Dairy Australia

IN FOCUS 2019

THE AUSTRALIAN DAIRY INDUSTRY

THE AUSTRALIAN DAIRY INDUSTRY

35%
of milk production is exported

MAJOR EXPORT MARKETS tonnes

244,828 t Greater China

98,816 t Japan

70,119 t Singapore

61,184 t Malaysia

56,647 t Indonesia

ANNUAL PRODUCTION OF MAIN COMMODITIES

381,111 t Cheese

224,107 t Milk powders

73,322 t Butter

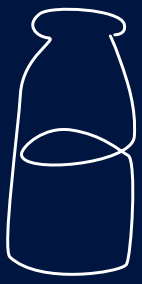
46,200
Dairy industry workforce

AVERAGE ANNUAL MILK PRODUCTION PER COW

6,169
litres

TOTAL ANNUAL MILK PRODUCTION

8,795
million litres



AUSTRALIAN MILK UTILISATION

38% Cheese

28% Drinking milk

21% Skim milk powder or butter

4% Whole milk powder

9% Other

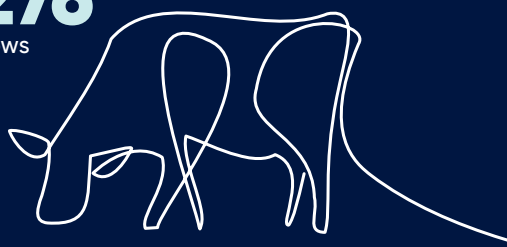
VALUE OF FARMGATE PRODUCTION

$4.4 billion

4th
Dairy is Australia's fourth largest rural industry

AVERAGE HERD SIZE

276
cows



ANNUAL PER CAPITA CONSUMPTION

98.6 litres
milk

13.5 kg
cheese

AUSTRALIAN DAIRY FARMS

5,213

AUSTRALIAN DAIRY HERD

1.44 million
cows

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FOREWORD

The dairy industry is the fourth largest rural industry in Australia and is a key sector of the agricultural economy. Dairy generated $4.4 billion in farmgate value in the 2018–19 financial year.

The *Australian Dairy Industry In Focus 2019* report provides a snapshot of Australia's role in the global dairy industry, based on statistics for the 2018–19 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 large country with a variety of climates. The 2018–19 year proved to be a challenging year for the dairy industry, with milk production contracting 5.7% to 8,795 million litres. A drought across the eastern seaboard and below average rain across most of Australia resulted in a decrease in feed available and a surge in the cost of feed and water. This saw cost of production grow significantly across all regions and contributed to the decline in milk production.

Dairy Australia responded early in the season as feed availability and pricing became an increasing concern. The Feed Shortage campaign provided a national level response with regional specific delivery. The campaign assisted farmers to assess seasonal settings and optimise spring feed production.

According to Dairy Australia's annual survey of dairy farmers conducted in February 2019, farmer confidence in the outlook for the industry was low and only 43% of farmers expected to make a profit during the year. This led to an increase in destocking on farm and farm exits. With a smaller national herd, milk production is forecast to contract further in the 2019–20 year.

While conditions on farm were difficult over the year, well balanced global market fundamentals have been conducive to improved farmgate milk prices. Global commodity prices remain strong and global demand for dairy is robust.

Australia is a significant exporter of dairy products to the rest of the world. It's the fourth largest exporter in terms of world dairy trade, with a 6% market share behind New Zealand, the European Union and the United States. In 2018–19 Australia exported 35% of milk produced, worth $3.2 billion.

One of the fastest growing export markets by volume for Australia in the last five years has been Greater China. Over 2018–19 Australian exports to Greater China (China, Hong Kong, and Macau) grew 6.1% to 244,000 tonnes. Greater China (China, Macau and Hong Kong) is also Australia's top export market in value terms, worth $1 billion in 2018–19.

Overall, Australian exports to Asia account for close to 85% of total exports and in 2018–2019 the total value of Australian exports was more than $3.2 billion.

Locally, dairy demand through the supermarket channel remained steady. Total drinking milk sales volumes (including flavoured and UHT) remain at 2.5 billion litres. Yoghurt continues to be the category of considerable growth for the dairy industry. In 2018–19 per capita consumption of yoghurt grew 5.5% to 9.5kg/person. This growth is underpinned by consumers desire to eat a healthy and well-balanced diet. Sales of premium priced single packsizes of yoghurt have also generated further value to the supply chain.

I trust you will find this latest issue of *Australian Dairy Industry In Focus* a valuable source of knowledge and information for 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 Australia's fourth largest rural industry. Based on farmgate value of production alone, the dairy industry generated A$4.4 billion in 2018–19. The dairy industry also acts as a major source of employment across regional areas. It is estimated that approximately 46,200 people were directly employed on dairy farms and by dairy companies. Associated transport, distribution, farm services and research and development activities represent further employment associated with the industry.

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

Most dairy production occurs in south-eastern Australia; however, all states have dairy industries that supply fresh drinking milk to nearby cities and towns. Dairying is a well-established industry across the temperate and some subtropical regions of Australia. A range of high-quality consumer products, including fresh milks, custards, yoghurts and specialty cheeses, are produced in most states. The manufacturing of dairy commodity products for export has become more concentrated in the south-east. These products include cheddar and mozzarella cheese and specialised milk powders and butterfats.

Throughout the 1990s the dairy industry experienced strong growth, but this 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 have undermined confidence in the outlook for many farmers, who are seeking reliable returns on which to build a longer-term future. As a result, there has been ongoing consolidation within both dairy farming and dairy processing. The number of dairy farms has continued to fall, down 8.5% in 2018–19 compared to the year prior. While farm numbers have fallen, 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 several 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	2019 (p)	CAGR % 9 years
Milk production (ML)	5,432	6,262	1.4	10,847	5.6	9,023	-1.8	8,795	-0.4
Dairy cows ('000)	1,880	1,654	-1.3	2,171	2.8	1,596	-3.0	1,440	-1.5
Farm numbers	21,994	15,396	-3.5	12,896	-1.8	7,511	-5.3	5,213	-5.1
Value of farm production* ($M)	3,625	3,388	-0.7	4,297	2.4	$3,366	-2.4	$4,374	3.8
Per capita consumption – (milk equiv)	239	245	0.2	274	1.1	301	0.9	321	0.9
Export value* ($M)	1,094	613	-5.6	3,918	20.4	$2,391	-4.8	$3,228	4.4
Export share of production (%)	22	31		54		45		35	

*Expressed in 2018–19 dollars.
CAGR = Compound Annual Growth Rate
Source: ABS, ADC, DA, state authorities

A world competitive industry

Australian dairy farmers operate in an open market and have done so since industry deregulation in 2000–01. The nature of this open market means Australia's domestic dairy market is linked to international trends with minimal government intervention. Australia is both a major exporter and importer of dairy products (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.

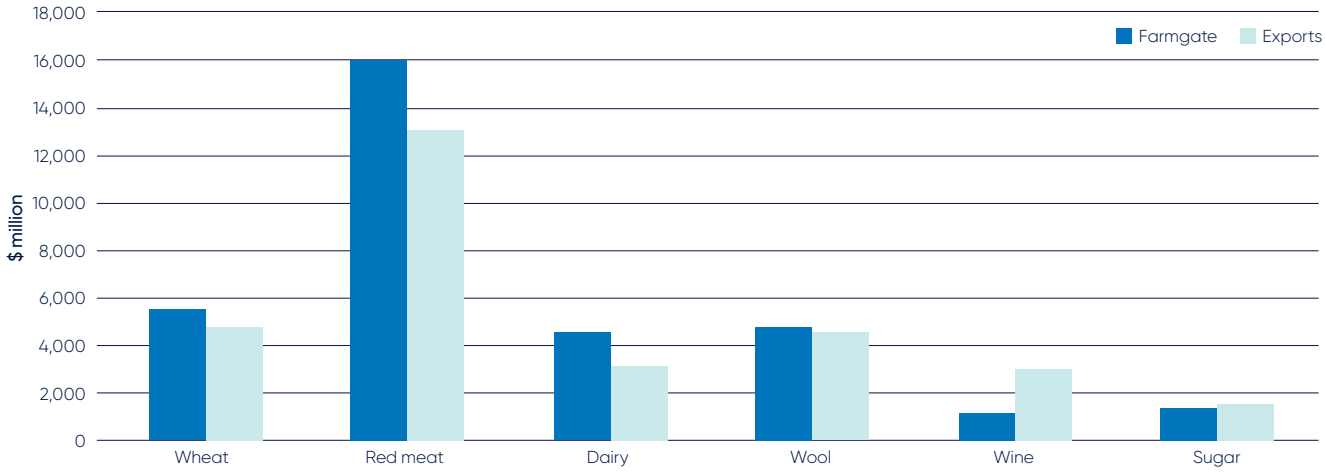
Australian dairy farmers received an average of close to US$37 per 100 kg of milk in 2018–19. This price is below that of major producing countries in the European Union and New Zealand. Although it is above the price farmers in the United Stated got paid for their milk last year. This relatively low price partly reflects lower levels of government support provided to Australian farmers compared to other counterparts.

Historically, 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. This has resulted in increased expenditure on purchases of supplementary feed and temporary water allocations – particularly in northern Victoria and southern New South Wales. 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 milk that is exported, and Australia's share of international dairy trade, has contracted.

As shown in Figure 2, the price received by farmers around the world has continued to converge. Farmgate prices now more closely reflect global dairy commodity price trends due to the removal of many market distorting industry policies, progressive deregulation and increased global trade.

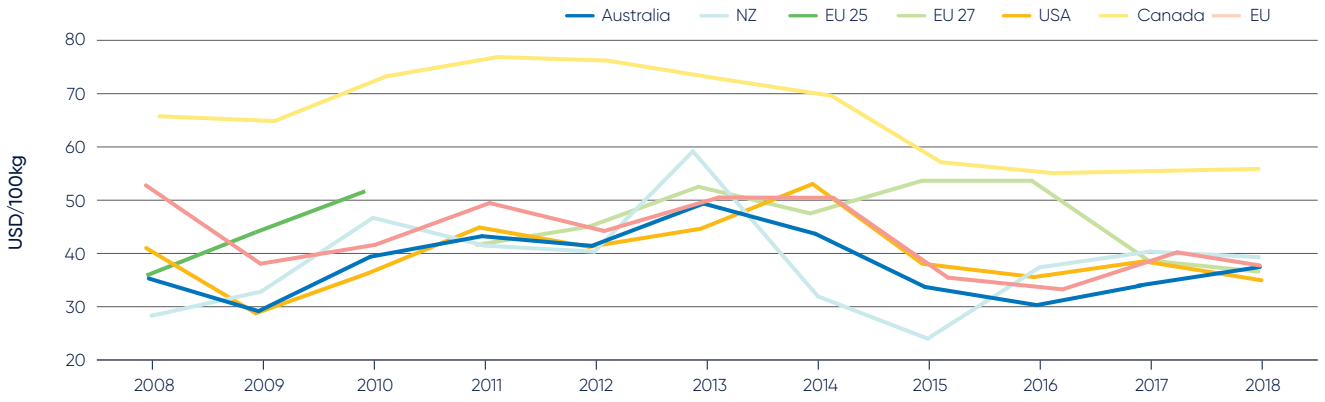
Whilst broadly tracking other producers, Canada's dairy farmers operate in a highly regulated environment. This system determines prices, production and imports according to a scheme known as supply management.

