines	4,134	4,423	2,901	8,307	7,937	10,273
Malaysia	3,406	3,960	5,689	7,266	4,454	13,572
Indonesia	366	342	386	426	367	370
Hong Kong	14,459	15,047	16,520	14,440	13,716	14,094
China	2,402	7,154	21,035	25,061	54,507	71,051
Other Asia	10,856	13,214	13,139	16,646	17,403	15,702
Total Asia	60,243	75,059	91,432	102,620	131,638	161,652
Africa	347	732	1,023	659	766	606
Pacific	9,325	10,712	11,285	12,596	14,650	16,115
Others	1,002	1,220	2,737	2,256	645	1,002
Total	70,917	87,723	106,477	118,131	147,699	179,375

Source: Dairy Australia and ABS

Table A19 Australian exports of whey products* (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia	30,891	33,765	32,415	26,278	29,708	35,386
Europe	593	1,793	2,219	1,462	579	16
Other	6,331	6,181	6,282	5,567	4,769	5,742
Total	37,815	41,739	40,916	33,307	35,056	41,144

*Includes whey protein concentrate
Source: Dairy Australia and ABS

Table A20 Australian exports of live dairy heifers (cows) by market

	2010/11	2011/12	2012/13	2013/14	2014/15 (r)	2015/16 (p)
Asia						
China	48,688	55,114	59,235	78,775	62,574	56,145
Indonesia	1,345	658	3,406	800	1,514	1,307
Malaysia	847	355	1,085	1,110	2,124	2,132
Pakistan	4,225	2,785	8,327	6,425	1,989	3,507
Vietnam	1,405	496		440	3,383	2,755
Other Asia	1,106	811	2,873	1,166	1,338	2,558
Total Asia	57,616	60,219	74,926	88,716	72,922	68,404
Europe	10,488	4,855	8,385	3,595		
Middle East	7,088	202	4,111	29	283	3,503
Others	6					
Total	75,198	65,276	87,422	92,340	73,205	71,907

Source: Dairy Australia and ABS

Table A21 Australian exports of live dairy heifers (cows) by state

	NSW	VIC	QLD	SA	WA	TAS	AUST
2005/06	1,008	30,396		2,106	4,411		37,921
2006/07	385	26,077		1,276	3,812		31,550
2007/08	36	50,395	76	4,255	4,543		59,305
2008/09	434	38,896	523	3,426	619		43,898
2009/10	932	73,640	27	765	5,786		81,150
2010/11	219	61,817	978		12,081	103	75,198
2011/12	806	57,926	304	3,130	2,656	454	65,276
2012/13	305	69,359	620	2,282	12,188	2,668	87,422
2013/14		89,640	1,171	4	1,525		92,340
2014/15 (r)	910	64,638	122		7,535		73,205
2015/16 (p)	242	69,486		230	1,949		71,907

Source: Dairy Australia and ABS

Appendix 8 Australian imports

Table A22 Australian imports of dairy products from New Zealand and other countries (tonnes)

	New Zealand	Other	Total 2014/15 (r)	New Zealand	Other	Total 2015/16 (p)
Skim milk powder	4,660	3,310	7,970	2,061	5,483	7,544
Buttermilk powder	379	1,742	2,121	110	2,426	2,536
Whole milk powder*	22,963	8,414	31,377	37,091	7,621	44,712
Whey powder and concentrates	1,495	7,248	8,743	1,401	10,915	12,316
Condensed milk	29	3,440	3,469	46	3,640	3,686
Milk	2,819	136	2,955	2,731	176	2,907
Cream	2,327	48	2,375	2,626	72	2,698
Yoghurt	908	837	1,745	965	1,001	1,966
Butter**	18,359	1,268	19,627	17,210	1,411	18,621
Butter oil	3,052	725	3,777	3,980	832	4,812
Cheese	45,235	37,161	82,396	55,030	34,304	89,333
Casein	910	644	1,554	725	146	871
Caseinates	972	74	1,046	907	330	1,237
Lactose	4,194	16,060	20,254	4,526	18,888	23,413
Ice cream ('000 lts)	2,001	17,210	19,211	1,620	18,244	19,864

*Includes infant powder

**Includes butter blends converted at the rate of 1 kg butter blend = 0.7kg butter

Source: ABS

Table A23 Australian cheese imports by country (tonnes)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 (p)
Austria	486	812	796	746	584	678
Bulgaria	1,392	1,246	1,470	1,312	1,476	1,293
Denmark	2,076	1,924	2,071	2,133	1,529	2,042
France	886	1,076	1,391	1,690	1,775	1,911
Germany	693	1,034	1,791	1,326	1,566	2,271
Greece	1,380	1,513	1,941	1,761	2,110	2,104
Italy	3,170	3,557	3,692	3,981	4,222	4,150
Netherlands	1,568	2,164	2,364	2,307	2,024	2,601
Poland	466	506	414	530	595	795
United Kingdom	296	233	375	463	625	1,141
Other	731	814	1,264	1,543	1,764	2,113
Total EU	13,144	14,879	17,569	17,792	18,270	21,099
New Zealand	49,674	46,741	43,573	39,623	45,235	55,030
United States	7,523	12,079	10,246	16,200	16,709	11,646
Norway	2,014	1,990	1,789	1,787	1,745	1,134
Switzerland	126	170	185	196	180	208
Other	391	385	330	219	257	216
Total Cheese Imports	72,872	76,244	73,692	75,817	82,396	89,333

Source: ABS (excludes goats cheese)

Acronyms

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences	NCE	Natural cheddar equivalent – unit of conversion of processed cheddar, pastes and spreads to natural cheddar (1 kg processed product weight = 0.806 kg natural cheddar)
ABS	Australian Bureau of Statistics		
ADC	Australian Dairy Corporation		
AMF	Anhydrous milk fat	NDFS	National Dairy Farmers' Survey
AUD	Australian dollar	(e)	Estimated data
AUST	Australia	(p)	Provisional data
BMP	Buttermilk powder	(r)	Revised data
CAGR	Compound annual growth rate	SEQ	South-east Queensland/north-east New South Wales
CBE	Commercial butter equivalent, a unit of conversion of AMF to butter (1 kg butter = 0.805 kg AMF)	SMP	Skim milk powder
CEO	Chief Executive Officer	SNF	Solids non fat
cpl	Cents per litre	UHT	Milk subjected to ultra-high temperature treatment to extend shelf life
DA	Dairy Australia		
EU	European Union	USD	US dollar
FNQ	Far north Queensland	WMP	Whole milk powder
Gipps	Gippsland	WPC	Whey protein concentrate
MD	Murray Dairy (including northern Victoria and NSW Riverina)	WV	Western Victoria
n.a.	Data not available	YTD	Year to date

Whilst all reasonable efforts have been taken to ensure the accuracy of the *Australian Dairy Industry In Focus 2016*, use of the information contained herein is at one's own risk. To the fullest extent permitted by Australian law, Dairy Australia disclaims all liability for any losses, costs, damages and the like sustained or incurred as a result of the use of or reliance upon the information contained herein, including, without limitation, liability stemming from reliance upon any part which may contain inadvertent errors, whether typographical or otherwise, or omissions of any kind.

© Dairy Australia Limited 2016. All rights reserved.

ISSN 2202-7467 (Online); ISSN 1448-9392 (Print)



Dairy
Australia

Your Levy at Work

Dairy Australia Limited ABN 60 105 227 987
Level 5, IBM Centre
60 City Road, Southbank VIC 3006 Australia
T + 61 3 9694 3777 F + 61 3 9694 3701
E enquiries@dairyaustralia.com.au
dairyaustralia.com.au