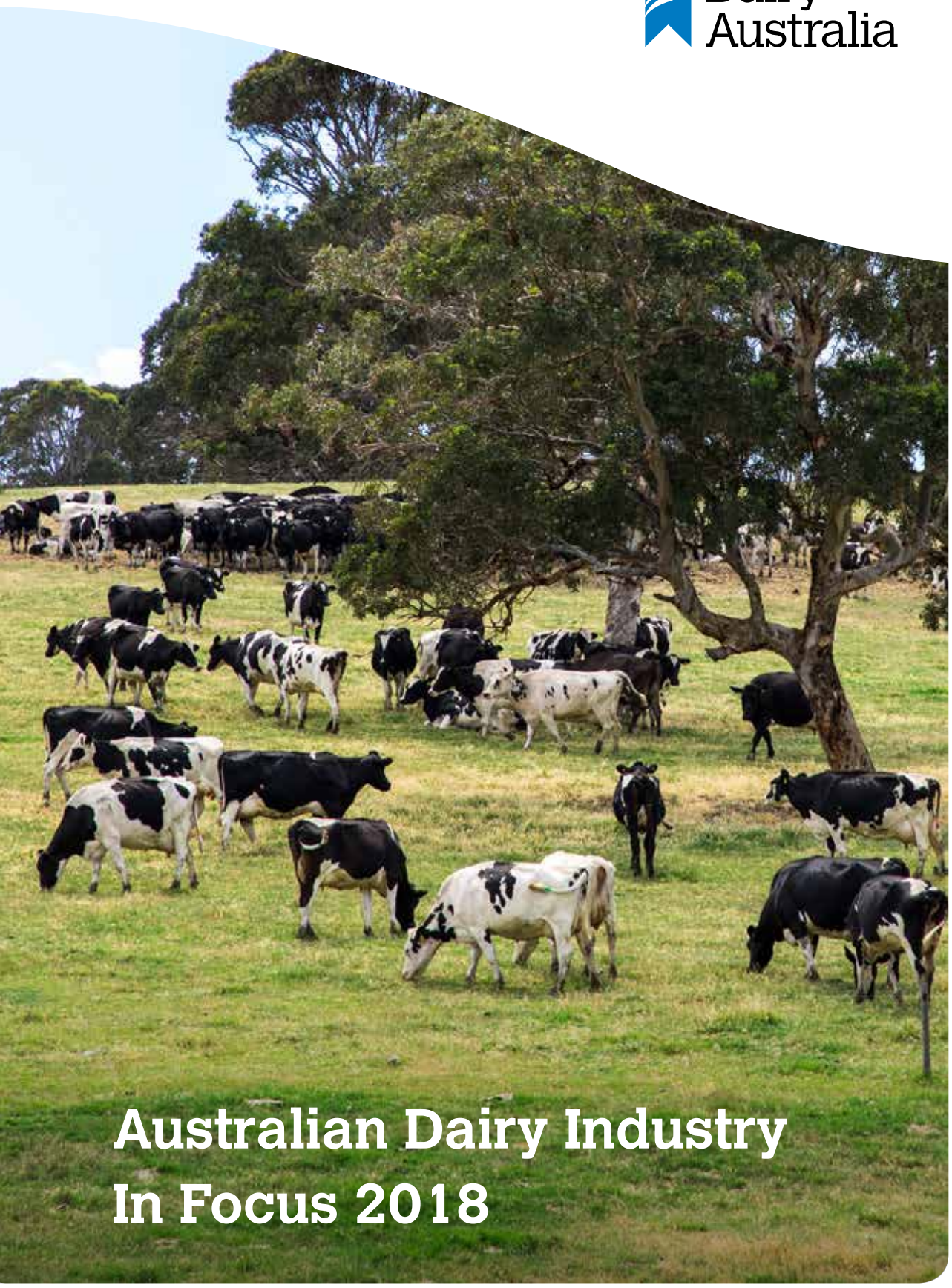
Dairy Australia



Australian Dairy Industry In Focus 2018

The Australian Dairy Industry 2017/18

Major export markets
Greater China 230,364 tonnes
Japan 107,271 tonnes
Singapore 77,443 tonnes
Malaysia 60,113 tonnes
Indonesia 56,400 tonnes

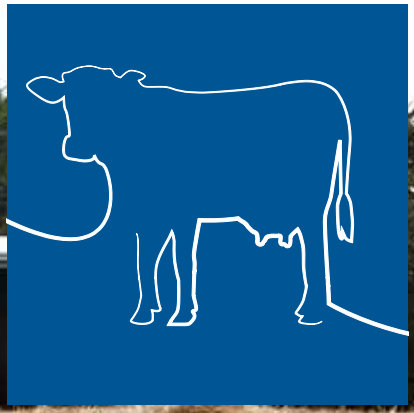
Value of farmgate production
$4.27 billion

Average annual milk production per cow
6,070
litres

9,289
million litres
Total annual milk production

36%
of milk production is exported

Annual per capita consumption
Drinking milk
102.9 litres
Cheese
13.6 kg



Dairy industry workforce
42,600

5,699
Dairy farms

Australian milk utilisation
Cheese 36%
Drinking milk 27%
Skim milk powder or butter 23%
Whole milk powder 6%
Other 8%

Australian dairy herd
1.56 million cows

Annual production of main commodities
Cheese 377,727 tonnes
Milk powders 273,425 tonnes
Butter 92,698 tonnes

Average herd size
273 cows

Dairy is Australia's
3rd
largest rural industry

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Foreword

The dairy industry is one of the key sectors of Australia's agricultural economy, ranking third in farmgate value behind beef and wheat at A$4.3 billion for the 2017/18 financial year.

The *Australian Dairy Industry In Focus 2018* report provides a snapshot of Australia's role in the global dairy industry, based on statistics for the 2017/18 year. Dairy Australia has a key industry role in being able to quantify the flow of milk from across Australia that is processed into a wide range of dairy products and then sold into diverse markets in Australia and overseas.

Australia is a significant exporter of dairy products. It ranks fourth in terms of world dairy trade, with a 6% market share behind New Zealand, the European Union and the United States.

The global dairy market was balanced over the past year and commodity prices were supportive which afforded some breathing space for Australian dairy farmers following a sustained trough in recent years.

Australia is a large country with a variety of climates. While farmgate prices increased and milk production grew, the season proved challenging for some dairy farmers with low rainfall in New South Wales, Queensland and east Gippsland. National milk production for the 2017/18 season increased by 3% on the previous financial year to about 9.3 billion litres.

An annual survey of farmers in February 2018 found that 67% of farmers anticipated a profit in 2017/18 and over half intended to grow their own businesses over the next three years. However, the start of the new season has seen an expansion of dry conditions, rising feed and water costs, and reductions in milk production. This has reduced farmer confidence and will result in lower milk production in the 2018/19 year.

The outlook for the dairy industry remains strong, based on the capacity to improve and innovate and the ongoing strong demand for dairy products on a global scale.

Science is assisting farmers to become more efficient. Improved herd genetics have seen the latest gains in animal performance of over $20 per cow per year when considering production, fertility and longevity. This is a substantial increase from only 10 years ago, when the industry observed increases of less than $10 per cow per year.

On the export front the volume of Australian dairy products traded rose by 5.6% to 841,000 tonnes.

Greater China (including China, Hong Kong and Macau) is now Australia's largest market, accounting for 27% of exports by volume.

Australian exports are overwhelmingly concentrated in Asia, which accounted for over 80% of the total dairy export value of A$3.4 billion.

An export success story was a strong 15% growth in liquid milk exports, with broader Asia accounting for more than 90% of these exports. The value of Australian liquid milk exports was $262m, up from $222m in the previous year.

Locally, dairy demand through the supermarket channel remained steady. Total drinking milk sales volumes (including flavoured and UHT) remain at about 2.5 billion litres. Yoghurts have been a category of considerable growth for the dairy industry over the past two decades.

Growth in yoghurt sales has been underpinned by regular product innovation in packaging, flavour combinations and the use of probiotic cultures. 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. These are perceived to be healthier and more 'natural'.

I trust you will find this latest issue of *Australian Dairy Industry In Focus* a valuable source of knowledge and information on one of Australia's most important industries. 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. Most of the statistics referred to in this report are updated monthly and are available at dairyaustralia.com.au.

David Nation
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 A$4.3 billion in 2017/18, it ranks third behind the beef and wheat industries. It is estimated that approximately 42,600 people are directly employed on dairy farms and by dairy companies within Australia. Associated transport, distribution, farm services and research and development activities 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 regional areas.

Dairying is a well-established industry across the temperate and some subtropical regions of Australia. Although the bulk of milk production occurs in southeastern 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 dairy commodity products for export has become steadily more concentrated in the southeast of Australia. These products include cheddar and mozzarella cheese and specialised milk powders and butterfats.

Strong growth characterised the dairy industry through the 1990s, but that growth has stalled since deregulation. This period coincided with the latter half of the severe and prolonged millennium drought. Increased levels of market and margin volatility within the industry have also undermined 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 both dairy farming and dairy processing. In terms of dairy farming, the number of dairy farms has continued to fall, while the average size of farms has increased. The number of large farms and their share of milk production has grown. Meanwhile the industry has seen continued consolidation amongst processors, and rationalisation has seen the closure of a number of smaller facilities.

Figure 1 provides a comparison across the major agricultural industries in Australia—using farmgate and export sales values—and 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	2010	CAGR 2000s	2018 (p)	CAGR 8 years
Milk production (m lts)	5,432	6,262	1.4%	10,847	5.6%	9,023	-1.8%	9,289	0.4%
Dairy cows ('000)	1,880	1,654	-1.3%	2,171	2.8%	1,596	-3.0%	1,561	-0.3%
Farm numbers	21,994	15,396	-3.5%	12,896	-1.8%	7,511	-5.3%	5,699	-3.9%
Value of farm production* ($m)	$3,625	$3,388	-0.7%	$4,297	2.4%	$3,366	-2.4%	$4,269	3.5%
Per capita consumption - drinking milk (litre)	104.8	102.5	0.2%	101.0	1.2%	107.5	0.3%	102.9	-0.2%
Export value* ($m)	$1,094	$613	-5.6%	$3,918	20.4%	$2,391	-4.8%	$3,363	5.0%
Export share of production	22%	31%		54%		45%		36%	

CAGR = Compound Annual Growth Rate
**Expressed in 2017/18 dollars*
Source: ABS, ADC, DA, state authorities

A world competitive industry

Australian dairy farmers operate in an open market and have done so since the industry deregulation in 2000/01. The open nature of Australia's dairy market means that the domestic market is linked to international trends. Australia acts as both a major exporter and importer of dairy (predominantly from New Zealand). Hence, although most Australian dairy is consumed domestically, international markets and events have a major influence on Australian farmgate milk prices.

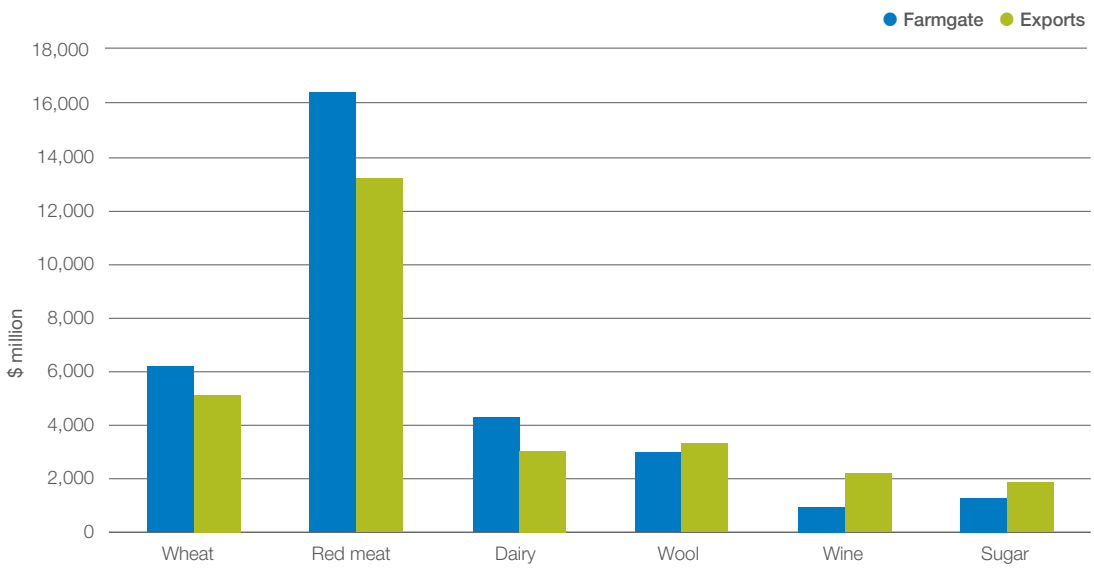
Australian dairy farmers received an average of approximately US$34 per 100 kg of milk last year. This price is below that of major producing countries in the European Union, United States and New Zealand. This partly reflects lower levels of government support provided to Australian farmers compared to northern hemisphere counterparts.

Traditionally, Australia has been considered a low cost producer of dairy products. In recent years, 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. Total milk production and farm cost structures have not yet returned to levels of the early 2000s. Whilst local milk production has contracted since deregulation, the size of the domestic market has increased, due to continued population growth. As a result, the share of Australia's milk that is exported, and Australia's share of international dairy trade, has trended lower.