Figure 1 Farmgate value vs export sales value in 2017–18



Source: ABARES Australian Commodities Quarterly Report

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



Source: Dairy Australia

FARM FACTS

There are dairy farms located in all states in Australia and most of milk production takes place in the south-east corner of the country. South-east Australia's climate and natural resources are generally favourable to dairying and allow the industry to be predominantly pasture-based. In a year of 'normal' seasonal conditions, approximately 60%–65% of cattle feed requirements comes from grazing. This results in cost efficient, high-quality milk production.

Most farms are 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 continues to be less common in Australia, but, the use of supplementary feed – grains, hay and silage – is widespread. Supplementary feeding 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.

The 2019 Dairy Australia National Dairy Farmer Survey showed that nearly all dairy farmers engaged in some level of supplementary feeding. In 2018–19 the national average was around 1.6 tonnes per cow and year, unchanged from the last two years. Feeding moderate to high levels of concentrates remains the most common feed system and the proportion of dairy farmers doing so was steady across Australia. Supplementary feeding did however increase in Western Australia over the year, up to an average of 2.3 tonnes per cow per year.

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

Since 1979–80 the number of dairy farms in Australia has fallen by almost three quarters, to 5,213 in 2018–19. The trend in farm numbers has previously followed 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. Other factors, such as challenging seasonal conditions also affect exits from the industry. This was evident in 2018–19 following a challenging year on farm.

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	690	4,141	421	246	151	430	**6,079**
2016–17	661	3,889	406	240	148	427	**5,771**
2017–18	626	3,881	393	228	159	412	**5,699**
2018–19 (p)	575	3,516	356	212	150	404	**5,213**

Source: State Milk Authorities

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.

While the number of farms across Australia has decreased, the average herd size is growing. In 1985 the average herd size was 93 cows and in 2018–19 it had grown to 276. 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. In 2018–19 the national herd decreased as challenging seasonal conditions resulted in an increase in farm exits and a move to smaller herd sizes on many farms.

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 6,169 litres in 2018–19. The average yield figure varies 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 pre-competitive 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	164	975	86	71	64	160	**1,520**
2017–18 (r)	166	1,023	85	67	56	149	**1,547**
2018–19 (e)	155	940	75	66	56	148	**1,440**

Source: 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, the Government has no legislative control over the price milk processing companies pay farmers for 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 various factors including market and product mix, marketing strategies, 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 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 35% of local milk exported as butter, cheese and milk powders, which must compete with other countries' exports. World dairy prices also influence the additional 38% of production that goes into locally consumed butter, cheese and milk powders, which must be competitively priced against imports. More than 70% 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. In 2018–2019 this 'weakness' improved Australia's cost-competitiveness on the international market.

Table 4 Average annual milk production per cow (litres)

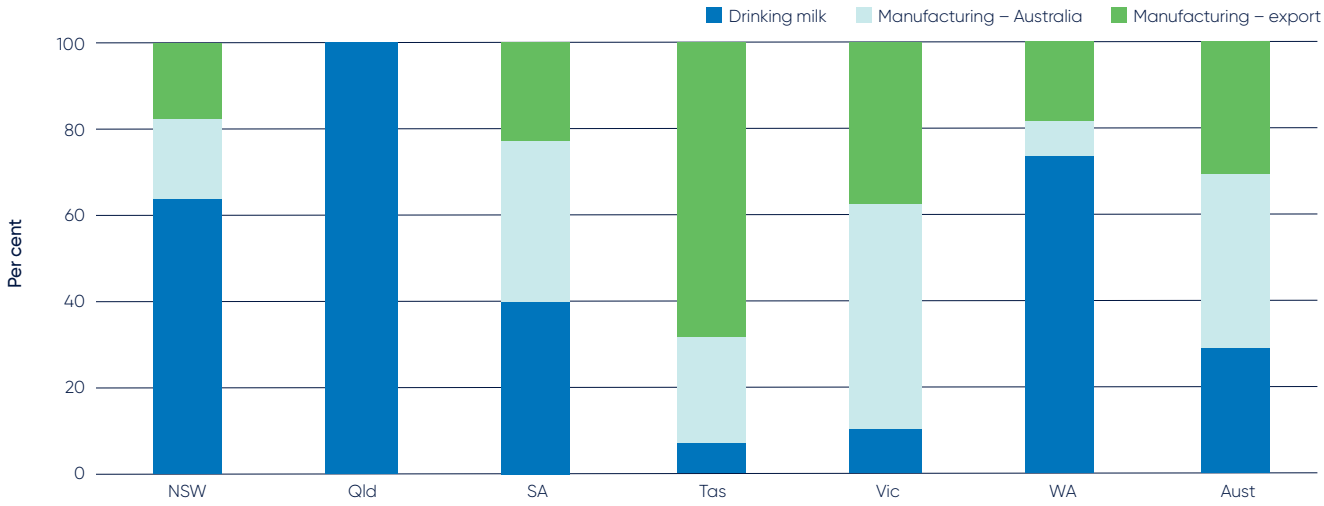
	NSW	Vic	Qld	SA	WA	Tas	Aust
1979–80	2,870	3,012	1,984	3,163	3,105	2,958	**2,848**
1989–90	3,602	3,920	3,122	3,934	4,205	3,791	**3,781**
1999–00	4,827	4,989	4,349	6,790	6,338	4,381	**4,996**
2005–06	5,039	5,221	4,076	5,791	5,369	4,581	**5,108**
2006–07	5,151	5,261	4,033	6,417	5,235	4,696	**5,182**
2007–08	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	5,542	5,639	4,640	6,896	5,443	5,578	**5,615**
2014–15	6,572	5,795	4,388	7,411	5,752	6,400	**5,917**
2015–16	6,721	5,621	4,644	7,634	6,669	5,981	**5,841**
2016–17	6,431	5,749	4,823	6,520	6,342	5,511	**5,812**
2017–18 (r)	6,948	6,058	4,670	7,196	6,199	5,805	**6,108**
2018–19 (e)	6,617	5,562	4,363	7,414	6,674	6,107	**6,169**

Source: Dairy manufacturers, ABS and Dairy Australia

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

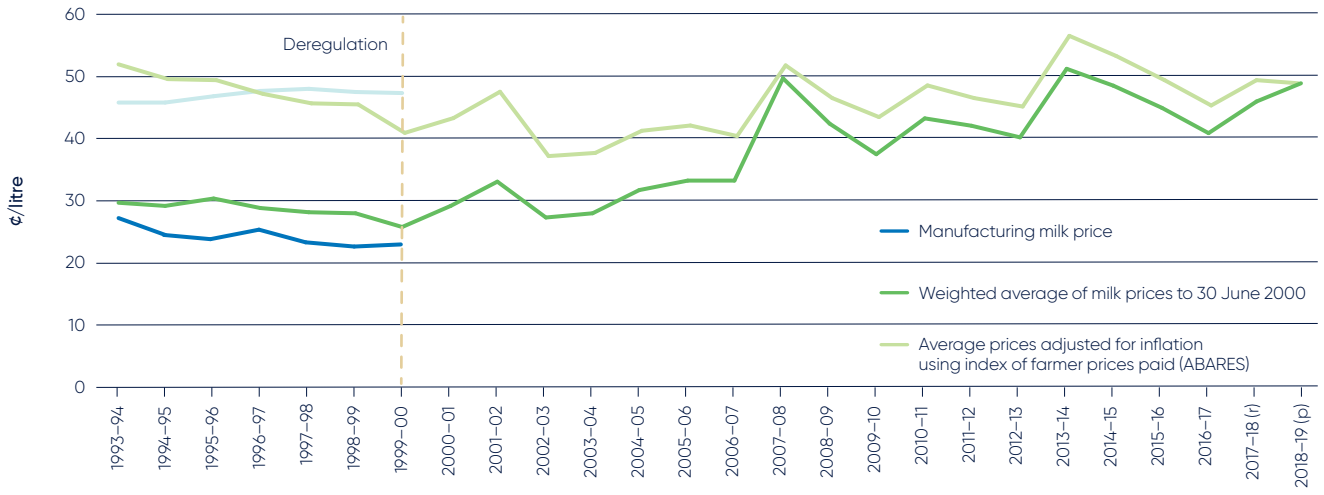
As shown in Figure 3, milk for processing accounts for most milk produced in the south-east of Australia. Hence, the average farmgate milk price received in these regions will tend to follow global markets and export returns. Most farmers in exporting regions receive a 'blended' price that incorporates 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 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 2018–19



Source: Dairy Australia

Figure 4 Factory paid milk prices



Source: Dairy manufacturers and ABARES

Table 5 Indicative factory paid milk prices by state

		2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
NSW	¢/litre	51.0	52.8	51.0	49.0	50.5	54.7
	$/kg milk solids	7.10	7.31	7.06	6.81	6.99	7.67
Vic	¢/litre	51.0	47.1	42.8	38.0	44.2	48.2
	$/kg milk solids	6.81	6.24	5.68	5.04	5.87	6.40
Qld	¢/litre	53.4	57.4	58.5	60.0	57.7	61.0
	$/kg milk solids	7.36	7.84	7.99	8.22	7.84	8.31
SA	¢/litre	49.6	46.1	42.5	37.1	42.9	47.2
	$/kg milk solids	7.02	6.53	6.03	5.19	6.06	6.62
WA	¢/litre	46.8	51.0	52.3	50.6	49.9	50.2
	$/kg milk solids	6.63	7.17	7.32	7.06	6.97	7.05
Tas	¢/litre	54.1	49.6	43.7	39.0	47.0	50.3
	$/kg milk solids	6.96	6.33	5.61	4.97	6.01	6.37
Aust	**¢/litre**	**51.2**	**48.5**	**44.9**	**40.9**	**46.0**	**49.7**
	$/kg milk solids	**6.89**	**6.49**	**6.01**	**5.46**	**6.14**	**6.64**

Source: Dairy manufacturers

Farm business performance

The Dairy Farm Monitor Project (DFMP) and the Queensland Dairy Accounting Scheme (QDAS) records financial and production data of participating 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 south-west Victoria, and is in its thirteenth year.

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
NSW	5.94	5.72	5.75	6.25	7.04
Vic	4.47	4.70	4.15	4.51	5.39
Qld	6.36	6.27	6.18	6.63	7.37
SA	5.28	5.31	5.09	4.89	5.38
WA	5.29	5.46	5.33	5.73	5.95
Tas	4.47	4.70	4.19	4.36	4.80

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Eastern	4.19	4.33	3.74	4.24	5.03
Northern	4.75	5.09	4.73	4.74	6.12
Western	4.48	4.67	3.98	4.56	5.04

Source: Dairy Farm Monitor Project

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
NSW	2.03	2.34	2.01	1.66	1.60
Vic	2.06	1.34	1.58	1.76	1.30
Qld	2.11	2.36	2.59	2.05	2.07
SA	1.79	1.49	1.50	1.95	1.67
WA	2.70	2.76	2.51	2.28	2.09
Tas	2.17	1.40	1.54	1.99	1.77

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Eastern	2.17	1.49	1.72	1.91	1.42
Northern	1.79	1.06	1.11	1.51	0.73
Western	2.22	1.46	1.89	1.87	1.76

Source: Dairy Farm Monitor Project

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.

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.

The 2018–19 season proved challenging for most regions across the country, with drought pushing high feed and water prices, particularly in the drought affected regions of New South Wales, Queensland, northern Victoria and east Gippsland. This resulted in a decline in milk production across the country.

In New South Wales, conditions were very dry across the state, especially north of Wagga. With the exception of some southern border areas and across the south coast, most of the state was exposed to severe drought, which affected farmers profitability.

Queensland also experienced seasonally challenging conditions. The hardest hit areas were inland dairy regions, particularly the Darling Downs, where many dryland crops failed or were not planted, due to dry, hot conditions. Northern Queensland experienced drought for the first four months of the year, followed by very wet conditions for the remaining eight, causing milk production to drop.

In Victoria, northern Victoria experienced conditions similar to parts of New South Wales, with drought the contributing factor. Gippsland had a good spring which allowed most farmers to build fodder reserves, but this was followed by a dry summer and a failed autumn. This severely affected the performance of farm businesses. South-west Victoria had average to above average rainfall south of the highway, but north and western regions reported a poor autumn break.

South-east of South Australia experienced conditions like south-west Victoria, with a good spring and dry summer. Further north, the state reported a drier spring, with the region around Barossa Valley having very poor conditions.

Tasmanian seasonal conditions were more favourable, with an extended spring, after a slow start. High grain prices were the main reason for a slight decrease in production on farms, with many farmers choosing to feed less.

A timely late spring helped to replenish fodder reserves in Western Australia, but high grain and fodder prices still affected the region and farmers margins.

Right across the country, high fodder, grain and water prices considerably impacted farm performances, particularly in regions and businesses exposed to these markets.

For a longer national time series, the annual ABARES Farm Survey estimates the financial performance of Australian dairy farms, which Dairy Australia previously reported. It should be noted that there are several differences in methodology between the DFMP and the annual ABARES Farm Survey, meaning the series may not be directly comparable.

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
NSW	1.21	1.01	0.82	0.33	0.51
Vic	1.09	0.10	0.69	0.66	0.25
Qld	0.84	0.96	1.20	0.55	0.09
SA	0.57	0.74	0.70	1.17	0.83
WA	2.08	1.97	1.92	1.31	1.10
Tas	1.78	0.90	0.94	1.32	1.11

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Eastern	1.20	0.26	0.65	0.84	0.51
Northern	0.92	-0.07	0.37	0.67	-0.45
Western	1.14	0.11	1.06	0.48	0.71

Source: Dairy Farm Monitor Project

Table 12 Average return on assets by state (%)

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
NSW	3.1	2.7	2.1	1.2	1.0
Vic	4.6	0.3	2.3	2.5	0.7
Qld	2.5	2.8	3.6	1.8	0.6
SA	3.3	2.9	2.6	4.4	2.9
WA	6.3	6.4	6.5	3.8	2.9
Tas	7.4	3.8	3.6	5.1	3.3

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 13 Average Victorian regional return on assets (%)

	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Eastern	4.1	1.0	2.1	3.0	1.7
Northern	5.2	-0.5	1.0	2.6	-1.7
Western	4.6	0.3	3.9	1.9	2.3

Source: Dairy Farm Monitor Project

MILK PRODUCTION

Over the past three decades farm numbers have steadily decreased whilst average farm size has grown. This has been due to an increase in cow numbers and improved cow yields – up until the major widespread 'Millennium drought' in 2002–03. The next 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 the industry's 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.

The 2018-19 year proved to be very challenging on most farms in Australia. Dry seasonal conditions combined with high cost of feed and water substantially impacted milk production. The drought across the east coast increased demand for feed and saw an unprecedented movement of feed supplies across the country. As supply dwindled, prices increased and placed further pressure on margins, despite a favourable farmgate milk price in most regions. This resulted in a substantial drop in milk production over the year, down 5.7% to 8,795 million litres.

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 key south-eastern 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.

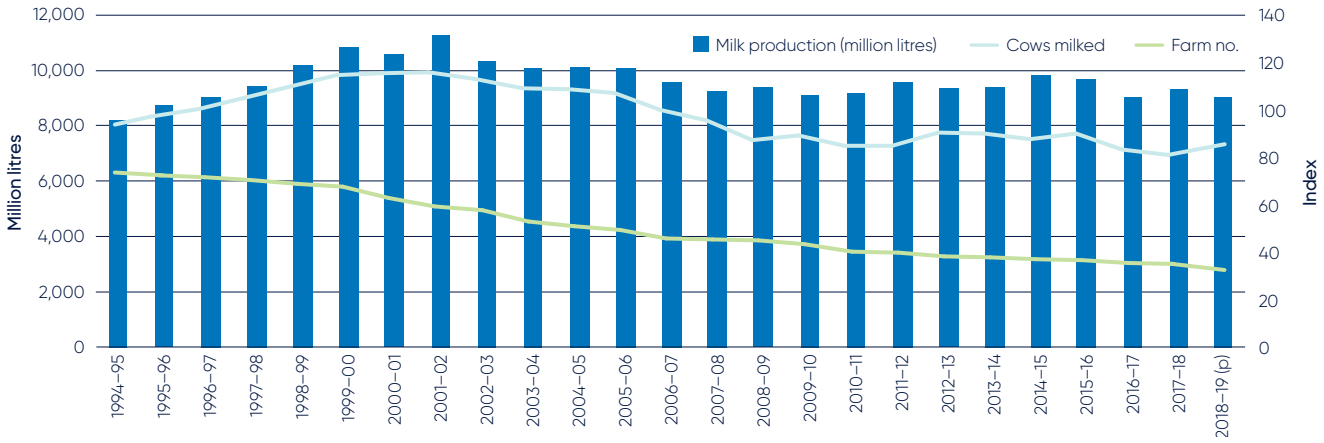
See Appendix 4 for more details on the seasonality of milk production by state dairying regions.

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	1,124	6,174	446	525	342	810	**9,421**
2014–15	1,184	6,411	422	530	367	891	**9,805**
2015–16	1,198	6,249	421	538	392	883	**9,681**
2016–17	1,141	5,732	425	497	385	836	**9,016**
2017–18 (r)	1,144	5,979	399	505	385	913	**9,325**
2018–19 (p)	1,082	5,574	359	496	374	910	**8,795**

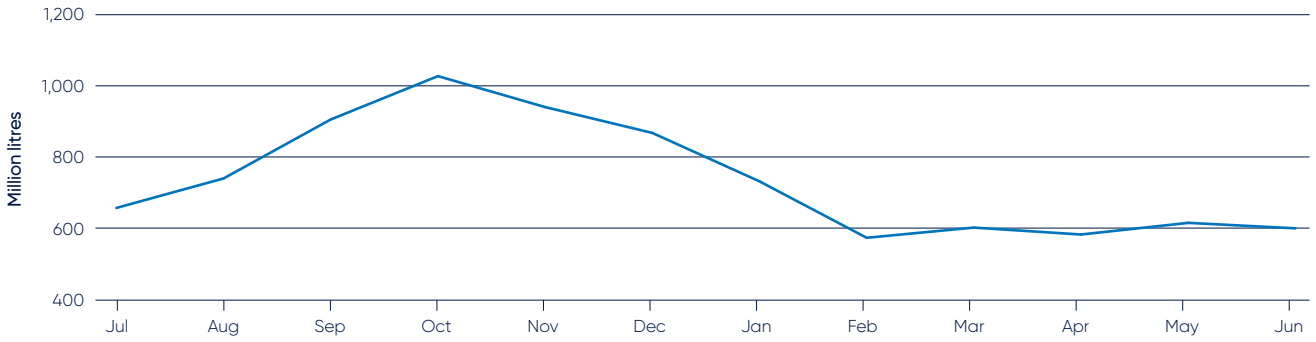
Source: Dairy manufacturers

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



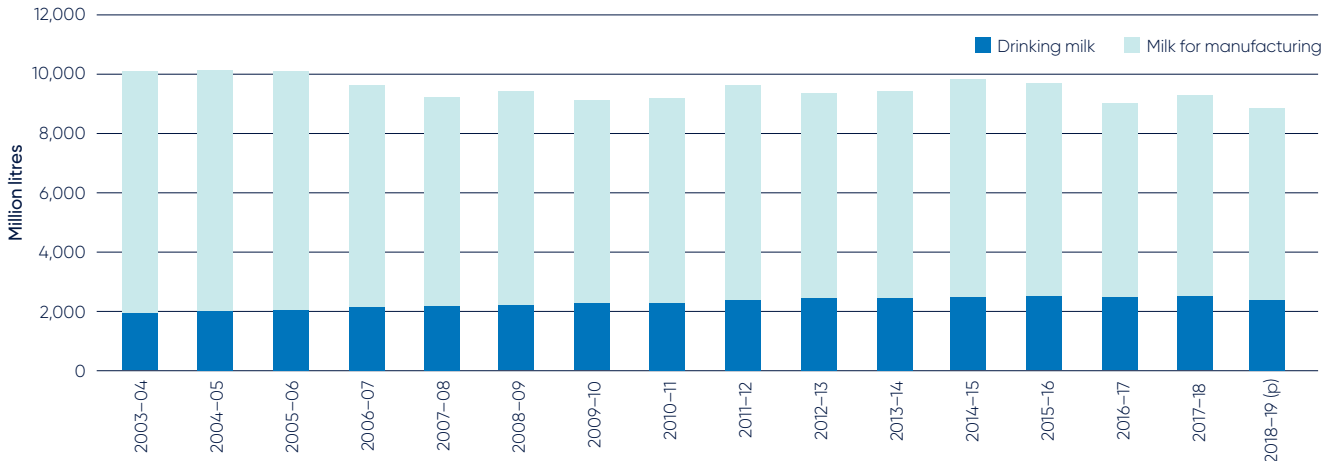
Source: Dairy manufacturers, ABS, state authorities and Dairy Australia

Figure 6 Seasonality of milk production in Australia in 2018–19 (million litres)



Source: Dairy manufacturers

Figure 7 Drinking and manufacturing milk production



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. Traditionally protein has been the most valuable component.