As shown in Figure 2, the convergence of prices received by farmers around the world during the commodity price boom in 2007 has continued. The removal of many market distorting industry policies, progressive deregulation and increased global trade, means farmgate prices more closely reflect global dairy commodity price trends. New Zealand is the most globally exposed dairy producer (approximately 95% of production is exported), and has experienced considerably more volatility than other major producers.

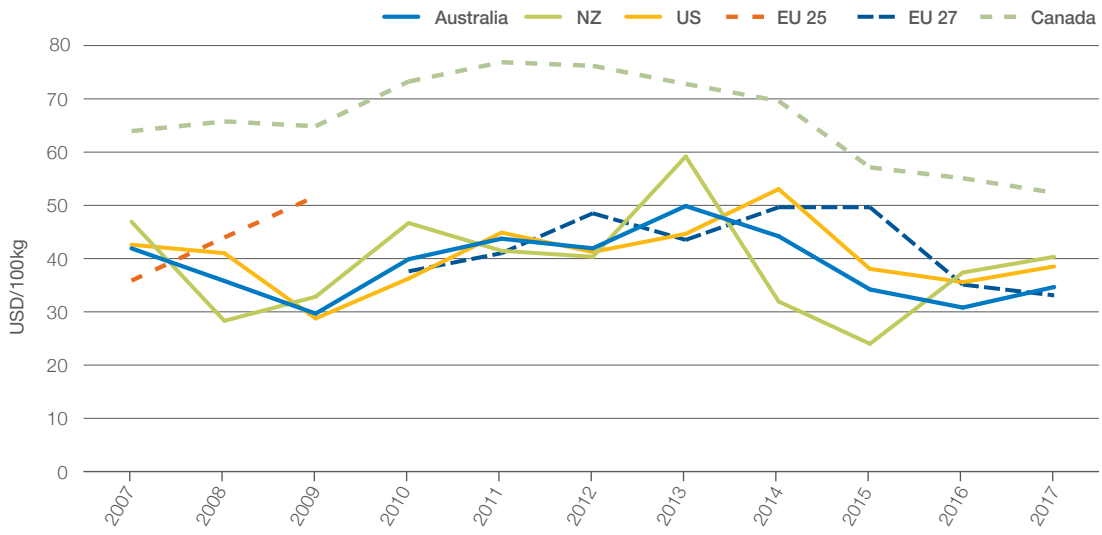
Whilst broadly tracking other producers, Canada's dairy farmers operate in a highly regulated environment, where prices, production and imports are determined according to a system known as supply management.

Figure 1 Farmgate value vs export sales value in 2016/17



Source: ABARES Australian Commodites Quarterly Report

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



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. Approximately 60–65% of cattle feed requirements comes from grazing in a year of 'normal' seasonal conditions. This results in cost efficient, high-quality milk production.

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

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

According to the 2018 National Dairy Farmer Survey, nearly all dairy farmers engaged in some level of supplementary feeding during the 2017/18 season.

The national average was around 1.6 tonnes per cow per year unchanged from last year. Feeding moderate to high levels of concentrates remains the most common feed system, and the proportion of dairy farmers doing so remained fairly steady across Australia. Slight increases in feeding were observed in Queensland, due to drier seasonal conditions.

See Appendix 3 for detailed tables on grain prices by state dairying regions.

The number of farms has fallen by almost three quarters since 1979/80, from 21,994 to 5,699 in mid-2018. The trend in farm numbers will often follow changes in farmgate milk prices from season to season. Strong prices tend to either slow the rate of attrition or even reverse the long-term trend. At times of low farmgate milk prices, farmers choose to leave the industry or else cease dairying operations in favour of other farming activities, such as beef cattle farming.

Nevertheless, falling farm numbers reflect a trend in agriculture around the world. Changing business practices have encouraged a shift to larger, more intensive operating systems with greater economies of scale.

Table 2 Number of registered dairy farms

	NSW	VIC	QLD	SA	WA	TAS	AUST
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 (r)	690	4,141	421	246	151	430	6,079
2016/17 (r)	661	3,889	406	240	148	427	5,771
2017/18 (p)	626	3,881	393	228	159	412	5,699

Source: State milk authorities

Average herd size has increased from 93 cows in 1985 to an estimated 273 currently. There is also an emerging trend of large farm operations of more than 1,000 dairy cattle.

Despite the increase in average herd sizes over the longer term, one of the variables placing a limit on total milk production in recent years has been a fairly static national herd size. One factor contributing to this situation is the increased volatility in farm cash incomes. This has led many farmers to participate in the export heifer trade, or sell dairy cows for slaughter in an attempt to stabilise farm income.

The dominant breed in Australia is the Holstein, accounting for around 70% 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 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.

Improved herd genetics, as well as advances in pasture management and supplementary feeding regimes, have seen average annual yield per cow increase. Over the past four decades yields have more than doubled from 2,900 litres in 1980 to 6,070 litres in 2017/18. However, the average yield figure does vary by state and with seasonal conditions.

The genetic evaluation of dairy cattle was previously conducted by the Australian Dairy Herd Improvement Service (ADHIS). ADHIS has now been superseded by DataGene, an independent, industry-owned, not-for-profit organisation that focuses on precompetitive herd improvement. DataGene is involved in several aspects of herd improvement including genetics, herd testing, herd recording, data systems, herd test standards and evaluation. DataGene goes beyond the ADHIS in seeking to drive genetic gain and herd improvement by combining research, development and extension within one organisation.

See Appendix 8 for detailed tables on heifer exports.

Table 3 Number of dairy cows ('000 head)

	NSW	VIC	QLD	SA	WA	TAS	AUST
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	181	1,093	98	73	66	137	1,647
2014/15	177	1,147	91	68	59	147	1,689
2015/16	182	1,005	89	78	60	149	1,562
2016/17 (r)	164	975	86	71	64	160	1,520
2017/18 (e)	160	1,005	80	75	66	175	1,561

Source: ABS and Dairy Australia

Table 4 Average annual milk production per cow (litres)

	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	5,760	6,027	5,008	6,646	5,967	5,636	**5,930**
2012/13	5,534	5,473	4,667	7,099	5,996	5,166	**5,498**
2013/14 (r)	5,542	5,639	4,640	6,896	5,443	5,578	**5,615**
2014/15 (r)	6,572	5,795	4,388	7,411	5,752	6,400	**5,917**
2015/16 (r)	6,721	5,621	4,644	7,634	6,669	5,981	**5,841**
2016/17 (r)	6,431	5,749	4,823	6,520	6,342	5,511	**5,812**
2017/18 (e)	6,877	6,072	4,729	7,011	5,963	5,577	**6,070**

Source: Dairy manufacturers, ABS and Dairy Australia

Farmgate milk prices

Australian farmgate milk prices are based on the milkfat and protein content of the milk produced on farm, with different prices for each component. 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 2000/01 all prices within the industry are set by market forces. Farmgate milk prices will vary between processors. Individual company returns are 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.

Furthermore, payment structures from processors to individual farmers can vary significantly as companies provide a range of incentives for milk quality, productivity or volume levels and for 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. These will all affect the final farmgate price received.

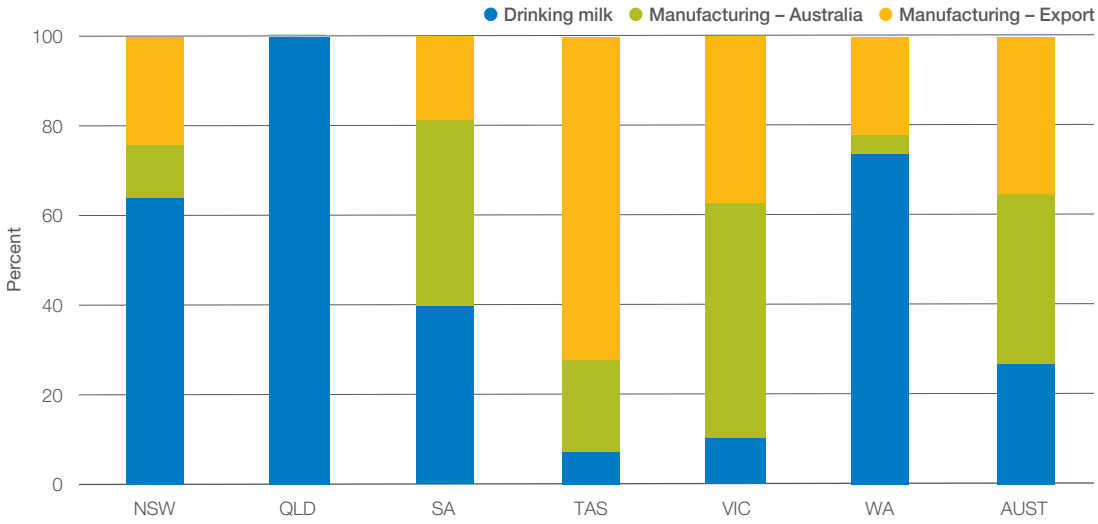
Australian dairy companies operate in an open and internationally competitive market. This includes free trade under the Closer Economic Relations Agreement with New Zealand, a major global dairy producer. Consequently, the returns that local processors can achieve are influenced by global dairy commodity prices, even if they do not directly participate in export trade. World dairy prices directly affect returns for the 36% of local milk exported as butter, cheese and milk powders, which must compete with other countries' exports. World dairy prices also influence the additional 35-40% of production that goes into locally consumed butter, cheese and milk powders, which must be competitively priced against imports. More than 75% of milk production in Australia is exposed to global dairy prices; while the remainder is consumed within Australia as liquid drinking milk.

The strength of the Australian dollar on foreign exchange markets also affects farmgate milk prices. Australian dairy companies benefit from a 'weaker' Australian dollar, which makes exports more competitive and imports relatively more expensive, all other things being equal.

Thus, farmgate milk prices farmers receive can vary significantly around Australia, depending on how milk is used in the marketplace.

As shown in Figure 3, milk for processing accounts for most milk produced in the southeast of Australia. Hence, the average farmgate milk price received in these regions will tend to follow global markets and export returns. The majority of farmers in these exporting regions receive a 'blended' price that incorporates returns from milk for manufacturing and the proportionately smaller local fresh drinking milk market. Conversely, in the northern and western dairy regions, fresh drinking milk makes up a much larger proportion of the production mix. Farmers in these regions will receive farmgate milk prices tied to the drinking milk market, where a stable year-round supply of milk is more important.

Figure 3 Use of Australian milk by state in 2017/18



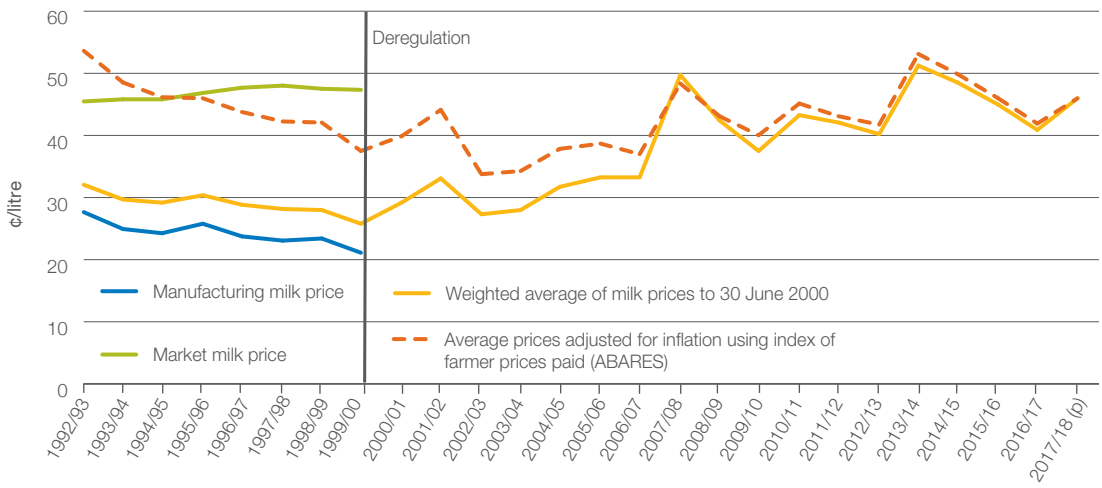
Source: Dairy Australia

Table 5 Indicative factory paid prices by state

		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
NSW	¢/litre	46.4	51.0	52.8	51.0	49.0	50.5
	$/kg milk solids	6.45	7.10	7.31	7.06	6.81	6.99
VIC	¢/litre	37.8	51.0	47.1	42.8	38.0	44.2
	$/kg milk solids	5.05	6.81	6.24	5.68	5.04	5.87
QLD	¢/litre	53.6	53.4	57.4	58.5	60.0	57.7
	$/kg milk solids	7.33	7.36	7.84	7.99	8.22	7.84
SA	¢/litre	38.3	49.6	46.1	42.5	37.1	42.9
	$/kg milk solids	5.42	7.02	6.53	6.03	5.19	6.06
WA	¢/litre	45.0	46.8	51.0	52.3	50.6	49.9
	$/kg milk solids	6.37	6.63	7.17	7.32	7.06	6.97
TAS	¢/litre	40.2	54.1	49.6	43.7	39.0	47.0
	$/kg milk solids	5.16	6.96	6.33	5.61	4.97	6.01
AUST	**¢/litre**	**40.2**	**51.2**	**48.5**	**44.9**	**40.9**	**46.0**
	$/kg milk solids	**5.41**	**6.89**	**6.49**	**6.01**	**5.46**	**6.14**

Source: Dairy manufacturers

Figure 4 Factory paid milk prices



Source: Dairy manufacturers and ABARES

Farm business performance

The Dairy Farm Monitor Project (DFMP) and the Queensland Dairy Accounting Scheme (QDAS) records financial and production data of participant dairy farms in all major dairying regions across Australia. The data allows for analysis of dairy farm productivity and profitability to support government and industry policy and service delivery. It also facilitates comparison and benchmarking by farmers and farm business consultants to improve farm business performance.