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

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 2018–19, 28% of Australia's production was used for drinking milk, compared to 18% in 2001–02. Last financial year, 38% 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 35% in 2018–19, as shown in Figure 7. Over recent years Australia's imports of dairy products for local consumption have increased. This has enabled the Australian dairy industry to continue to export a large share of its milk production, despite having a larger domestic market and lower milk production.

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

	NSW	Vic	Qld	SA	WA	Tas	Aust
Milkfat							
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	3.93	4.12	4.05	3.80	3.91	4.31	4.09
2018–19 (p)	3.89	4.12	4.05	3.84	3.90	4.39	4.10
Protein							
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	3.30	3.41	3.31	3.28	3.24	3.51	3.39
2018–19 (p)	3.25	3.40	3.29	3.29	3.22	3.50	3.38

Source: Dairy manufacturers

DAIRY MANUFACTURING

There is a wide range of companies operating in the Australian dairy industry. This includes national and multinational companies, both privately owned and publicly listed. Farmer owned cooperative no longer dominate the Australian industry.

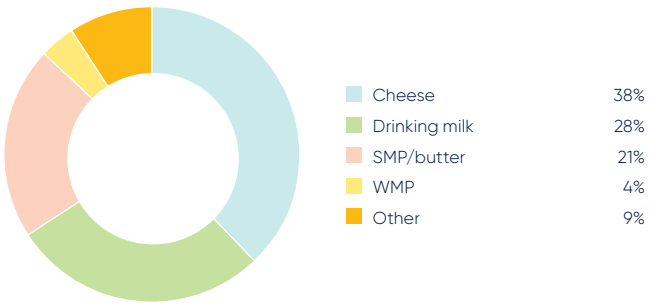
The decline in total milk production over the past two decades reduced the need for Australian dairy companies to invest in processing capacity, at least in the short to medium term. At the same time, the age of existing plants and the need to rationalise production has seen some processors close plants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

In 2018–19 the milk processing sector underwent considerable change. This has seen several long-term investment decisions being made or otherwise changed. While limited milk supplies and high farmgate pricing slowed corporate investment over the year, some major developments occurred. Saputo Dairy Australia announced intentions to expand their operations in the Australian dairy industry by acquiring Lion Dairy & Drinks' speciality cheese brand. This purchase remains subject to ACCC approval but is forecast to occur in 2019–20. Freedom Foods Shepparton plant, in Victoria, came online and began production of Lactoferrin during the second half of the year. As competition for a smaller national milk pool intensified, incremental consolidation in processing capacity also continued. In February Bega Cheese announced the closure of their cheese processing plant in north Coburg, Victoria. In May, Fonterra Australia made the decision to close their Dennington factory, in south-west Victoria. The factory is forecast to cease all production during 2019–20. 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 Saputo Dairy Australia).

Around 48% of manufactured product (in milk equivalent terms) was exported and the remaining 52% sold on the Australian market in 2018–19. This contrasts with drinking milk, where most was consumed in the domestic market.

Cheese is consistently the major product stream, accounting for 38% of Australia's milk production. 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 28% and 21% of Australian milk.

Figure 8 Australian milk utilisation in 2018–19



Source: Dairy Australia

DAIRY MARKETS

Australia's milk production exceeds the volume required for domestic consumption and this has traditionally created a marketable surplus destined for export markets. The share of total production destined for export 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 larger domestic market due to population growth. This has resulted in less milk available for export.

Australia accounts for less than 2% of the world's estimated milk production but remain 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.

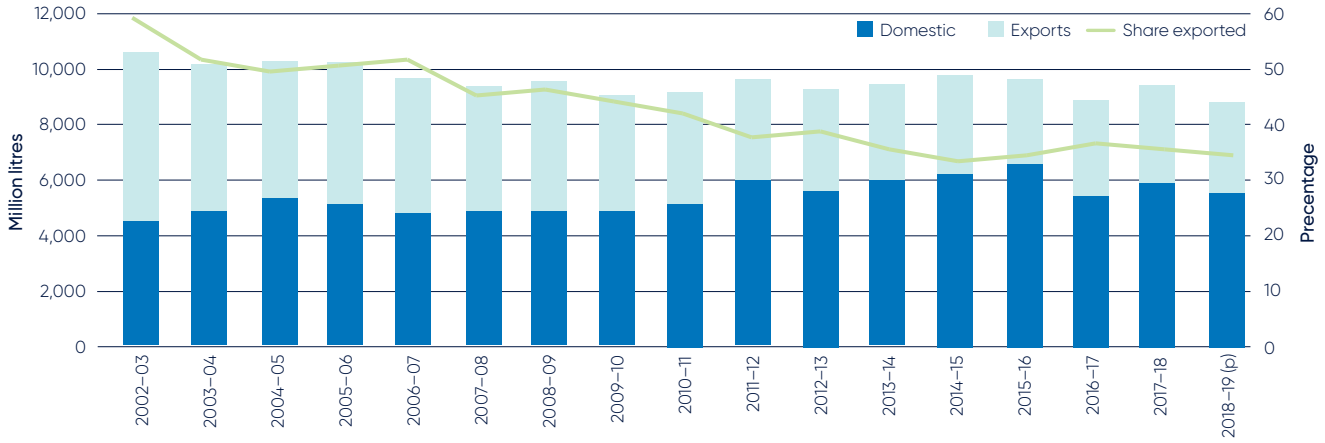
Since a few years back, Greater China (including China, Hong Kong and Macau) is Australia's largest market, accounting for 30% of exports by volume. Japan remains a vital trade partner for Australian exporters, as a mature, high-value market with long-established business relationships. Australian exports to Asia account for close to 85% of total exports and in 2018–19 the total value of Australian exports was more than A$3.2 billion.

Australia's concentration of exports in Asia reflects the 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). Increased competition in key importing markets has also played a role in creating this concentration. 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 several decades.

Australia's top five export markets by value in 2018–19 were Greater China, Japan, Indonesia, Singapore and Malaysia. The top five by volume differed only slightly by order: Greater China, Japan, Singapore, Malaysia and Indonesia. One of the fastest growing export markets by volume for Australia in the last five years has been Greater China.

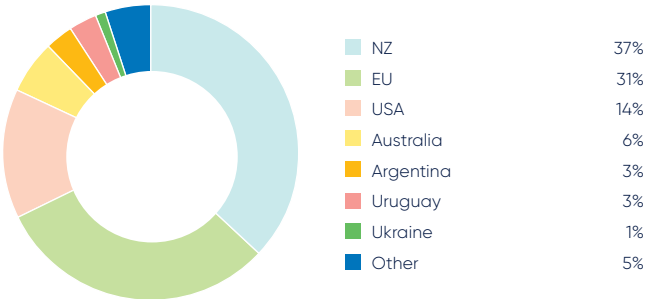
See Appendix 8 for detailed tables of Australia's export markets.

Figure 9 Australian production and exports (milk equivalents)



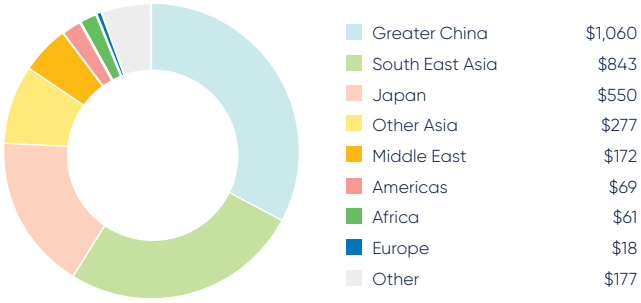
Source: Dairy manufacturers and ABS

Figure 10 Exporters' share of world dairy trade in 2018 (milk equivalents)



Source: Dairy Australia

Figure 11 Australian exports by region in 2018–19 (A$ million)



Source: ABS

Table 16 Australian dairy exports by product by region in 2018–19 (A$ million)

	SE Asia	Other Asia	Europe	Middle East	Africa	Americas	Other	Total
Butter/AMF	51	52	1	2	2	23	3	133
Cheese	182	687	4	45	23	13	33	988
Milk	98	148	0	0	0	0	23	268
SMP	231	206	0	39	1	0	5	482
WMP*	53	423	0	8	0	6	9	500
Other	228	371	13	78	36	27	104	857
Total	**843**	**1,887**	**18**	**172**	**61**	**69**	**177**	**3,228**

*Also includes infant powder.
Source: ABS

Table 17 Top 10 Australian export destinations in 2018–19

Country	Volume (tonnes)	% of total	Country	Value (A$ million)	% of total
Greater China*	244,828	30%	Greater China*	1,060	33%
Japan	98,816	12%	Japan	550	17%
Singapore	70,119	9%	Indonesia	192	6%
Malaysia	61,184	7%	Malaysia	182	6%
Indonesia	56,647	7%	Singapore	179	6%
Philippines	40,219	5%	New Zealand	130	4%
Thailand	31,666	4%	Thailand	113	4%
New Zealand	31,115	4%	Philippines	109	3%
Taiwan	25,679	3%	South Korea	100	3%
United Arab Emirates	25,083	3%	United Arab Emirates	93	3%

*Includes China, Hong Kong and Macau.
Source: Dairy Australia and ABS

AUSTRALIAN CONSUMPTION OF DAIRY PRODUCTS

The main Australian consumer dairy products are drinking milk, cheese, butter/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 98.6 litres. This marks a small decline over recent years; however, consumption remains high compared to other developed countries. This is possibly 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 13.5 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 foodservice, as well as growth in specialist cheese varieties.

Annual per capita consumption of butter in Australia is around 4.0 kg. Consumers are attracted to the natural characteristics of butter, along with its superior taste and cooking functionality. Findings in health and nutritional science have also led to a changing consumer perception of the health risks associated with saturated fats and butter. This has been important in underpinning sales volumes of the category.

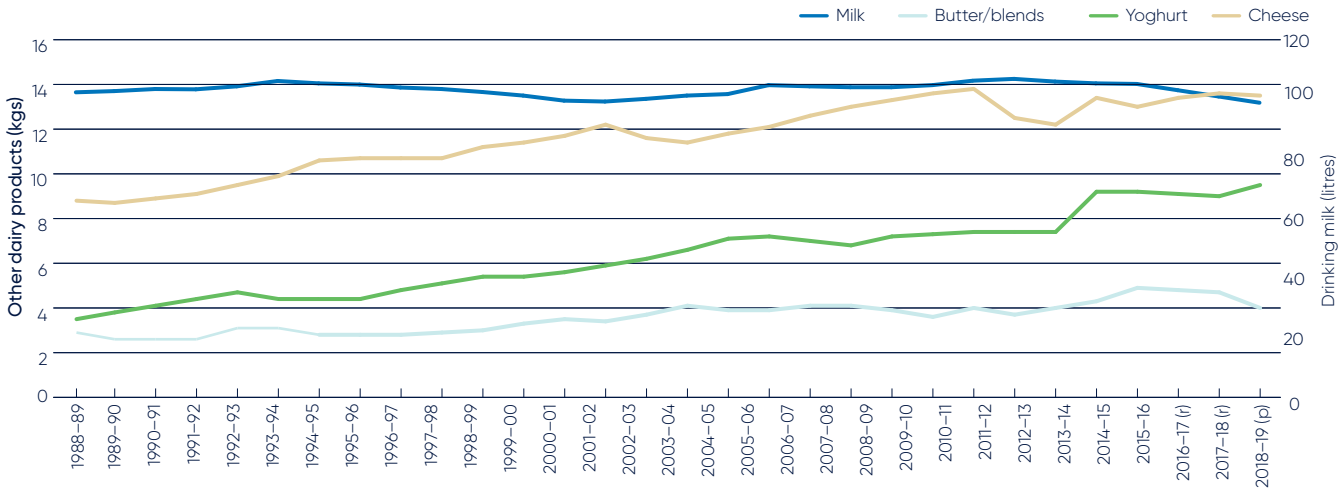
Yoghurt is a healthy snack for consumers, combining both convenience and health attributes, with per capita consumption of 9.5 kg per year. Per capita consumption of yoghurt has grown strongly over the last few years. A greater desire for more natural healthy products and increased awareness around the 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 (l)	Cheese (kg)	Butter/ blends (kg)	Yoghurt* (kg)
2014–15	105.1	13.5	4.3	9.2
2015–16	104.9	13.6	4.9	9.2
2016–17 (r)	102.8	13.4	4.8	9.1
2017–18 (r)	100.7	13.6	4.7	9.0
2018–19 (p)	98.6	13.5	4.0	9.5

*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 and Dairy Australia

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 most 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 but steadied in recent years. 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.

The share of fresh white full cream milk, as a percentage of the total fresh white milk market, has increased, while sale volumes of modified milk have declined. Whilst white (unflavoured) milk still accounts for most of drinking milk sold, flavoured milk has grown its market share. Flavoured milk is an important source of revenue due to its 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 several major players in the Australian drinking milk market, with the two largest being Lion Dairy & Drinks (with the Pura and Dairy Farmers brands) and Lactalis (former Parmalat with the Pauls and Harvey Fresh brands). Fonterra Australia and Saputo Dairy Australia (previously Murray Goulburn) are relatively recent entrants to the drinking milk market after taking major supermarket private label contracts in Victoria and New South Wales. Brownes (Western Australia) 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 2018–19 Australia exported almost 240 million litres of milk, a 9% increase compared to last year. This product was predominantly UHT, although some companies are now shipping containerised 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 (r)	1,311	617	80	246	266	2,520
2016–17 (r)	1,365	567	71	247	258	2,508
2017–18 (r)	1,398	539	64	242	252	2,495
2018–19 (p)	1,417	521	63	234	249	2,484

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	723	635	579	227	284	60	**2,508**
2017–18	719	627	583	224	282	60	**2,495**
2018–19 (p)	710	637	581	219	278	59	**2,484**

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

CHEESE

Australia produced approximately 381,000 tonnes of cheese in 2018–19, up 0.9% from the year prior. This is close to the production volumes of the early 2000s. A significant factor impacting production volumes in more recent years, has been dairy companies opportunistically changing export product mixes to take advantage of favourable movement in international commodity prices. In 2018–2019 several dairy companies focused on cheese production as international price trends made cheese production an attractive stream for revenue.

Cheese is a major product for the Australian dairy industry, utilising more than a third of Australian milk. In 2018–19 Australia exported close to 166,000 tonnes of cheese, worth approximately $987 million. Australia is also a major importer of cheese and over the past ten years imports have grown 60 per cent. Imports from New Zealand totalled almost 43,000 tonnes, with the European Union and United States largely accounting for the balance.

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 56 countries around the world last year. Japan continues to be Australia's most important overseas cheese market and accounted for more than 51% of cheese exports in 2018–19. 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 77% in 2018–19.

Table 21 Australian cheese production by type of cheese (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Cheddar	151,721	178,836	171,590	186,145	202,032	196,013
Semi hard	44,749	43,938	49,559	51,703	60,511	64,467
Hard grating	13,762	9,885	5,040	5,993	4,022	8,417
Fresh	95,764	104,992	110,767	97,054	103,510	104,586
Mould	5,504	6,491	7,300	7,757	7,652	7,628
Total cheese	**311,500**	**344,142**	**344,257**	**348,652**	**377,727**	**381,111**

Source: Dairy manufacturers

BUTTER

In 2018–19 Australia produced approximately 73,000 tonnes of butter and anhydrous milkfat (AMF) in commercial butter equivalent terms (CBE). AMF is butter with the water removed, like ghee. It is primarily produced for export and domestic food manufacturing applications, such as bakery and confectionery. While these sectors also use butter, most 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 55% of the domestic sales of Australian dairy spreads were through supermarkets. In 2018–19 supermarket sales volumes decreased 2% to 48,000 tonnes, following a 20% increase in average retail price. Changing consumer attitudes towards butter and saturated fats have seen butter increase its 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 2018–19. Approximately 90% of the 38,000 tonnes of butter and butteroil imported into Australia came from New Zealand. Most 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 increased roughly 30% last year, up to 20,000 tonnes, as some Australian processors prioritise butter production. 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)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Butter/butter blends (CBE)	101,705	101,641	99,015	85,459	79,749	61,177
AMF (CBE)	14,417	16,943	19,610	14,539	12,949	12,145

Source: Dairy manufacturers

Table 23 Australian exports of butter and AMF (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Butter	39,790	30,755	23,051	14,409	9,721	13,203
AMF (CBE)	9,460	11,867	10,404	6,896	6,354	8,111

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 Chobani. In the yoghurt market there is an ongoing trend 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, more 'natural' and attractive to health-conscious consumers. Yoghurt sales of the unflavoured, traditional types have overtaken those of sweetened and flavoured yoghurts, to be the most commonly sold yoghurt product.

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. Like with 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 2018–19 SMP accounted for close to 80% of milk powders produced.

In recent years, dairy companies have had access to a smaller national milk pool and a wider variety of markets. As a result, 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 done so. This impacts local production mixes because the bulk of Australia's milk powders (92%) is sold into export markets.

Only about 5%-10% 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 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 exports.

Australia also imported roughly 78 million tonnes of milk powders in 2018–19. Imports of milk powders have increased over the past few years, but, dropped almost 5% 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 90% of SMP and WMP exports were destined in 2018–19.

See Appendix 8 for more details on milk powder exports.

Greater China was the largest single export market for Australian-produced SMP in 2018–19, followed by Indonesia, Middle East, Singapore, and Thailand; out of some 27 export destinations.

Greater China was the largest single export market for Australian-produced WMP, followed by Thailand, Bangladesh, Singapore, Sri Lanka, Taiwan; out of a total of 36 export destinations.

Table 24 Australian production of milk powders (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Skim milk powder	210,964	242,266	255,792	222,109	190,926	176,573
Whole milk powder*	126,322	96,840	66,125	63,242	82,499	47,534

*Includes infant powders.
Source: Dairy manufacturers

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

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Asia	107,956	150,124	147,843	135,998	137,629	136,671
Middle East	31,429	26,927	23,249	14,057	11,630	12,559
Africa	1,392	386	5,829	1,428	5,761	236
Pacific	1,584	5,376	3,857	1,775	1,586	1,737
Americas	244	1,473	552	47	0	0
Europe	563	540	43	0	0	0
Total	**143,169**	**184,825**	**181,374**	**153,305**	**156,606**	**151,203**

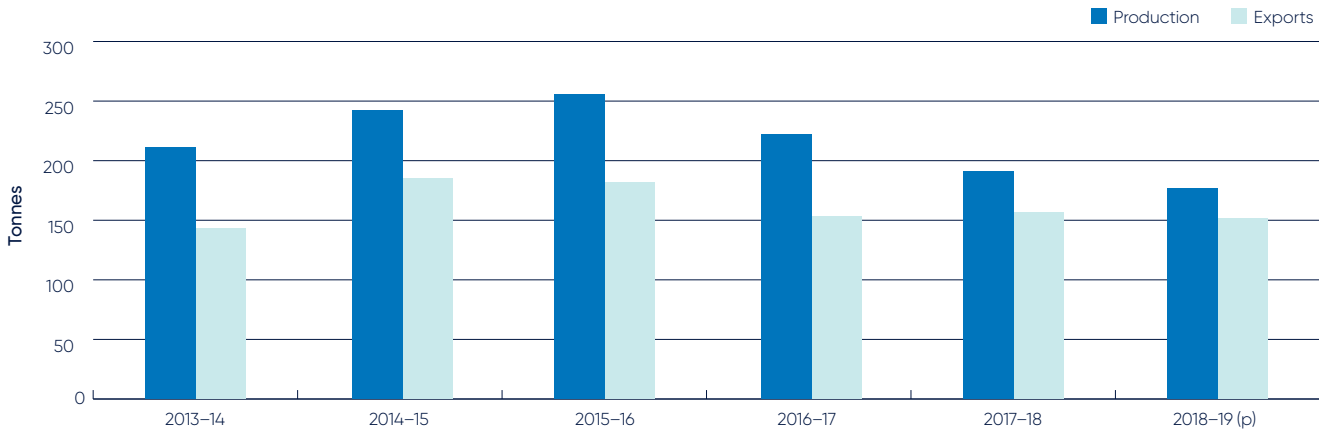
Source: ABS

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

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia	91,226	57,963	62,548	77,157	73,851	49,926
Middle East	3,872	6,510	5,050	4,158	4,467	1,953
Africa	3,344	2,761	368	243	5,558	67
Pacific	1,371	1,634	4,348	2,083	2,170	1,869
Americas	2,089	6,031	4,227	3,063	1,313	1,324
Europe	345	230	511	104	200	0
Total	**102,247**	**75,129**	**77,052**	**86,808**	**87,559**	**55,139**