Participants are selected for the project in order to represent a distribution of farm sizes, herd sizes and geographical locations within each region. The results presented do not represent population averages, as the participant farms are not selected using random population sampling, and may not be representative of the whole dairy industry.

DFMP began as a collaboration between Agriculture Victoria and Dairy Australia, gathering data from 75 model farms spread evenly across Victoria's three dairying regions in Gippsland, northern and southwest Victoria, and is in its tenth year.

This program has since been expanded across all major dairying regions in Australia, in collaboration with local state agriculture departments and universities. Annual reports can be found on the Dairy Australia website, in the Farm Business Management section.

QDAS has been run for over 20 years by the Department of Agriculture and Fisheries, Queensland with support from Dairy Australia.

Data collected through the DFMP and QDAS is housed in DairyBase and provides the high quality data available to generate accurate industry benchmarks. DairyBase is a web-based tool developed by Dairy Australia allowing farmers and their advisors to assess farm business performance in a consistent industry agreed methodology. DairyBase also contains additional verified and validated datasets from farm business consultants and service providers, making it the largest and most detailed single repository of Australian dairy farm data. DairyBase is designed to facilitate comparative analysis and measurement of business performance over time, and is free to join.

Table 6 Average farm working expenses by state ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
NSW	5.86	5.94	5.72	5.75	6.25
VIC	4.45	4.47	4.70	4.15	4.51
QLD	6.20	6.36	6.27	6.18	6.63
SA	5.15	5.28	5.31	5.09	4.89
WA	5.29	5.29	5.46	5.33	5.73
TAS	4.43	4.47	4.70	4.19	4.36

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 7 Average Victorian regional farm working expenses ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
Eastern	4.23	4.19	4.33	3.74	4.24
Northern	4.60	4.75	5.09	4.73	4.74
Western	4.51	4.48	4.67	3.98	4.56

Source: Dairy Farm Monitor Project

Table 8 Average farm operating cash surplus by state ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
NSW	1.79	2.03	2.34	2.01	1.66
VIC	2.67	2.06	1.34	1.58	1.76
QLD	1.83	2.11	2.36	2.59	2.05
SA	2.23	1.79	1.49	1.50	1.95
WA	2.13	2.70	2.76	2.51	2.28
TAS	2.81	2.17	1.40	1.54	1.99

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 9 Average Victorian regional farm operating cash surplus by state ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
Eastern	2.85	2.17	1.49	1.72	1.91
Northern	2.49	1.79	1.06	1.11	1.51
Western	2.66	2.22	1.46	1.89	1.87

Source: Dairy Farm Monitor Project

Table 10 Average earning before interest and tax by state ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
NSW	0.68	1.21	1.01	0.82	0.33
VIC	1.88	1.09	0.10	0.69	0.66
QLD	-0.19	0.84	0.96	1.20	0.55
SA	1.02	0.57	0.74	0.70	1.17
WA	1.48	2.08	1.97	1.92	1.31
TAS	2.35	1.78	0.90	0.94	1.32

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 11 Average Victorian regional earning before interest and tax ($/kg MS)

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
Eastern	1.87	1.20	0.26	0.65	0.84
Northern	1.89	0.92	-0.07	0.37	0.67
Western	1.89	1.14	0.11	1.06	0.48

Source: Dairy Farm Monitor Project

Table 12 Average return on assets by state

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
NSW	2.1%	3.1%	2.7%	2.1%	1.2%
VIC	7.9%	4.6%	0.3%	2.3%	2.5%
QLD	-0.1%	2.5%	2.8%	3.6%	1.8%
SA	5.0%	3.3%	2.9%	2.6%	4.4%
WA	4.2%	6.3%	6.4%	6.5%	3.8%
TAS	9.1%	7.4%	3.8%	3.6%	5.1%

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 13 Average Victorian regional return on assets

	2013/14	2014/15	2015/16	2016/17	2017/18 (p)
Eastern	5.9%	4.1%	1.0%	2.1%	3.0%
Northern	10.5%	5.2%	-0.5%	1.0%	2.6%
Western	7.2%	4.6%	0.3%	3.9%	1.9%

Source: Dairy Farm Monitor Project

Whilst milk production grew in 2017/18, the season proved challenging for many farmers, particularly in the drought affected regions of New South Wales, Queensland and east Gippsland.

In New South Wales the season started off with dry conditions during spring with some regions recording the driest September on record. By June 2018, 99% of NSW was drought affected. The drought also affected Queensland farmers on the Darling Downs and other inland dairy districts. This meant farm businesses recorded a decline in cash surpluses and lower farm business profitability.

The Victorian dairying regions experienced challenging seasonal conditions in the latter half of 2017/18, despite improved milk prices. Reduced rainfall resulted in decreased home-grown feed. Farms had to increase their use of imported supplements at higher prices and utilised their feed reserves.

In Western Australia dairy farmers experienced good seasonal conditions in spring, however autumn was dry and followed by a very wet winter.

In Tasmania and South Australia favorable seasonal conditions during the year resulted in farm businesses recording improved cash surpluses and farm business profitability.

For a longer national time series, the annual ABARES Farm Survey estimates the financial performance of Australian dairy farms, which Dairy Australia has previously reported. It should be noted that there are several differences in methodology that mean that the series may not be directly comparable with those shown in the Dairy Farm Monitor Project.

Milk production

Farm numbers have steadily decreased over the past three decades whilst average farm size and milk production generally increased. This is due to growth in cow numbers and improved cow yields – up until the major widespread drought of 2002/03. The following decade saw a period of consolidation for the industry, with falling cow numbers and dry seasonal conditions constraining production, particularly in northern Victoria.

In recent years, volatility in farmgate milk prices and farm incomes have impacted farmer confidence and ability to grow. With the industry disruption caused by the late season step-downs in 2015/16 and lower average milk prices in 2016/17, many farmers focused on cost control, refinancing and business consolidation, rather than longer term investments to increase production. In many cases, farmers culled extensively during these years, taking advantage of higher beef prices to maintain cashflow.

In 2017/18 farmgate milk prices recovered slightly while seasonal conditions remained mostly favourable during the first half of the year. As a result, milk production increased by almost 274 million litres, to 9,289 million litres.

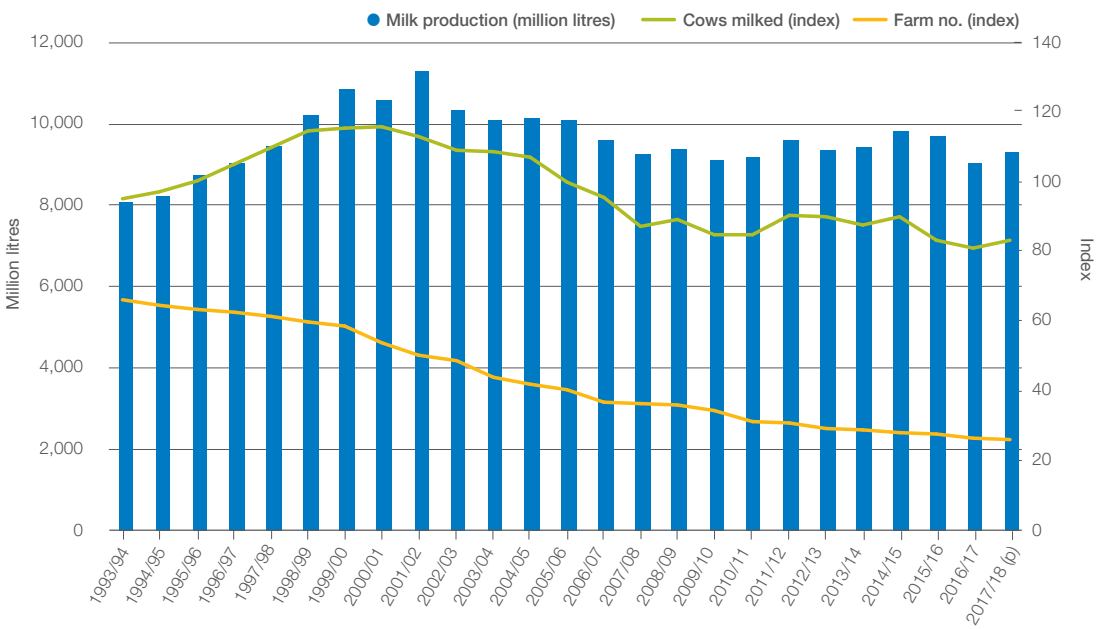
During spring, milk production volumes grew steadily, up more than 7% compared to last season. However, following an exceptionally dry autumn, with increasing feed costs, milk production slowed, finishing at 3% growth in 2017/18.

As Figure 5 indicates, the underlying trend has continued towards fewer farms, larger herds and increasing levels of milk production per farm.

Dairy farming is concentrated in the temperate zone of Australia, as can be seen in Table 14. Australian milk production remains strongly seasonal in the key southeastern dairying regions, reflecting the predominantly pasture-based nature of the industry. Production peaks in October, tapers off until late-summer, and then flattens out into the cooler winter months (refer to Figure 6). 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. Farmers in these states manage calving and feed systems to ensure flatter, year-round milk production.

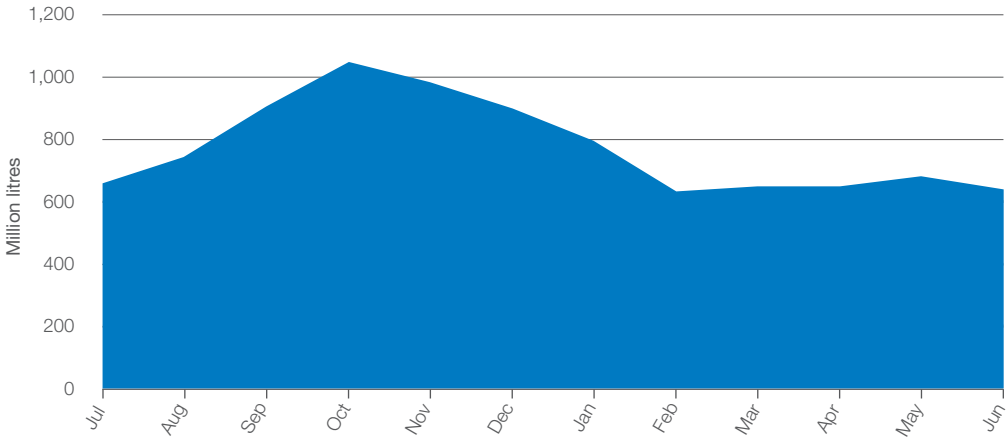
See Appendix 4 for more details on the seasonality of milk production by state dairying regions.

Figure 5 Australian milk production vs indices of farms and cows milked



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

Figure 6 Seasonality of milk production in Australia in 2017/18 (million litres)



Source: Dairy manufacturers

Table 14 Milk production by state (million litres)

	NSW	VIC	QLD	SA	WA	TAS	AUST
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	1,136	6,246	491	575	349	792	**9,589**
2012/13	1,137	6,076	465	542	349	765	**9,334**
2013/14 (r)	1,124	6,174	446	525	342	810	**9,421**
2014/15 (r)	1,184	6,411	422	530	367	891	**9,805**
2015/16 (r)	1,198	6,249	421	538	392	883	**9,681**
2016/17 (r)	1,141	5,732	425	497	385	836	**9,016**
2017/18 (p)	1,121	5,965	399	505	386	913	**9,289**

Source: Dairy manufacturers

Cows' milk consists of solids (milkfat, protein, lactose and minerals) in water, which makes up about 87% of the volume. The milkfat and protein components are those on which companies base their farmgate milk prices. Since early 2017, milkfat is the more valuable component.

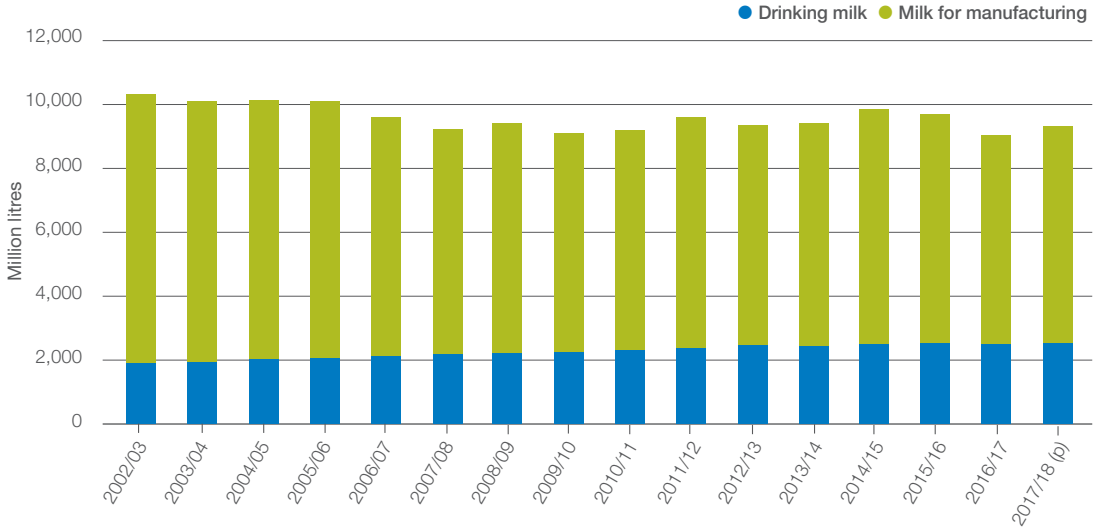
Milk composition can vary between regions and seasons, as shown in Table 15. This may be due to a number of factors, such as cow breed, age, nutrition and feed quality.

Table 15 Average protein/fat composition by state (%)

	NSW	VIC	QLD	SA	WA	TAS	AUST
Milkfat							
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	3.92	4.12	4.00	3.77	3.92	4.30	**4.08**
2016/17	3.91	4.13	4.00	3.84	3.92	4.34	**4.10**
2017/18 (p)	3.93	4.12	4.05	3.80	3.91	4.31	**4.09**
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	3.29	3.40	3.32	3.28	3.23	3.48	**3.38**
2016/17	3.28	3.41	3.30	3.31	3.24	3.50	**3.39**
2017/18 (p)	3.30	3.41	3.31	3.28	3.24	3.51	**3.39**

Source: Dairy manufacturers

Figure 7 Drinking and manufacturing milk production (million litres)



Source: Dairy manufacturers

With ongoing population growth since 2001/02, the amount of milk destined for domestic consumption, as either drinking milk or manufactured products (e.g. cheese and butter), has increased. In 2017/18, 27% of Australia's production was used for drinking milk, compared to 18% in 2001/02. Last financial year, 37% of milk produced was used for domestically consumed manufactured products; up from 26% in 2001/02.

Conversely, the proportion of milk available for export, as manufactured product, has declined from 56% in 2001/02 to around 36% in 2017/18, as shown in Figure 7. Over recent years Australia's imports of dairy production for local consumption have increased. As a result Australia continues to export a large share of its milk production, despite having a larger domestic market and lower milk production.

Dairy manufacturing

The Australian dairy manufacturing sector is diverse and includes national and multinational companies, both privately owned and publicly listed. Farmer-owned cooperatives no longer dominate the industry.

The decline in total milk production over the past two decades reduced the need for Australian dairy companies to invest in processing capacity, at least in the short to medium term. At the same time, the age of existing plants and the need to rationalise production has seen some processors close plants to reduce costs. Others have chosen to upgrade or increase capacity at remaining sites.

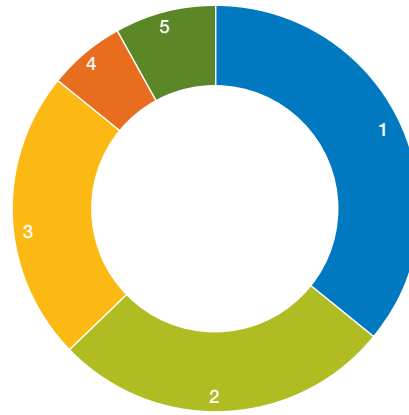
Over the past 12 months the milk processing sector has undergone substantial change, with a number of long-term investment decisions being made or otherwise changed.

The Australian Consumer and Competition Commission (ACCC) released its long-awaited dairy inquiry report in April 2018. The report concluded that there are significant imbalances in bargaining power at each level of the dairy supply chain. The ACCC recommended the implementation of a mandatory code of conduct. In May 2018, the sale of the operating assets and liabilities of Murray Goulburn to Saputo Dairy Australia was completed, following approval from the ACCC and the Foreign Investment Review Board. Saputo Dairy Australia agreed to divest the Koroit plant in southwest Victoria to ensure farmgate competition in the region. Bega Cheese purchased the Koroit plant in a bid to increase its presence in southwest Victoria. Fonterra's rebuilt Stanhope cheese factory, in Northern Victoria, came fully online in the first half of the 2017/18 season. Australian Consolidated Milk started to build a milk processing plant at Girgarre, in Northern Victoria, capable of processing up to 200 million litres of milk per year. Large multinational companies have operated in the Australian dairy industry for many years and currently include Fonterra (New Zealand), Kirin of Japan (Lion Dairy and Drinks), Lactalis of France (Parmalat) and Saputo of Canada (Warrnambool Cheese and Butter Factory and Murray Goulburn).

Around 49% of manufactured product (in milk equivalent terms) was exported and the remaining 51% sold on the Australian market in the 2017/18 season. This contrasts with drinking milk, where most was consumed in the domestic market.

Cheese is consistently the major product stream, accounting for more than a third of Australia's milk production in 2017/18. Recent increases in cheese production capacity suggest that this will become the case even more so in the future. Drinking milk and skim milk powder/butter production were the two next largest users of milk, accounting for 27% and 23% of Australian milk.

Figure 8 Australian milk utilisation in 2017/18



Australian milk utilisation

1 Cheese (36%)

2 Drinking milk (27%)

3 SMP/butter (23%)

4 WMP (6%)

5 Other (8%)

Source: Dairy Australia

Dairy markets

Historically, Australian milk production has exceeded the volume required for domestic consumption, thus creating a marketable surplus destined for export markets. The share of total production exported has ranged from around 30–60% over the period shown in Figure 9. Over recent years Australia has exported close to 30-40% of its milk. The share of milk exported has contracted following a decline in overall milk production, and a growing 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.

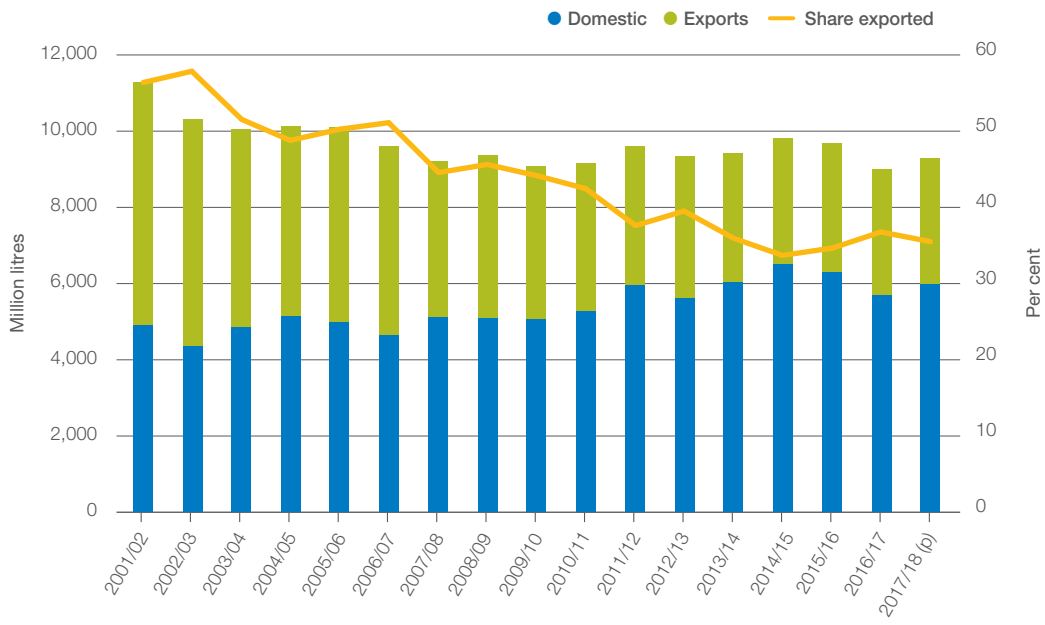
Greater China (including China, Hong Kong and Macau) is now Australia's largest market, accounting for 27% of exports by volume. Japan remains a vital trade partner for Australian exporters, as a mature, high-value market with long-established business relationships. Australian exports to Asia account for close to 85% of total exports and in 2017/18 the total value of Australian exports was more than A$3.4 billion.

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 increased export volumes from competitor countries. Asian markets have considerable potential for consumption growth as incomes rise and diets become more 'westernised'. Australian dairy companies also have proven track records in supplying these markets over a number of decades.

Australia's top five export markets by value in 2017/18 were Greater China, Japan, Indonesia, Malaysia and Singapore. The top five by volume differed only slightly by order: Greater China, Japan, Singapore, Malaysia and Indonesia. The fastest growing export market by volume for Australia in the last five years has been Greater China.

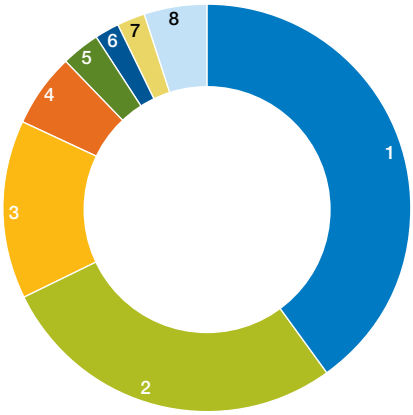
See Appendix 8 for detailed tables of Australia's export markets.

Figure 9 Australian production and exports (milk equivalents)



Source: Dairy manufacturers and ABS

Figure 10 Exporters' share of world dairy trade in 2017 (milk equivalents)



1 NZ **40%**

2 EU **28%**

3 USA **14%**

4 Australia **6%**

5 Uruguay **3%**

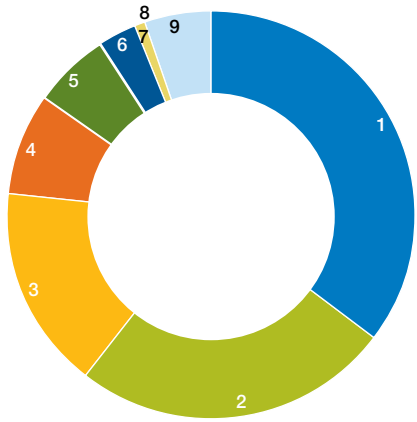
6 Argentina **2%**

7 Ukraine **2%**

8 Other **5%**

Source: Dairy Australia

Figure 11 Australian exports by region in 2017/18 (A$ million)



1 Greater China **$1188**

2 South East Asia **$849**

3 Japan **$541**

4 Other Asia **$266**

5 Middle East **$189**

6 Africa **$94**

7 Americas **$47**

8 Europe **$13**

9 Other **$179**

Source: ABS

Table 16 Australian dairy exports by product by region in 2017/18 (A$ million)

	SE Asia	Other Asia	Europe	Middle East	Africa	Americas	Other	Total
Butter/AMF	65	36	1	5	2	4	2	115
Cheese	183	649	2	46	18	13	34	945
Milk	90	120	0	0	0	0	21	231
SMP	224	176	0	35	14	0	5	454
WMP*	74	676	0	17	20	5	12	804
Other	213	338	10	86	40	25	105	817
Total	**849**	**1,995**	**13**	**189**	**94**	**47**	**179**	**3,366**

**Also includes infant powder*
Source: ABS

Table 17 Top 10 Australian export destinations in 2017/18

Country	Volume (tonnes)	% of total	Country	Value (A$ million)	% of total
Greater China*	230,364	**27**	Greater China*	1,188	**35**
Japan	107,271	**13**	Japan	541	**16**
Singapore	77,443	**9**	Indonesia	184	**5**
Malaysia	60,113	**7**	Malaysia	183	**5**
Indonesia	56,400	**7**	Singapore	183	**5**
Philippines	45,932	**5**	New Zealand	134	**4**
Thailand	36,442	**4**	Thailand	132	**4**
New Zealand	32,828	**4**	Philippines	108	**3**
Taiwan	25,840	**3**	South Korea	102	**3**
United Arab Emirates	25,186	**3**	United Arab Emirates	100	**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 in response to multicultural influences on food trends, health perceptions around dairy products, as well as flavour and packaging innovations.

Per capita consumption of drinking milk is currently estimated at 103 litres. It remains at high levels compared to other developed countries. This is partly thanks to the expansion of the 'coffee culture' in Australia and growth in flavoured milk products.

Cheese consumption has stabilised in recent years at around 13.6 kg per person. Whilst cheddar types remain the most popular variety of cheese, non-cheddar cheese varieties available in Australia have increased.

These varieties have grown in popularity due to increased demand for mozzarella cheese in food-service, as well as growth in specialist cheese varieties.

Annual per capita consumption of butter in Australia is around 4.7 kg. Consumers are attracted to the natural characteristics of butter, along with its superior taste and cooking functionality. Recent findings in health and nutritional science have also led to a changing consumer perception of the health risks associated with saturated fats and butter in particular. This has been important in underpinning sales volumes of the category.