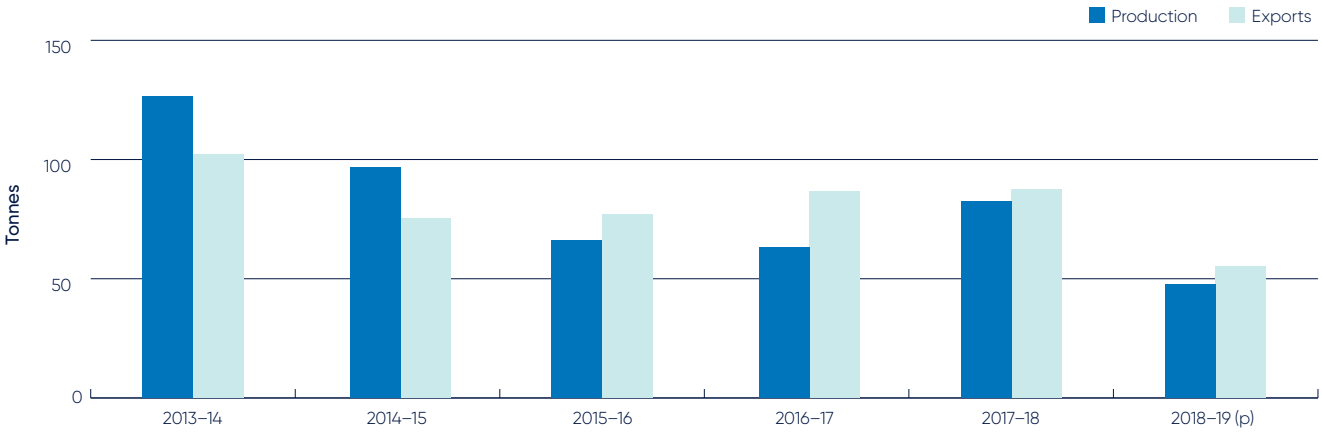
*Includes infant powders.
Source: ABS

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



Source: Dairy manufacturers and ABS

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



Source: Dairy manufacturers and ABS

WHEY PRODUCTS AND CASEIN

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

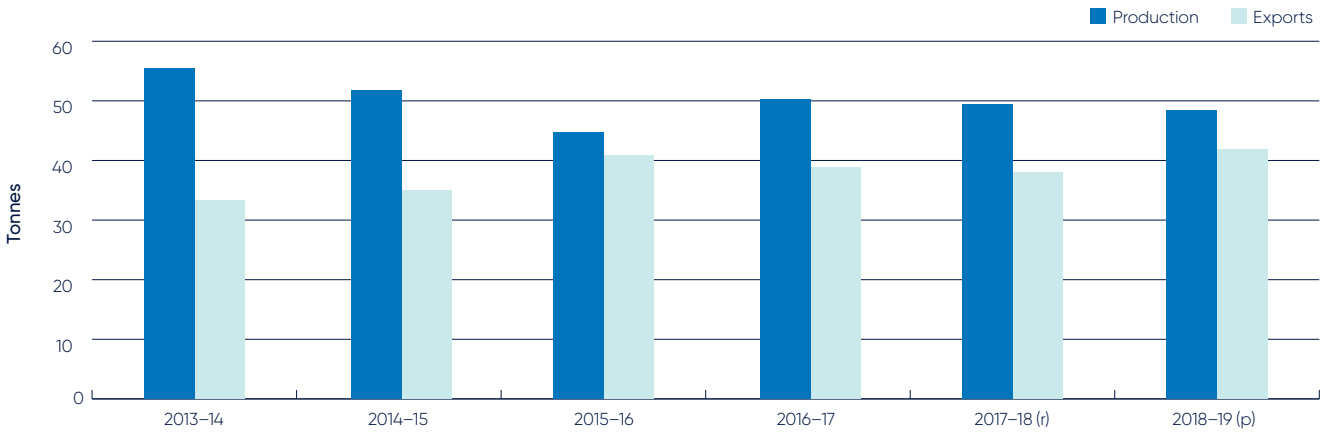
In Australia whey is also used domestically in the manufacture of infant formula, biscuits and ice-cream.

The remainder is exported, with Indonesia, Greater China, Malaysia, Thailand and Japan being the largest export markets for Australian whey powders in 2018–19.

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 includes; 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 (approximately 70% of the total volume), with the balance from Europe and the United States in 2018–19.

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 several 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. Dairy Australia contributes funding, planning and management to the eight Regional Development Programs. Additionally Dairy Australia is committed to working closely with state and national representational bodies to collectively deliver the dairy industry's goal.

Figure 16 The structure of Australian dairy industry organisations

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 contribute funding to 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, 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.

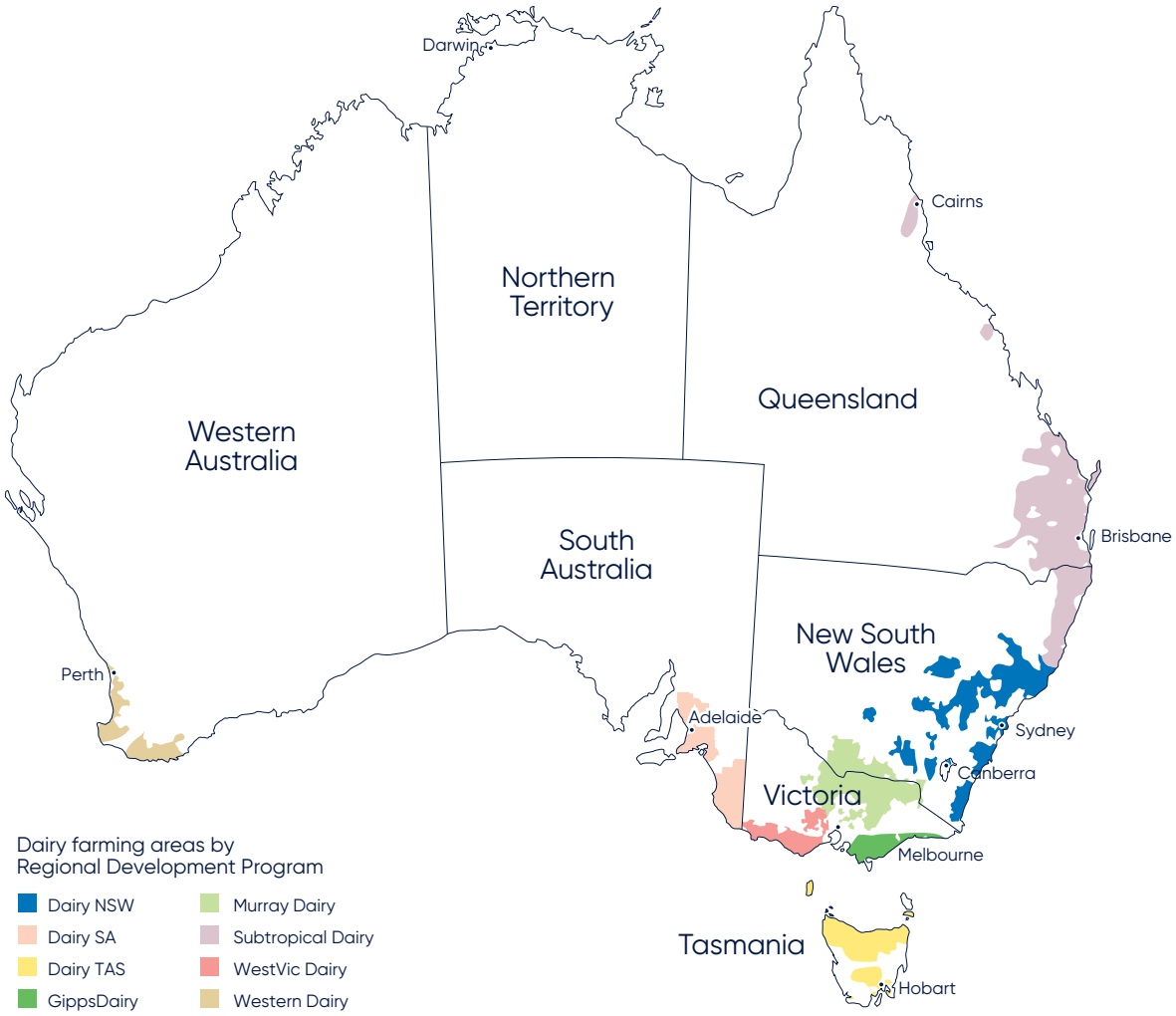
Table 27 Average rate of milk levies for 2018–19

	Milkfat (¢/kg)	Protein (¢/kg)	Milk* (¢/litre)	Milk solids (¢/kg)
Animal Health Australia	0.0580	0.1385	0.007	0.09
Dairy Service	2.8683	6.9914	0.354	4.73

*Based on average 2018–19 Australian milk composition of 4.10% milkfat and 3.38% protein

APPENDICES

Appendix 1 Dairying regions



Appendix 2 Australian industry footprint

Table A1 Australian state/region breakdown 2018–19

	Qld	NSW	Vic	SA	WA	Tas	Aust
Dairy farms[1]	356	575	3,516	212	150	404	**5,213**
Cows in milk & dry ('000)[2]	75	155	940	66	56	148	**1,440**
People employed on farm (full time and part-time)[3]	1,100	3,500	15,600	500	1,900	1,800	**24,400**
People employed in dairy product manufacturing (full time and part-time[3]	3,000	3,000	12,700	1,300	600	1,200	**21,800**
People working in dairy (full time and part-time[3]	4,100	6,500	28,300	1,800	2,500	3,000	**46,200**
Volume of milk produced (ML)[4]	358	1,082	5,574	496	374	910	**8,795**
Share of state milk production (%)	100	100	100	100	100	100	
Share of national milk production (%)	4.1	12.3	63.4	5.6	4.3	10.3	**100**
Value of milk leaving farms ($m)	219	592	2,685	234	188	457	**4,374**
Value of dairy products exported ($m)[5]	77	185	2,148	103	80	635	**3,228**
Share of national dairy exports – value (%)	2	6	67	3	2	20	**100**
Volume of dairy products exported ('000)	20	58	592	31	60	57	**818**
Share of national dairy exports – volume (%)	2	7	72	4	7	7	**100**

Source: 1 State milk authorities; 2 ABS and Dairy Australia; 3 Employment estimates based on state level averages from ABS Labour Force Statistics, August 2017–May 2018 quarters: split on the basis of milk production within states; 4 Dairy manufacturers; 5 ABS export data: split on the basis of milk production

	Subtropical Dairy	Dairy NSW	Murray Dairy	Gipps Dairy	WestVic Dairy	DairySA	Western Dairy	Dairy Tas	Aust
Dairy farms[1]	491	367	1,217	1,201	1,171	212	150	404	**5,213**
Cows in milk & dry ('000)[2]	94	105	320	314	338	66	56	148	**1,440**
People employed on farm (full time and part-time)[3]	2,000	2,500	5,200	5,000	5,500	500	1,900	1,800	**24,400**
People employed in dairy product manufacturing (full time and part-time[3]	2,200	3,300	4,300	4,500	4,400	1,300	600	1,200	**21,800**
People working in dairy (full time and part-time[3]	4,200	5,800	9,500	9,500	9,900	1,800	2,500	3,000	**46,200**
Volume of milk produced (ML)[4]	486	805	1,872	1,840	2,012	496	374	910	**8,795**
Share of state milk production (%)	136	74	34	33	36	100	100	100	
Share of national milk production (%)	5.5	9.2	21.3	20.9	22.9	5.6	4.3	10.3	**100**
Value of milk leaving farms ($m)	296	440	902	887	969	234	188	457	**4,374**
Value of dairy products exported ($m)[5]	87	166	699	703	756	103	80	635	**3,228**
Share of national dairy exports – value (%)	3	5	22	22	23	3	2	20	**100**
Volume of dairy products exported ('000)	22	49	194	197	208	31	60	57	**818**
Share of national dairy exports – volume (%)	3	6	24	24	25	4	7	7	**100**

Source: 1 State milk authorities; 2 ABS and Dairy Australia; 3 Employment estimates based on state level averages from ABS Labour Force Statistics, August 2017–May 2018 quarters: split on the basis of milk production within states; 4 Dairy manufacturers; 5 ABS export data: split on the basis of milk production