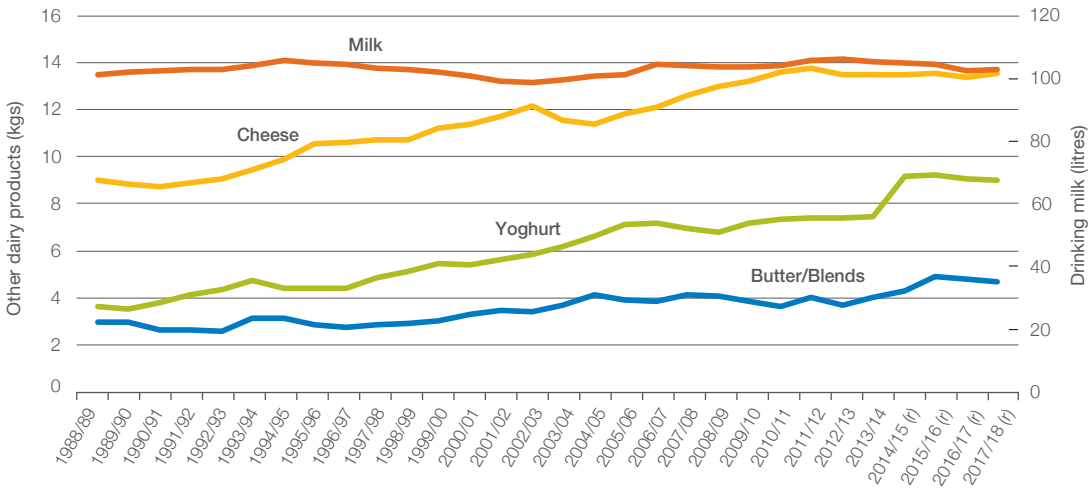
Yoghurt is a healthy snack for consumers, combining both convenience and health attributes, with per capita consumption of 9 kg per year. In recent years, a greater desire for more natural healthy products and increased awareness around the health risks of sugar has seen consumers transition away from sweetened and flavoured yoghurt varieties towards Greek and natural style yoghurts.

Table 18 Per capita consumption of major dairy products (litres/kg)

	Milk (lts)	Cheese (kgs)	Butter / Blends (kgs)	Yoghurt* (kgs)
2013/14	105.7	13.5	4.0	7.4
2014/15 (r)	105.1	13.5	4.3	9.2
2015/16 (r)	104.9	13.6	4.9	9.2
2016/17 (r)	102.7	13.4	4.8	9.1
2017/18 (p)	102.9	13.6	4.7	9.0

** From 2014/15 Per capita consumption of yoghurt includes dairy snacks*
Source: Dairy manufacturers and Dairy Australia

Figure 12 Per capita consumption (litres/kg)



Source: Dairy manufacturers

Drinking milk

Drinking milk is a widely consumed, convenient and versatile dairy product containing an outstanding package of protein, vitamins and minerals. Milk remains a staple item in many Australian households.

UHT milk (heated to 140 degrees for two seconds) has seen an increase in its share of supermarket sales by volume over the past two decades. However, Australian consumers still overwhelmingly prefer fresh, pasteurised milk (heated to 74 degrees for 15 seconds). This preference for fresh milk generally requires dairy farming close to major population centres and extensive cold-chain logistics to provide reliable, year-round fresh milk.

Regular or full cream milk has a milkfat content of 3.4% to 3.6%. Low-fat and skim milks are modified to contain less than 1.5% and 0.15% milkfat respectively. The cream removed during modification can be bottled as table cream or manufactured into butter or other dairy products. As the composition of milk produced changes through the course of a season, most milk is standardised to ensure a consistent taste and nutritional profile year-round. Drinking milk generally undergoes further processing in the form of homogenisation, which disperses the fat equally throughout the milk, rather than allowing it to separate at the top.

In line with changing consumer attitudes towards fat, the share of fresh white full cream milk, as a percentage of the total fresh white milk market, has climbed. Sale volumes of modified milk have declined. Whilst white (unflavoured) milk still accounts for the overwhelming majority of drinking milk sold, flavoured milk has increased its market share. Flavoured milk is an important source of revenue due to higher unit prices. Flavoured milk sales remain distinctly regional, with strong local brands and varying consumption patterns. South Australia has historically consumed between two and three times the national average of flavoured milk, with a much flatter year-round demand, whilst demand in states like Queensland tends to be seasonal.

There are a number of major players in the Australian drinking milk market, with the two largest being Lion Dairy & Drinks (with the Pura and Dairy Farmers brands) and Parmalat (with the Pauls and Harvey Fresh brands). Fonterra Australia and Murray Goulburn (from May 2018 Saputo Dairy Australia) are relatively recent entrants to the drinking milk market after taking major supermarket private label contracts in Victoria and NSW. Brownes (WA) and Norco (Queensland and northern New South Wales) have more localised distribution.

See Appendix 7 for more details of supermarket milk sales and average prices.

Australia traditionally exports relatively small volumes of liquid milk, however in recent years export volumes have grown significantly. In 2017/18 Australia exported almost 220 million litres of milk, a 15% increase compared to last year. This product was predominantly UHT, although some smaller companies are now airfreighting fresh milk to customers in Asia. More than 90% of the total volume exported went into Asia, with the remainder going towards the island countries of the Pacific.

See Appendix 8 for more details of drinking milk exports.

Table 19 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	1,160	679	104	236	208	**2,387**
2012/13	1,172	690	100	240	243	**2,445**
2013/14	1,193	690	93	240	250	**2,466**
2014/15	1,244	661	87	240	257	**2,489**
2015/16	1,311	623	74	246	266	**2,520**
2016/17 (r)	1,369	571	64	247	258	**2,509**
2017/18 (p)	1,404	544	54	242	304	**2,548**

Source: Milk processors and state milk authorities

Table 20 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	721	582	531	221	274	58	**2,387**
2012/13	719	600	563	222	280	61	**2,445**
2013/14	711	612	584	221	279	59	**2,466**
2014/15	715	625	581	222	285	61	**2,489**
2015/16	732	637	583	222	285	61	**2,520**
2016/17 (r)	723	635	579	227	284	60	**2,508**
2017/18 (p)	739	644	595	222	286	62	**2,548**

State figures exclude interstate traded milk prior to 2001, NSW includes ACT after June 2000.
Source: Milk processors and state milk authorities

Cheese

Australian cheese production increased 8% in 2017/18, to approximately 377,000 tonnes. This is close to the production volumes of the early 2000s. Over the past decade, production volumes have been considerably less than in the early 2000s, as milk production has declined. A significant factor impacting production volumes in more recent years, has been the impact of dairy companies opportunistically changing their export product mixes to take advantage of favourable movement in international dairy commodity prices. In 2017/18 several dairy companies focused on cheese production as international price trends made cheese production attractive.

Cheese is a major product for the Australian dairy industry, utilising more than a third of Australian milk. In 2017/18 Australia exported close to 170,000 tonnes of cheese, worth $945 million. Australia is also a major importer of cheese and over the past ten years imports have grown 89%. Imports from New Zealand totalled 56,000 tonnes, with the EU and US largely accounting for the rest of Australia's cheese imports.

There has been a long-term trend in production away from cheddar cheeses and towards 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.

Australian cheese was exported to close to 60 countries around the world last year. Japan continues to be Australia's most important overseas cheese market and accounted for close to 51% of cheese exports in 2017/18. Most of this cheese is fresh or cream cheese varieties for processing. Other important overseas markets include Greater China, South Korea, Malaysia, the Philippines and Singapore.

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 21 Australian cheese production by type of cheese (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Cheddar	157,996	151,721	178,836	171,590	186,145	202,032
Semi hard	57,190	44,749	43,938	49,559	51,703	60,511
Hard grating	14,681	13,762	9,885	5,040	5,993	4,022
Fresh	102,342	95,764	104,992	110,767	97,054	103,510
Mould	6,103	5,504	6,491	7,300	7,757	7,652
Total cheese	**338,312**	**311,500**	**344,142**	**344,257**	**348,652**	**377,727**

Source: Dairy manufacturers

Butter

In 2017/18 Australia produced approximately 93,000 tonnes of butter and anhydrous milkfat (AMF) in commercial butter equivalent terms (CBE). AMF is butter with the water removed, similar to ghee. It is primarily produced for export and domestic food manufacturing 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 manufacture of butter results in the creation of skim milk powder as a co-product, utilising the solids nonfat components of the milk.

Approximately around 50% of the domestic sales of Australian dairy spreads were through supermarkets. In 2017/18 supermarket sales volumes decreased 2% to 48,000 tonnes, following a 20% increase in average retail price. International butter prices increased over the year causing the Australian price to grow. The spike in price resulted in an increase in retail sales value of 18% over the previous year, to more than $555 million. Changing consumer attitudes towards butter and saturated fats have seen butter and butter blends increase their share of the tablespreads market, at the expense of margarine.

See Appendix 7 for more details of supermarket butter and dairy blend sales.

Butter imports to Australia accounted for more than a quarter of the butter market by volume in 2017/18. Approximately 90% of the 36,000 tonnes of butter and butteroil imported into Australia came from New Zealand. The majority of remaining butter was sourced from various European countries.

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 fell roughly 25% last year, down to 15,000 tonnes, as Australian processors devoted milk into other production streams. Australia's most important overseas markets for butter and AMF were Thailand, Singapore, Malaysia and Greater China; out of nearly 40 countries.

See Appendix 8 for more details of butter and AMF exports.

Table 22 Butter and AMF production (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Butter/Butter blends (CBE)	99,035	101,705	101,641	99,015	85,459	79,749
AMF (CBE)	19,193	14,417	16,943	19,610	14,539	12,949

Source: Dairy manufacturers

Table 23 Australian exports of butter and AMF (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Butter	39,297	39,790	30,755	23,051	14,409	9,721
AMF (CBE)	14,316	9,460	11,867	10,404	6,896	6,354

Source: 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.

Over the past two decades, the yoghurt category has grown considerably. This is a result of the category's 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 types of yoghurt, such as Greek-style yoghurt. These unflavoured varieties are perceived to be healthier and more 'natural' and attractive to health-conscious consumers. Yoghurt sales of the unflavoured, traditional types have overtaken those of sweetened and flavoured yoghurts, and account for more than 50% of the market.

Growth in yoghurt sales has been underpinned by regular product innovation. Innovation has taken place in the areas of packaging, flavour combinations and the use of probiotic cultures. New products, such as drinking yoghurts and single snack servings in convenience outlets, have also helped drive growth.

Dairy desserts are a low volume/high value dairy category. These products include mousses, crème caramels and fromage frais. They are marketed as an indulgence or treat item and generally targeted to adult consumers. 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.

Cream sales have increased in recent years. Cream is an important fresh dairy product and widely used in cooking. Regular and sour creams are both used extensively as accompaniments or ingredients. Nevertheless, like butter, consumers remain interested in cream's superior taste and cooking functionality.

See Appendix 6 for more details on cream, custard and dairy dessert sales.

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 customer needs.

The most obvious trend in Australian milk powder production was previously the steady increase in the share of whole milk powder (WMP) output. Since 2001/02 this trend has reversed and skim milk powder (SMP) production has become the predominant milk powder. In 2017/18 SMP accounted for close to 70% of milk powders produced.

In recent years, local dairy companies have had access to smaller milk production volumes and a wider variety of markets. As a result, these companies have been more flexible with their product mixes to take advantage of relative movements in international 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 local production mixes because the bulk of Australia's milk powders are sold into export markets.

Only about 10% to 15% of Australia's powder production is sold domestically, with local usage mainly as an ingredient in food manufacturing. Infant formula is a high-value product that has recently shown considerable growth. Infant formula growth is generated through Australian supermarket sales (partly due to the demand from informal re-export trades), as well as through direct Australian exports.

Australia also imported roughly 82 million tonnes of milk powders in 2017/18. Imports of milk powders have increased over the past five years and grew almost 40% this year. Most of the imported milk powder is sourced from New Zealand.

Exported milk powder is often recombined into liquid milk products, particularly in tropical climates where fresh milk supplies are not readily available due to insufficient local production and/or limited 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, where nearly 90% of SMP and WMP exports were destined in 2017/18.

See Appendix 8 for more details on milk powder exports.

Indonesia was the largest single export market for Australian-produced SMP in 2017/18, followed by Greater China, Malaysia, Singapore, and Thailand; out of some 30 export destinations.

Greater China was the largest single export market for Australian-produced WMP, followed by Thailand, Bangladesh, Singapore, Algeria and Taiwan; out of a total of 58 export destinations.

Table 24 Australian production of milk powders (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Skim milk powder	224,061	210,964	242,266	255,792	222,109	190,926
Whole milk powder*	108,838	126,322	96,840	66,125	63,242	82,499

**Includes infant powders*
Source: Dairy manufacturers

Figure 13 Australian production and exports of skim milk powder (tonnes)

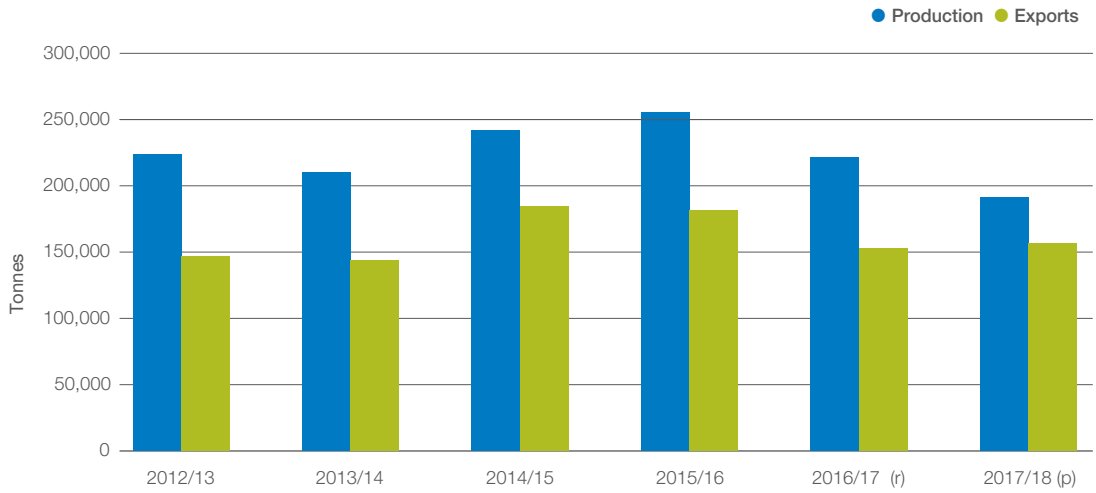
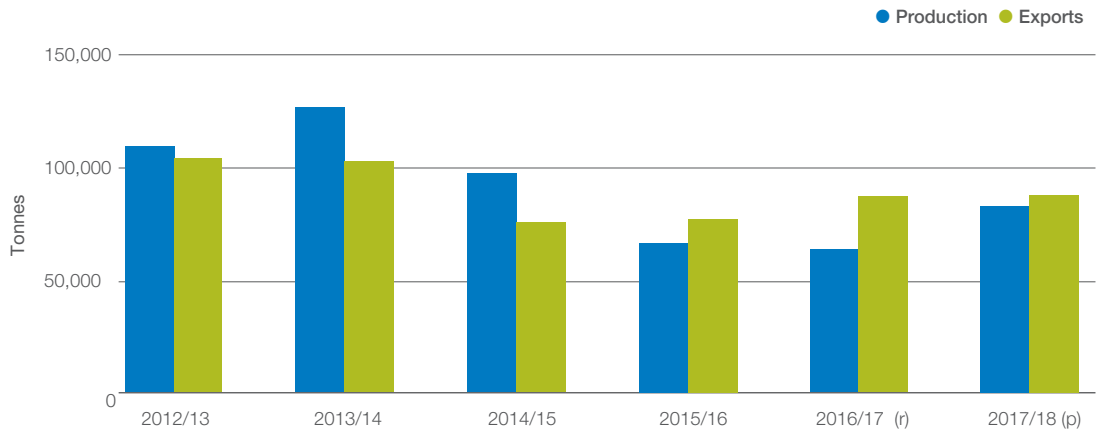


Figure 14 Australian production and exports of whole milk powder (tonnes)



Source: Dairy manufacturers and ABS

Table 25 Australian exports of skim milk powder by region (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia	109,232	107,956	150,124	147,843	135,998	137,729
Middle East	28,313	31,429	26,927	23,249	14,057	11,630
Africa	3,830	1,392	386	5,829	1,428	5,761
Pacific	3,478	1,584	5,376	3,857	1,775	1,586
Americas	1,331	244	1,473	552	47	0
Europe	732	563	540	43	0	0
Total	**146,916**	**143,169**	**184,825**	**181,374**	**153,305**	**156,706**

Source: ABS

Table 26 Australian exports of whole milk powder by region* (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia	76,572	91,226	57,963	62,548	77,157	73,897
Middle East	9,488	3,872	6,510	5,050	4,158	4,467
Africa	5,744	3,344	2,761	368	243	5,557
Pacific	1,995	1,371	1,634	4,348	2,083	2,170
Americas	8,545	2,089	6,031	4,227	3,063	1,315
Europe	1,468	345	230	511	104	200
Total	**103,812**	**102,247**	**75,129**	**77,053**	**86,808**	**87,606**

**Includes infant powders*
Source: 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 and properties 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.

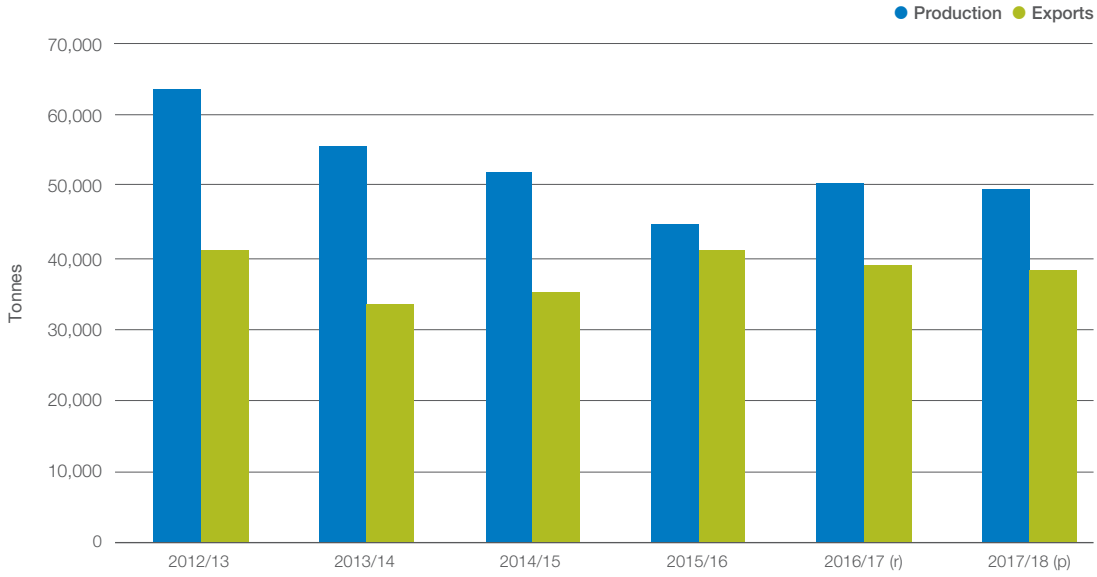
In Australia whey is also used domestically in the manufacture of infant formula, biscuits and ice-cream.

The remainder is exported, with Indonesia, Japan, Greater China, Singapore and Thailand being the largest export markets for Australian whey powders in 2017/18.

Casein and caseinates are used as binding ingredients, emulsifiers and milk substitutes in processed foods, such as noodles, chocolate, sweets, mayonnaise, ice-cream and cheese manufacture. 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); 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. Imports are mainly from New Zealand (over 70% of the total volume), with the balance from Europe and the United States in 2017/18.

Figure 15 Australian 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

Australian Dairy Industry Council Inc. (ADIC)

National level

Australian Dairy Farmers Ltd (ADF)

Australian Dairy Products Federation Inc. (ADPF)

Dairy Australia Ltd

State/regional level

Representational bodies

State Dairy Farmer Organisations

NSW Farmers' Association (Dairy Committee)

Queensland Dairyfarmers' Organisation

South Australian Dairyfarmers' Association

Tasmanian Farmers and Graziers Association (Dairy Council)

Victorian Farmers Federation (United Dairyfarmers of Victoria)

Western Australian Farmers Federation (Dairy Council)

Dairy Connect

Services bodies

Regional Development Programs

Dairy NSW

DairySA

DairyTas

GippsDairy

Murray Dairy

Subtropical Dairy

Western Dairy

WestVic Dairy

Industry levies

Dairy Service

Dairy Australia is funded by farmer-paid levies calculated 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 27 Average rate of milk levies for 2017/18

	Milkfat (¢/kg)	Protein (¢/kg)	Milk* (¢/litre)	Milksolids (¢/kg)
Animal Health Australia	0.0580	0.1385	0.007	0.09
Dairy Service	2.8683	6.9914	0.354	4.74

**Based on average 2017/18 Australian milk composition of 4.09% milkfat and 3.39% protein*

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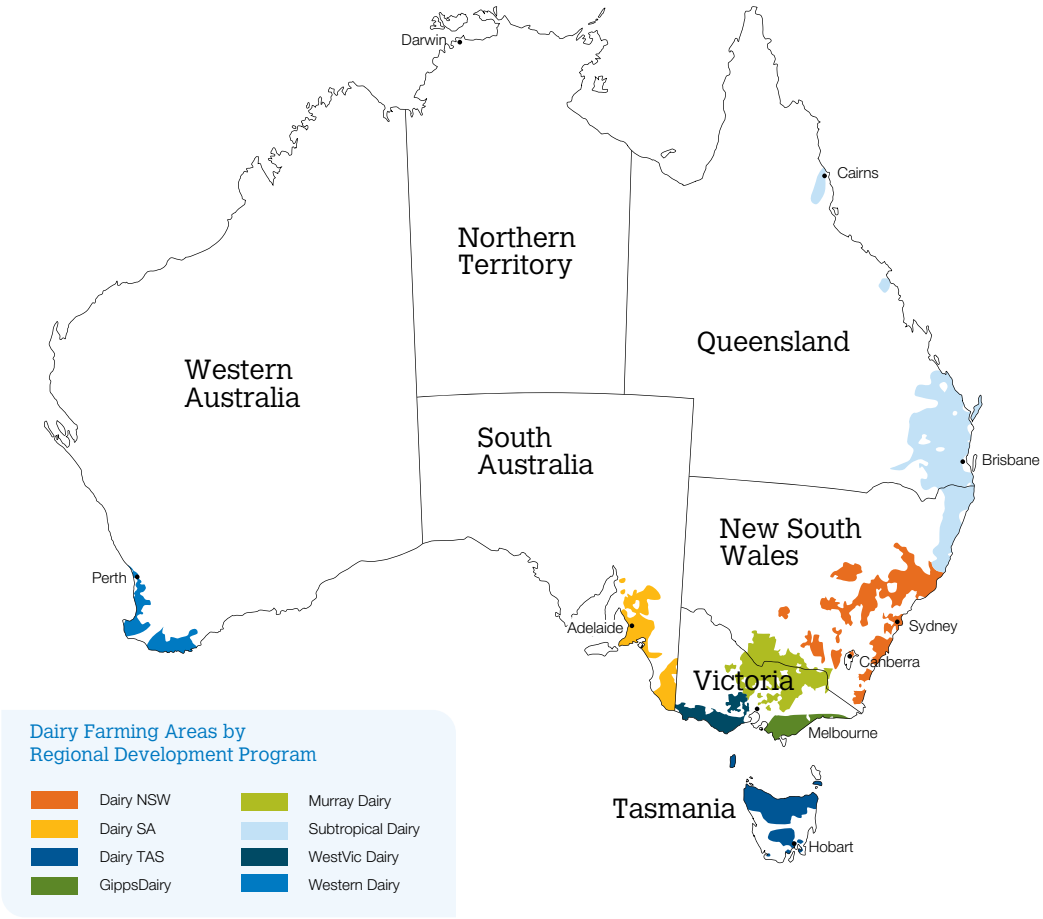
Appendix 1 Dairying regions



Appendix 2 Australian industry footprint

Table A1 Australian state/region breakdown 2017/18

	QLD	NSW	VIC	SA	WA	TAS	AUST
Dairy farms*	393	626	3,881	228	159	412	**5,699**
Cows in milk & dry ('000)**	80	160	1,005	75	66	175	**1,561**
People employed on farm (fulltime and part-time)***	1,900	1,900	17,000	600	1,500	1,600	**24,500**
People employed in dairy product manufacturing (fulltime and part-time)***	2,000	4,300	8,800	700	1,100	1,200	**18,100**
People working in dairy (fulltime and part-time)***	3,900	6,200	25,800	1,300	2,600	2,800	**42,600**
Volume of milk produced (ML)****	399	1,121	5,965	505	385	913	**9,289**
Share of national milk production (%)	4	12	64	5	4	10	**100**
Value of milk leaving farms ($m)	230	566	2,635	217	192	429	**4,269**
Value of dairy products exported ($m)*****	71	225	2,219	101	107	639	**3,363**
Share of national dairy exports - value (%)	2	7	66	3	3	19	**100**
Volume of dairy products exported ('000)	17	63	609	26	77	50	**841**
Share of national dairy exports - volume (%)	2	7	72	3	9	6	**100**

Source:
* State milk authorities
** ABS and Dairy Australia
*** *Employment estimates based on state level averages from ABS Labor Force Statistics, August 2017–May 2018 Quarters: split on the basis of milk production within states*
**** *Dairy manufacturers*
***** *ABS export data: split on the basis of milk production*

	Sub-tropical Dairy	Dairy NSW	Murray Dairy	Gipps Dairy	WestVic Dairy	DairySA	Western Dairy	DairyTas	AUST
Dairy farms*	519	411	1,372	1,324	1,274	228	159	412	**5,699**
Cows in milk & dry ('000)**	100	114	350	334	347	75	66	175	**1,561**
People employed on farm (fulltime and part-time)***	2,000	1,800	5,400	5,700	5,900	600	1,500	1,600	**24,500**
People employed in dairy product manufacturing (fulltime and part-time)***	2,200	4,000	3,300	2,900	2,700	700	1,100	1,200	**18,100**
People working in dairy (fulltime and part-time)***	4,200	5,800	8,700	8,600	8,600	1,300	2,600	2,800	**42,600**
Volume of milk produced (ML)****	542	817	2,074	1,987	2,066	505	385	913	**9,289**
Share of state milk production (%)	136	73	35	33	35	100	100	100	
Share of national milk production (%)	6	9	22	21	22	5	4	10	**100**
Value of milk leaving farms ($m)	313	413	916	878	912	217	192	429	**4,269**
Value of dairy products exported ($m)*****	91	173	785	720	748	101	107	639	**3,363**
Share of national dairy exports - value (%)	3	5	23	21	22	3	3	19	**100**
Volume of dairy products exported ('000)	19	50	216	197	205	26	77	50	**841**
Share of national dairy exports - volume (%)	2	6	26	23	24	3	9	6	**100**

Source:
* State milk authorities
** ABS and Dairy Australia
*** *Employment estimates based on state level averages from ABS Labor Force Statistics, August 2017–May 2018 Quarters: split on the basis of milk production within states*
**** *Dairy manufacturers*
***** *ABS export data: split on the basis of milk production*

Appendix 3 Grain prices

Table A2 Indicative Australian grain prices ($ per tonne)

	NSW	VIC	QLD	SA	WA	TAS
Barley						
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
2016/17	192	188	239	164	203	259
2017/18	264	253	341	233	261	293
Sorghum						
2009/10	226		211			
2010/11	256		234			
2011/12	219		210			
2012/13	284		279			
2013/14	327		336			
2014/15	321		319			
2015/16	275		279			
2016/17	241		256			
2017/18	315		323			
Triticale						
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	
2016/17	214	203		183	210	
2017/18	265	250		230	257	
Wheat						
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	310	257	287	360
2016/17	230	224	265	198	243	286
2017/18	281	271	343	245	274	304

Source: Jumbuk Consulting Pty Ltd

Appendix 4 Milk production

Figure A1 Seasonality of milk production in 2017/18 (million litres)

Source: Dairy manufacturers

Appendix 5 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, 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.