Appendix 3 Grain prices

Table A2 Indicative Australian grain prices ($ per tonne)

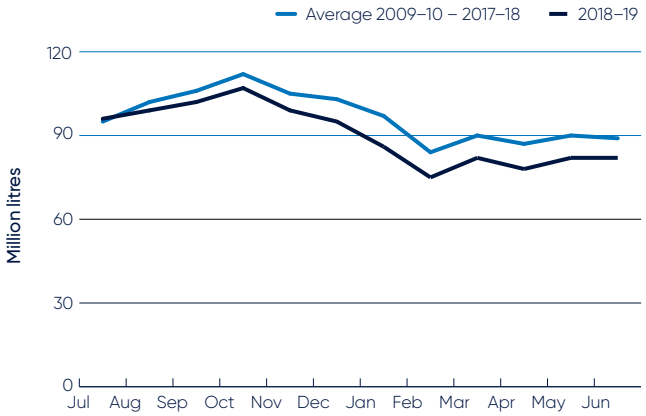
	NSW	Vic	Qld	SA	WA	Tas
Barley						
2009–10	220	170	234	145	151	236
2010–11	238	225	251	222	251	290
2011–12	208	210	220	201	230	266
2012–13	284	258	297	238	270	342
2013–14	282	253	345	222	250	325
2014–15	284	267	330	247	269	339
2015–16	247	253	284	206	248	331
2016–17	192	188	239	164	203	259
2017–18	264	253	341	233	261	293
2018–19	421	381	412	326	315	444
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			
2018–19	413		393			
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	
2018–19	244	223		342	309	
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
2018–19	428	396	422	360	340	460

Source: Jumbuk Consulting Pty Ltd

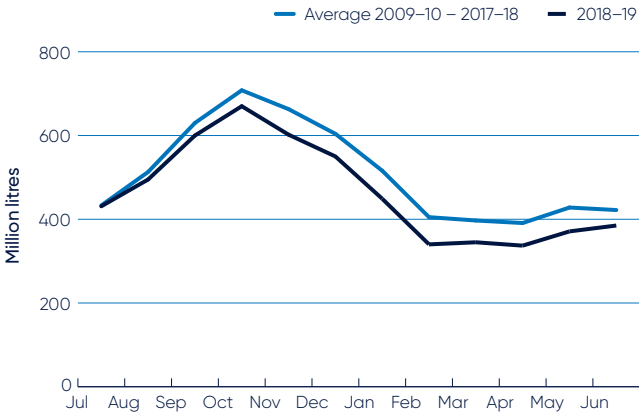
Appendix 4 Milk production

Figure A1 Seasonality of milk production in 2018–19

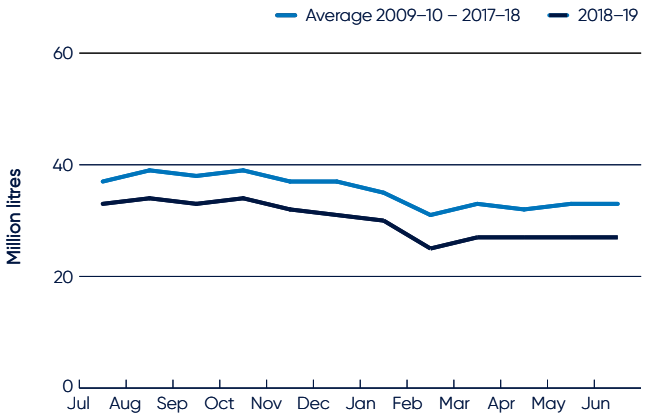
New South Wales



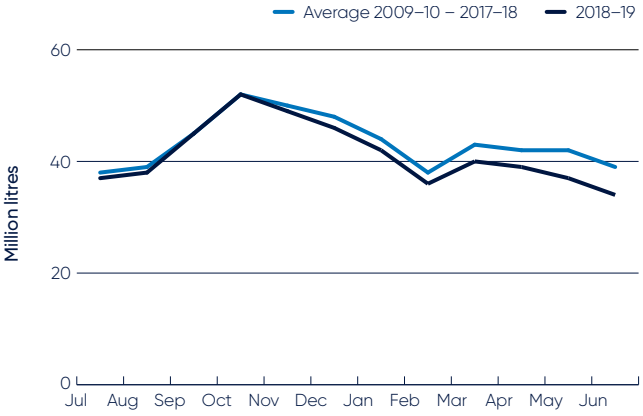
Victoria



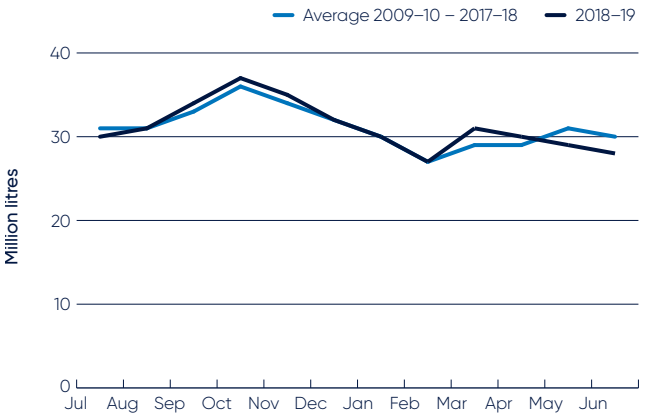
Queensland



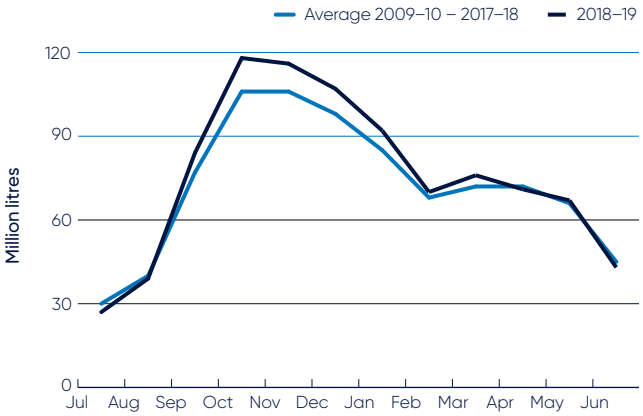
South Australia



Western Australia

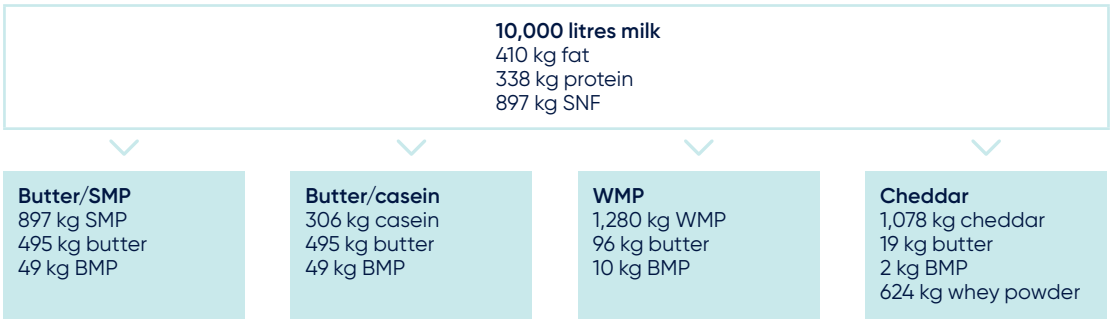


Tasmania



Appendix 5 Manufacturing processes

Figure A2 Product yield from 10,000 litres of milk 2018–19



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

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

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

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

Cheese production techniques vary substantially. To make cheddar cheese, some of the cream is removed from the pasteurised milk. Starter culture is added to the milk to produce both acid and flavour. Then rennet is added to form curd and whey. The curd is cut, heated and stirred to allow the whey to drain. A process called cheddaring then takes place, and involves the curd being allowed to mat together, before it is milled, salted, pressed and packed. The cheese is stored to develop the desired maturity and flavour. The longer it is stored, the stronger the flavour. Mild cheddar is matured for about three months, semi-matured cheddar for three to six months and mature or tasty cheddar for up to a year.

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

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

Table 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

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	23,359	282,667	725	4,213	2,220	35,466	348,650
2017–18	24,057	304,743	746	3,885	2,219	42,077	377,727
2018–19 (p)	24,029	302,730	746	3,885	2,219	47,502	381,111

Source: Dairy manufacturers

Table A5 Australian production of dairy products (tonnes)

	Butter*	AMF (CBE)	SMP	WMP**	Whey products
1989–90	78,053	26,105	130,976	56,476	19,895
1999–00	110,325	71,295	236,322	186,653	66,258
2005–06	92,850	52,904	205,495	158,250	98,436
2006–07	101,666	31,434	191,475	135,364	86,198
2007–08	99,202	28,416	164,315	141,974	82,652
2008–09	109,753	38,742	212,030	147,544	81,136
2009–10	100,134	28,245	190,233	126,024	79,094
2010–11	96,326	26,160	222,484	151,269	61,488
2011–12	100,551	19,164	230,286	140,424	64,645
2012–13	99,035	19,193	224,061	108,838	63,440
2013–14	101,705	14,417	210,964	126,322	55,506
2014–15	101,641	16,943	242,266	96,840	51,806
2015–16	99,015	19,610	255,792	66,125	44,669
2016–17	85,459	14,539	222,109	63,242	50,209
2017–18	79,749	12,949	190,926	82,499	49,469
2018–19 (p)	61,177	12,145	176,573	47,534	48,385

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

Table A6 Australian cheese production by variety (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19 (p)
Cheddar and cheddar types						
Cheddar[1]	132,669	153,208	149,863	148,649	159,361	99,552
Reduced fat cheddar	12,681	18,275	15,360	14,384	15,804	12,955
Other cheddar type cheese[2]	6,371	7,353	6,366	23,111	26,867	83,506
Total cheddar	**151,721**	**178,836**	**171,589**	**186,144**	**202,032**	**196,013**
Semi hard cheese						
Mozzarella and pizza	35,269	36,148	41,133	44,986	52,419	56,869
Other stretch curd and shredding	763	769	1,796	2,546	2,465	2,717
Other semi hard cheese[3]	8,717	7,020	6,631	4,171	5,628	4,881
Total semi hard cheese	**44,749**	**43,937**	**49,560**	**51,703**	**60,511**	**64,467**
Hard grating cheese						
All types[4]	13,762	9,885	5,040	5,993	4,022	8,417
Total	**13,762**	**9,885**	**5,040**	**5,993**	**4,022**	**8,417**
Fresh types						
Cream cheese and neufchatel	76,975	90,443	93,403	79,285	86,446	87,909
Fetta	7,853	4,773	7,229	8,211	8,175	8,111
Ricotta	5,730	5,987	7,373	6,600	6,266	5,956
Other fresh types[5]	5,205	3,789	2,762	2,957	2,622	2,610
Total	**95,764**	**104,993**	**110,767**	**97,053**	**103,510**	**104,586**
Mould ripened						
Blue vein	513	536	603	664	716	550
Brie and camembert	4,591	5,539	5,960	6,452	6,297	6,437
Other mould ripened	399	416	737	641	639	641
Total mould ripened	**5,504**	**6,491**	**7,300**	**7,757**	**7,652**	**7,628**
Total cheese	**311,499**	**344,142**	**344,256**	**348,650**	**377,727**	**381,111**