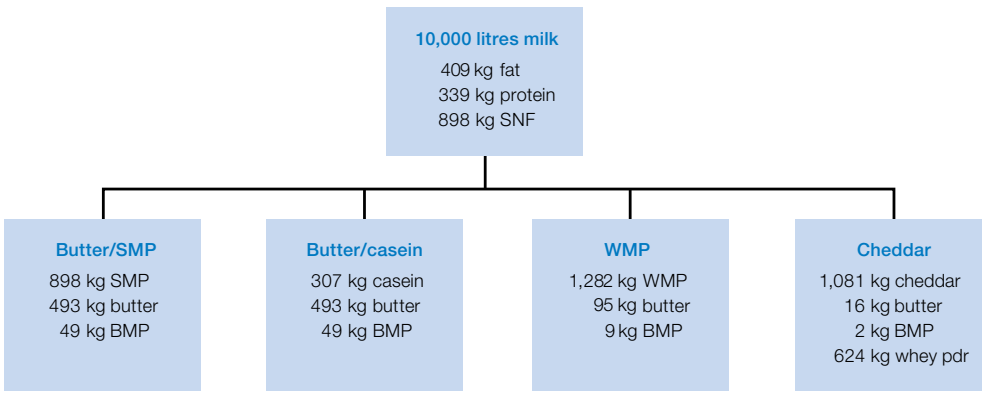
The liquid whey extracted during cheese manufacture contains protein, lactose and a little fat. It can be dried to make products for pharmaceutical purposes, as a useful supplement in stock feed, and in the manufacture of ice-cream.

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

Table A3 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 2017/18



Source: Dairy Australia

Table A4 Australian cheese production by state (tonnes)

	NSW	VIC	QLD	SA	WA	TAS	AUST
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	23,382	239,631	670	7,283	1,988	38,545	**311,499**
2014/15	23,157	269,948	610	8,071	2,082	40,274	**344,142**
2015/16	23,081	280,280	618	4,287	2,305	33,685	**344,256**
2016/17 (r)	23,359	282,667	725	4,213	2,220	35,466	**348,650**
2017/18 (p)	24,057	304,743	746	3,885	2,219	42,077	**377,727**

Source: Dairy manufacturers

Table A5 Australian production of dairy products (tonnes)

	Butter*	AMF (CBE)	SMP	WMP**	Whey products
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	101,641	16,943	242,266	96,840	51,806
2015/16	99,015	19,610	255,792	66,125	44,669
2016/17 (r)	85,459	14,539	222,109	63,242	50,209
2017/18 (p)	79,749	12,949	190,926	82,499	49,469

**Includes butter blends as CBE*
***Includes infant powders*
Source: Dairy manufacturers

Table A6 Australian cheese production by variety (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Cheddar						
Cheddar [1]	126,551	132,669	153,208	149,863	148,649	159,361
Reduced fat cheddar	25,708	12,681	18,275	15,360	14,384	15,804
Other cheddar type cheese [2]	5,737	6,371	7,353	6,366	23,111	26,867
Total cheddar	**157,996**	**151,721**	**178,836**	**171,589**	**186,144**	**202,032**
Semi hard						
Mozzarella and pizza	43,933	35,269	36,148	41,133	44,986	52,419
Other stretch curd and shredding	1,143	763	769	1,796	2,546	2,465
Other semi hard cheese [3]	12,114	8,717	7,020	6,631	4,171	5,628
Total semi hard cheese	**57,190**	**44,749**	**43,937**	**49,560**	**51,703**	**60,511**
Hard grating						
All types [4]	14,681	13,762	9,885	5,040	5,993	4,022
Total	**14,681**	**13,762**	**9,885**	**5,040**	**5,993**	**4,022**
Fresh						
Cream cheese and neufchatel	84,513	76,975	90,443	93,403	79,285	86,446
Fetta	5,684	7,853	4,773	7,229	8,211	8,175
Ricotta	6,965	5,730	5,987	7,373	6,600	6,266
Other fresh types [5]	5,180	5,205	3,789	2,762	2,957	2,622
Total	**102,342**	**95,764**	**104,993**	**110,767**	**97,053**	**103,510**
Mould ripened						
Blue vein	627	513	536	603	664	716
Brie and camembert	5,118	4,591	5,539	5,960	6,452	6,297
Other mould ripened	358	399	416	737	641	639
Total mould ripened	**6,103**	**5,504**	**6,491**	**7,300**	**7,757**	**7,652**
Total cheese	**338,311**	**311,499**	**344,142**	**344,256**	**348,650**	**377,727**

(1) Includes: Vintage
(2) Includes: Cheedam, Colby, Cheshire, Gloucester, Lancashire, Leicester, Nimbin and semi processed cheddar
(3) Includes: Edam, Gouda, Swiss, Emmenthal, Fontina, Raclette,Havarti, Samsoe, Tilsit, Buetten, Vacherin, Bakers, Casalinga, Goya
(4) Includes: Parmesan, Pecorino, Romano, Fresh Pecorino, Melbourno, Pepato, Parmagiano
(5) Includes: Cottage, Quark, Stracchino, Mascarpone
Source: Dairy manufacturers

Appendix 6 Domestic sales

Table A7 Dairy company domestic sales* (tonnes)

Major dairy products - excl drinking milk	Sales channel	2015/16 (r)	2016/17 (r)	2017/18 (p)
Butter	Grocery	55,744	55,531	53,492
	Non-grocery	20,804	25,067	26,323
Butter total		**76,548**	**80,598**	**79,815**
Cheese	Grocery	132,790	141,308	147,040
	Non-grocery	119,481	138,972	125,822
Cheese total		**252,271**	**280,280**	**272,862**
Cream	Grocery	63,181	62,944	62,813
	Non-grocery	64,950	79,668	82,436
Cream total		**128,131**	**142,612**	**145,249**
Custard	Grocery	21,611	21,431	20,799
	Non-grocery	1,876	2,120	2,041
Custard total		**23,487**	**23,552**	**22,840**
Dairy desserts	Grocery	9,608	9,944	10,175
	Non-grocery	146	134	125
Dairy desserts total		**9,755**	**10,078**	**10,300**
Milk powder	Grocery	17,124	11,785	13,663
	Non-grocery	39,985	58,787	52,225
Milk powder total		**57,109**	**70,571**	**65,888**
Yoghurt	Grocery	118,307	119,489	112,461
	Non-grocery	12,348	11,981	11,539
Yoghurt total		**130,655**	**131,470**	**123,999**

**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 7 Supermarket sales

Milk

Table A8 Supermarket milk sales by state (million litres)

	NSW	VIC	QLD	SA	WA	TAS	AUST
2015/16 (r)	383	337	347	124	145	37	**1,373**
2016/17 (r)	395	350	356	125	145	37	**1,408**
2017/18 (p)	400	353	361	124	146	38	**1,422**

Source: Information Resources (Australia) Pty Ltd

Table A9 Supermarket milk sales by type (million litres)

	Regular	Reduced fat	No fat	Flavoured	UHT	AUST
2015/16 (r)	644	377	40	119	193	**1,373**
2016/17 (r)	700	354	37	128	188	**1,408**
2017/18 (p)	731	340	32	135	184	**1,422**

Source: Information Resources (Australia) Pty Ltd

Table A10 Supermarket milk sales – Branded vs private label (million litres)

	2015/16 (r)		2016/17 (r)		2017/18 (p)	
	Million litres	Price/litre	Million litres	Price/litre	Million litres	Price/litre
Branded milk						
Regular whole	201	$1.84	272	$1.80	264	$1.84
Reduced fat	147	$2.01	165	$1.96	148	$1.99
No fat	34	$2.02	32	$2.01	26	$2.01
Flavoured	114	$3.70	125	$3.60	133	$3.61
UHT	121	$1.53	118	$1.56	105	$1.67
Total branded milk	**617**	**$2.17**	**711**	**$2.12**	**676**	**$2.20**
Private label						
Regular whole	443	$1.03	428	$1.04	467	$1.03
Reduced fat	230	$1.02	190	$1.03	192	$1.02
Low fat	6	$1.24	5	$1.23	6	$1.20
Flavoured	6	$1.76	3	$1.75	2	$2.33
UHT	72	$0.95	71	$0.94	78	$0.97
Total private label milk	**756**	**$1.02**	**697**	**$1.03**	**745**	**$1.03**
Total milk	**1,373**	**$1.54**	**1,408**	**$1.58**	**1,422**	**$1.59**

Source: Information Resources (Australia) Pty Ltd

Dairy spreads

Table A11 Supermarket dairy spreads sales by type (tonnes)

	2015/16 (r)		2016/17 (r)		2017/18 (p)	
	Tonnes	Price/kg	Tonnes	Price/kg	Tonnes	Price/kg
Dairy						
Butter	25,834	$8.34	26,434	$8.92	24,763	$12.08
Blends	22,295	$9.88	22,800	$10.22	23,667	$10.81
Total dairy spreads	**48,129**	**$9.05**	**49,234**	**$9.52**	**48,430**	**$11.46**

Source: Information Resources (Australia) Pty Ltd

Table A12 Supermarket dairy spreads sales by pack size (tonnes)

	2015/16 (r)		2016/17 (r)		2017/18 (p)	
	Tonnes	Price/kg	Tonnes	Price/kg	Tonnes	Price/kg
250 gram	13,580	9.26	14,115	9.92	14,141	13.30
375 gram	5,202	13.30	4,848	13.90	5,247	13.98
500 gram	29,092	8.09	29,254	8.50	27,638	10.07
Other sizes	256	20.99	1,017	12.53	1,404	10.96
Total dairy spreads	**48,129**	**$9.05**	**49,234**	**$9.52**	**48,430**	**$11.46**

Source: Information Resources (Australia) Pty Ltd

Table A13 Supermarket dairy spreads sales by form (tonnes)

	2015/16 (r)		2016/17 (r)		2017/18 (p)	
	Tonnes	Price/kg	Tonnes	Price/kg	Tonnes	Price/kg
Pats	22,447	$7.28	23,013	$7.91	21,602	$11.45
Tubs	25,682	$10.61	26,221	$10.94	26,828	$11.47
Total dairy spreads	**48,129**	**$9.05**	**49,234**	**$9.52**	**48,430**	**$11.46**

Source: Information Resources (Australia) Pty Ltd

Appendix 8 Australian exports

Table A14 Australian exports of cheese (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
China, Hong Kong	14,474	19,552	17,945	21,207	24,530	22,556
Indonesia	3,296	2,875	2,757	2,809	3,989	4,527
Japan	103,870	73,598	85,808	90,635	81,351	86,793
Korea, South	6,979	4,841	5,318	7,942	10,400	9,126
Malaysia	5,819	7,907	7,536	7,841	8,325	8,081
Philippines	3,041	2,655	3,556	4,922	4,278	7,076
Singapore	4,900	5,364	5,381	5,401	5,310	4,910
Taiwan	4,048	3,072	3,638	3,863	4,183	3,561
Thailand	2,333	2,848	3,016	2,845	3,495	4,095
Other Asia	1,149	1,218	1,312	1,579	1,620	2,220
Total Asia	**149,909**	**123,930**	**136,267**	**149,044**	**147,481**	**152,945**
Middle East						
Saudi Arabia	2,952	4,203	3,005	2,076	761	1,520
U.A.E.	1,315	1,588	1,697	1,530	1,492	1,577
Other Middle East	5,794	6,082	5,026	4,591	4,421	4,176
Total Middle East	**10,061**	**11,873**	**9,728**	**8,197**	**6,674**	**7,273**
Africa						
Egypt	122	138	157	34	0	0
Other Africa	3,485	2,971	2,579	3,168	2,741	2,403
Total Africa	**3,607**	**3,109**	**2,736**	**3,202**	**2,741**	**2,403**
Pacific						
New Zealand	2,283	2,177	2,267	2,960	3,434	4,059
Others	815	703	825	1,057	1,134	1,283
Total Pacific	**3,098**	**2,880**	**3,092**	**4,017**	**4,568**	**5,342**
Americas						
Caribbean	399	508	589	69	42	28
United States	2,753	1,891	4,577	6,163	4,745	1,944
Others	370	349	445	365	225	351
Total Americas	**3,522**	**2,748**	**5,611**	**6,597**	**5,012**	**2,323**
Europe						
Eastern Europe	804	2,110	81	0	0	0
EU 27	3,060	3,789	162	265	203	605
Other Europe	0		0	0	0	0
Total Europe	**3,864**	**5,899**	**243**	**265**	**203**	**605**
Total	**174,061**	**150,439**	**157,677**	**171,322**	**166,679**	**170,891**

Source: ABS

Table A15 Australian exports of whole milk powder* (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
Bangladesh	4,941	9,180	8,581	6,225	4,814	5,663
China, Hong Kong	17,598	31,633	6,896	26,364	32,989	47,113
Indonesia	5,469	6,930	2,414	795	917	299
Japan	5,767	326	12	2	2	1
Malaysia	4,827	3,885	3,322	1,919	2,978	1,227
Philippines	471	385	690	252	396	275
Singapore	14,298	16,238	13,528	8,138	8,933	4,990
Sri Lanka	11,459	13,547	12,097	12,776	10,547	416
Taiwan	3,920	3,125	2,477	1,982	1,955	2,197
Thailand	2,804	2,740	2,061	1,387	3,617	9,000
Others	5,018	3,237	5,885	2,707	10,008	2,716
Total Asia	**76,572**	**91,226**	**57,963**	**62,547**	**77,156**	**73,897**
Africa	**5,744**	**3,344**	**2,761**	**368**	**243**	**5,557**
Americas	**8,545**	**2,089**	**6,031**	**4,227**	**3,063**	**1,315**
Europe	**1,468**	**345**	**230**	**511**	**104**	**200**
Middle East	**9,488**	**3,872**	**6,510**	**5,050**	**4,158**	**4,467**
Pacific	**1,995**	**1,371**	**1,634**	**4,350**	**2,083**	**2,170**
Total	**103,812**	**102,247**	**75,129**	**77,053**	**86,807**	**87,606**

**Also includes infant powder*
Source: ABS

Table A16 Australian exports of butter* (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
China, Hong Kong	3,622	3,944	4,924	4,441	3,130	2,758
Japan	1,136	348	587	437	381	236
Korea, South	1,551	1,181	1,477	2,334	1,531	470
Malaysia	1,385	2,082	2,650	2,446	2,048	1,662
Singapore	4,292	5,594	5,199	3,476	2,611	1,666
Taiwan	1,594	1,159	1,871	1,623	1,124	712
Others	2,248	1,475	1,197	1,335	963	762
Total Asia	**15,828**	**15,783**	**17,904**	**16,092**	**11,789**	**8,266**
Middle East	**10,727**	**4,137**	**7,310**	**3,658**	**1,002**	**695**
Africa	**2,739**	**587**	**2,039**	**1,026**	**306**	**217**
Pacific	**356**	**658**	**1,252**	**691**	**847**	**264**
Americas	**811**	**72**	**995**	**1,225**	**270**	**277**
Europe	**8,835**	**18,554**	**1,257**	**360**	**196**	**2**
Total	**39,296**	**39,791**	**30,757**	**23,052**	**14,410**	**9,721**

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

Table A17 Australian exports of skim milk powder (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
China, Hong Kong	10,708	22,814	17,746	19,873	23,930	30,311
Indonesia	21,578	25,586	39,684	40,812	36,430	33,828
Japan	1,553	3,222	8,359	1,637	3,110	8,287
Malaysia	13,392	11,378	17,641	19,179	18,880	13,368
Philippines	10,861	8,251	13,973	10,304	8,612	8,403
Singapore	18,446	12,567	15,368	14,422	14,571	11,573
Taiwan	4,890	3,542	1,442	1,563	1,536	1,900
Thailand	12,115	10,177	11,317	10,471	6,728	10,982
Others	15,688	10,420	24,594	29,583	22,201	19,077
Total Asia	**109,232**	**107,957**	**150,124**	**147,844**	**135,998**	**137,729**
Africa	**3,830**	**1,392**	**386**	**5,829**	**1,428**	**5,761**
Americas	**1,331**	**244**	**1,473**	**552**	**47**	**0**
Europe	**732**	**563**	**540**	**43**	**0**	**0**
Middle East	**28,313**	**31,429**	**26,927**	**23,249**	**14,057**	**11,630**
Pacific	**3,478**	**1,584**	**5,376**	**3,857**	**1,775**	**1,586**
Total	**146,916**	**143,169**	**184,826**	**181,374**	**153,305**	**156,706**

Source: ABS

Table A18 Australian exports of butter oil (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
Bangladesh	50	202	101	218	151	101
Indonesia	50	302	410	86	84	67
Malaysia	545	687	907	974	554	823
Philippines	50	102	101	50	134	286
Singapore	166	240	128	69	193	101
Others	2,724	3,476	3,013	3,039	3149	3112
Total Asia	**3,585**	**5,009**	**4,660**	**4,436**	**4,265**	**4,490**
Middle East	**1,008**	**386**	**829**	**446**	**101**	**0**
Africa	**429**	**86**	**101**	**67**	**66**	**32**
Americas	**5,015**	**517**	**3,512**	**3,007**	**671**	**287**
Europe	**1,432**	**1,530**	**433**	**363**	**436**	**303**
Pacific	**55**	**87**	**19**	**54**	**11**	**4**
Total	**11,524**	**7,615**	**9,554**	**8,375**	**5,550**	**5,116**

Actual product weight (not CBE)
Source: ABS

Table A19 Australian exports of liquid milk ('000 litres)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia						
Singapore	31,762	30,474	33,254	36,590	40,101	42,538
Philippines	2,901	8,307	7,937	10,273	13,703	19,329
Malaysia	5,689	7,266	4,454	13,572	15,680	19,773
Indonesia	386	426	367	370	310	241
Hong Kong	16,520	14,440	13,716	14,077	14,665	15,297
China	21,035	25,061	54,507	70,971	68,087	82,421
Other Asia	13,139	16,646	17,403	15,702	18,802	21,004
Total Asia	**91,432**	**102,620**	**131,638**	**161,555**	**171,348**	**200,603**
Africa	**1,023**	**659**	**766**	**606**	**593**	**487**
Pacific	**11,285**	**12,596**	**14,650**	**16,115**	**15,617**	**16,006**
Others	**2,737**	**2,256**	**645**	**1,002**	**1,036**	**334**
Total	**106,477**	**118,131**	**147,699**	**179,278**	**188,594**	**217,430**

Source: ABS

Table A20 Australian exports of whey products* (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Asia	32,415	26,278	29,708	35,065	35,288	34,971
Europe	2,219	1,462	579	16	20	571
Other	6,282	5,567	4,769	5,740	3,501	2,553
Total	**40,916**	**33,307**	**35,056**	**40,821**	**38,809**	**38,095**

**Includes whey protein concentrate*
Source: ABS

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

	2012/13	2013/14	2014/15	2015/16 (r)	2016/17 (r)	2017/18 (p)
Asia						
China	59,235	78,775	62,574	56,145	59,109	28,310
Indonesia	3,406	800	1,514	1,307	1,203	4,118
Japan	390	345	0	303	437	2,936
Malaysia	1,085	1110	2,124	2,132	1,346	2,237
Pakistan	8,327	6,425	1,989	3,507	6,502	5,620
Taiwan	0	554	3	628	1,793	1,813
Vietnam	0	440	3,383	2,755	1,735	958
Other Asia	2,483	267	1,335	1,657	289	531
Total Asia	**74,926**	**88,716**	**72,922**	**68,434**	**72,414**	**46,523**
Europe	**8,385**	**3,595**	**0**	**0**	**0**	**0**
Middle East	**4,111**	**29**	**283**	**3,503**	**633**	**275**
Others	**0**	**0**	**0**	**0**	**4**	**15**
Total	**87,422**	**92,340**	**73,205**	**71,937**	**73,051**	**46,813**

Source: ABS

Table A22 Australian exports of live dairy heifers (cows) by state

	NSW	VIC	QLD	SA	WA	TAS	AUST
2009/10	932	73,640	27	765	5,786	0	**81,150**
2010/11	219	61,817	978	0	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	0	89,640	1,171	4	1,525	0	**92,340**
2014/15	910	64,638	122	0	7,535	0	**73,205**
2015/16 (r)	262	69,486	10	230	1,949	0	**71,937**
2016/17 (r)	647	70,395	240	0	1,769	0	**73,051**
2017/18 (p)	1,612	43,156	345	84	1,616	0	46,813

Source: ABS

Appendix 9 Australian imports

Table A23 Australian imports of dairy products from New Zealand and other countries (tonnes)

	New Zealand	Other	Total 2016/17 (r)	New Zealand	Other	Total 2017/18 (p)
Skim milk powder	4,105	3,479	**7,584**	6,175	3,951	**10,126**
Buttermilk powder	424	2,354	**2,778**	2,520	2,696	**5,216**
Whole milk powder*	42,296	8,890	**51,186**	62,322	9,599	**71,921**
Whey powder and concentrates	1,567	13,733	**15,300**	1,124	14,580	**15,704**
Condensed milk	180	4,505	**4,685**	15	3,079	**3,094**
Milk	1,959	376	**2,335**	2,044	370	**2,414**
Cream	2,903	35	**2,938**	3,041	80	**3,121**
Yoghurt	638	1,275	**1,913**	543	1,134	**1,677**
Butter**	24,480	2,572	**27,052**	26,229	3,402	**29,631**
Butter oil	5,927	787	**6,714**	5,790	950	**6,740**
Cheese	65,723	46,406	**112,129**	56,577	54,387	**110,964**
Casein	795	224	**1,019**	328	125	**453**
Caseinates	953	314	**1,267**	1,258	493	**1,751**
Lactose	3,579	16,211	**19,790**	2,307	25,647	**27,954**
Ice cream ('000 lts)	1,490	19,092	**20,582**	1,727	22,394	**24,121**

**Includes infant powder*
***Includes butter blends converted at the rate of 1 kg butter blend = 0.7 kg butter*
Source: ABS

Table A24 Australian cheese imports by country (tonnes)

	2012/13	2013/14	2014/15	2015/16	2016/17 (r)	2017/18 (p)
Austria	796	746	584	678	600	640
Bulgaria	1,470	1,312	1,476	1,293	1,276	1,241
Denmark	2,071	2,133	1,529	2,042	1,990	2,275
France	1,391	1,690	1,775	1,911	2,047	2,482
Germany	1,791	1,326	1,566	2,271	2,481	2,359
Greece	1,941	1,761	2,110	2,104	2,068	2,027
Italy	3,692	3,981	4,222	4,150	4,834	4,829
Netherlands	2,364	2,307	2,024	2,601	2,979	2,880
Poland	414	530	595	795	840	1,126
United Kingdom	375	463	625	1,129	1,438	1,026
Other	1,264	1,543	1,764	2,112	3,294	3,920
Total EU	**17,569**	**17,792**	**18,270**	**21,086**	**23,847**	**24,805**
New Zealand	**43,573**	**39,623**	**45,235**	**55,030**	**65,723**	**56,577**
United States	**10,246**	**16,200**	**16,709**	**11,658**	**20,987**	**28,147**
Norway	**1,789**	**1,787**	**1,745**	**1,134**	**1,090**	**916**
Switzerland	**185**	**196**	**180**	**208**	**210**	**232**
Other	**330**	**219**	**257**	**210**	**272**	**287**
Total cheese imports	**73,692**	**75,817**	**82,396**	**89,326**	**112,129**	**110,964**

Source: ABS (excludes goats cheese)

Acronyms

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ADHIS	Australian Dairy Herd Improvement Service
AMF	Anhydrous milk fat
AUST	Australia
BMP	Buttermilk powder
CAGR	Compound annual growth rate
CBE	Commercial butter equivalent, a unit of conversion of AMF to butter (1kg butter = 0.805 kg AMF)
cpl	Cents per litre
DA	Dairy Australia
DFMP	Dairy Farm Monitoring Project
(e)	Estimated data
EU	European Union
FNQ	Far north Queensland
Gipps	Gippsland
MD	Murray Dairy (including northern Victoria and NSW Riverina)
ML	Million litres
n.a.	Data not available
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)
NDFS	National Dairy Farmer Survey
(p)	Provisional data
pdr	Powder
QDAS	Queensland Dairy Accounting Scheme
(r)	Revised data
SEQ	South-east Queensland/north-east New South Wales
SMP	Skim milk powder
SNF	Solids non fat
TMR	Total mixed ration
UHT	Milk subjected to ultra-high temperature treatment to extend shelf life
USD	US dollar
WMP	Whole milk powder
WPC	Whey protein concentrate
WV	Western Victoria
YTD	Year to date

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