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	2016–17 (r)	2017–18 (r)	2018–19 (p)
Butter	Grocery	55,531	53,549	42,359
	Non-grocery	25,067	26,325	35,196
Butter total		**80,598**	**79,875**	**77,555**
Cheese	Grocery	141,308	147,126	155,421
	Non-grocery	138,972	125,870	148,303
Cheese total		**280,280**	**272,996**	**303,724**
Cream	Grocery	62,944	62,798	64,452
	Non-grocery	79,668	82,581	85,797
Cream total		**142,612**	**145,379**	**150,249**
Custard	Grocery	21,475	21,181	19,904
	Non-grocery	2,120	2,034	1,746
Custard total		**23,596**	**23,215**	**21,651**
Dairy desserts	Grocery	9,944	10,175	9,519
	Non-grocery	134	125	125
Dairy desserts total		**10,078**	**10,300**	**9,645**
Milk powder	Grocery	11,785	13,691	11,747
	Non-grocery	58,787	52,265	72,638
Milk powder total		**70,571**	**65,956**	**84,384**
Yoghurt	Grocery	119,489	112,460	112,557
	Non-grocery	11,981	11,522	11,099
Yoghurt total		**131,470**	**123,983**	**123,656**

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
2016–17 (r)	417	363	378	130	148	37	1,473
2017–18 (r)	421	365	382	130	150	38	1,486
2018–19 (p)	416	364	377	128	149	38	1,473

Source: Information Resources (Australia) Pty Ltd

Table A9 Supermarket milk sales by type (million litres)

	Regular	Reduced fat	No fat	Flavoured	UHT	Aust
2016–17 (r)	725	369	40	139	200	1,473
2017–18 (r)	756	354	35	146	194	1,486
2018–19 (p)	777	338	31	146	181	1,473

Source: Information Resources (Australia) Pty Ltd

Table A10 Supermarket milk sales – branded vs private label

		2016–17 (r)		2017–18 (r)		2018–19 (p)
Branded milk	**Million litres**	**Price/litre**	**Million litres**	**Price/litre**	**Million litres**	**Price/litre**
Regular whole	297	$1.80	289	$1.85	300	$1.90
Reduced fat	180	$1.97	162	$1.99	155	$2.02
No fat	35	$2.01	29	$2.01	25	$2.01
Flavoured	136	$3.59	144	$3.60	143	$3.67
UHT	129	$1.57	116	$1.69	99	$1.78
Total branded milk	**777**	**$2.12**	**740**	**$2.20**	**722**	**$2.26**
Private label						
Regular whole	428	$1.04	467	$1.03	477	$1.08
Reduced fat	190	$1.03	192	$1.02	183	$1.07
Low fat	5	$1.23	6	$1.20	6	$1.20
Flavoured	3	$1.75	2	$2.33	3	$2.55
UHT	71	$0.94	78	$0.97	82	$1.06
Total private label milk	**697**	**$1.03**	**745**	**$1.03**	**751**	**$1.08**
Total milk	**1,473**	**$1.61**	**1,486**	**$1.61**	**1,473**	**$1.66**

Source: Information Resources (Australia) Pty Ltd

Dairy spreads

Table A11 Supermarket dairy spreads sales by type (tonnes)

	2016–17 (r)		2017–18 (r)		2018–19 (p)	
Dairy	**Tonnes**	**Price/kg**	**Tonnes**	**Price/kg**	**Tonnes**	**Price/kg**
Butter	27,636	$9.05	26,025	$12.17	25,400	$13.15
Blends	24,823	$10.23	25,790	$10.82	26,660	$10.91
Total dairy spreads	**52,458**	**$9.61**	**51,815**	**$11.50**	**52,060**	**$12.00**

Source: Information Resources (Australia) Pty Ltd

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

	2016–17 (r)		2017–18 (r)		2018–19 (p)	
	Tonnes	**Price/kg**	**Tonnes**	**Price/kg**	**Tonnes**	**Price/kg**
250 gram	14,878	10.06	14,952	13.40	15,728	14.24
375 gram	5,298	13.90	5,744	13.98	6,131	13.60
500 gram	31,174	8.56	29,588	10.08	28,586	10.48
Other sizes	1,108	12.54	1,530	10.97	1,615	10.98
Total dairy spreads	**52,458**	**$9.61**	**51,815**	**$11.50**	**52,060**	**$12.00**

Source: Information Resources (Australia) Pty Ltd

Table A13 Supermarket dairy spreads sales by form (tonnes)

	2016–17 (r)		2017–18 (r)		2018–19 (p)	
	Tonnes	**Price/kg**	**Tonnes**	**Price/kg**	**Tonnes**	**Price/kg**
Pats	23,899	$8.00	22,566	$11.52	22,128	$12.68
Tubs	28,559	$10.95	29,248	$11.48	29,931	$11.50
Total dairy spreads	**52,458**	**$9.61**	**51,815**	**$11.50**	**52,060**	**$12.00**

Source: Information Resources (Australia) Pty Ltd

Appendix 8 Australian exports

Table A14 Australian exports of cheese (tonnes)

	2013–14	2014–15	2015–16	2016–17 (r)	2017–18 (r)	2018–19 (p)
Asia						
China, Hong Kong	19,552	17,945	21,207	24,530	22,555	22,762
Indonesia	2,875	2,757	2,809	3,989	4,527	3,721
Japan	73,599	85,808	90,635	81,351	86,793	84,770
Korea, South	4,841	5,318	7,942	10,400	9,112	8,798
Malaysia	7,907	7,536	7,841	8,325	8,081	7,793
Philippines	2,655	3,556	4,922	4,278	7,062	5,663
Singapore	5,364	5,381	5,401	5,310	4,902	4,880
Taiwan	3,072	3,638	3,863	4,183	3,541	3,072
Thailand	2,848	3,016	2,845	3,495	4,093	4,389
Other Asia	1,218	1,312	1,579	1,620	2,209	2,472
Total Asia	**123,931**	**136,267**	**149,044**	**147,481**	**152,875**	**148,320**
Middle East						
Saudi Arabia	4,203	3,005	2,076	761	1,520	1,020
U.A.E.	1,588	1,697	1,529	1,492	1,577	1,474
Other Middle East	6,082	5,026	4,591	4,421	4,176	4,475
Total Middle East	**11,873**	**9,728**	**8,196**	**6,674**	**7,273**	**6,969**
Africa						
Algeria	0	0	0	0	0	0
Egypt	138	157	34	0	0	0
Other Africa	2,971	2,579	3,168	2,741	2,403	2,922
Total Africa	**3,109**	**2,736**	**3,202**	**2,741**	**2,403**	**2,922**
Pacific						
New Zealand	2,177	2,267	2,960	3,434	4,059	3,504
Others	703	826	1,057	1,134	1,279	1,289
Total Pacific	**2,880**	**3,093**	**4,017**	**4,568**	**5,338**	**4,793**
Americas						
Caribbean	508	589	69	42	28	34
United States	1,891	4,577	6,163	4,745	1,944	1,709
Others	349	445	365	225	351	674
Total Americas	**2,748**	**5,611**	**6,597**	**5,012**	**2,323**	**2,417**
Europe						
Eastern Europe	2,110	81	0	0	0	0
EU 27	3,789	162	265	203	605	649
Other Europe		0	0	0	0	0
Total Europe	**5,899**	**243**	**265**	**203**	**605**	**649**
Total	**150,440**	**157,678**	**171,321**	**166,679**	**170,817**	**166,070**

Source: ABS

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

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
Bangladesh	9,180	8,581	6,225	4,814	5,663	4,211
China, Hong Kong	31,633	6,896	26,365	32,990	47,084	28,686
Indonesia	6,930	2,414	795	917	299	312
Japan	326	12	2	2	1	80
Malaysia	3,885	3,322	1,919	2,978	1,227	878
Philippines	385	690	252	396	275	111
Singapore	16,238	13,528	8,138	8,933	4,990	3,567
Sri Lanka	13,547	12,097	12,776	10,547	407	3,139
Taiwan	3,125	2,477	1,982	1,955	2,197	2,061
Thailand	2,740	2,061	1,387	3,617	9,000	5,563
Others	3,237	5,885	2,707	10,008	2,708	1,318
Total Asia	**91,226**	**57,963**	**62,548**	**77,157**	**73,851**	**49,926**
Africa	**3,344**	**2,761**	**368**	**243**	**5,557**	**67**
Americas	**2,089**	**6,031**	**4,227**	**3,063**	**1,315**	**1,324**
Europe	**345**	**230**	**511**	**104**	**200**	**0**
Middle East	**3,872**	**6,510**	**5,050**	**4,158**	**4,467**	**1,953**
Pacific	**1,371**	**1,634**	**4,349**	**2,082**	**2,170**	**1,869**
Total	**102,247**	**75,129**	**77,053**	**86,807**	**87,560**	**55,139**

*Also includes infant powder
Source: ABS.

Table A16 Australian exports of butter* (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
China, Hong Kong	3,944	4,924	4,441	3,130	2,758	3,733
Japan	348	587	437	381	236	507
South Korea	1,181	1,477	2,334	1,531	470	932
Malaysia	2,082	2,650	2,446	2,048	1,662	1,809
Singapore	5,594	5,199	3,476	2,611	1,666	1,418
Taiwan	1,159	1,871	1,623	1,124	712	992
Others	1,475	1,197	1,335	963	762	732
Total Asia	**15,783**	**17,904**	**16,092**	**11,789**	**8,266**	**10,123**
Middle East	**4,137**	**7,310**	**3,658**	**1,002**	**695**	**115**
Africa	**587**	**2,039**	**1,026**	**306**	**217**	**211**
Pacific	**658**	**1,252**	**691**	**847**	**264**	**215**
Americas	**72**	**995**	**1,225**	**270**	**277**	**2,519**
Europe	**18,554**	**1,257**	**360**	**196**	**2**	**20**
Total	**39,791**	**30,757**	**23,052**	**14,410**	**9,721**	**13,203**

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

Table A17 Australian exports of skim milk powder (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
China, Hong Kong	22,814	17,746	19,873	23,930	30,311	43,354
Indonesia	25,586	39,684	40,812	36,430	33,828	32,352
Japan	3,222	8,359	1,637	3,110	8,287	4,973
Malaysia	11,378	17,641	19,179	18,880	13,368	9,139
Philippines	8,251	13,973	10,304	8,612	8,403	5,026
Singapore	12,567	15,368	14,422	14,571	11,573	9,636
Taiwan	3,542	1,442	1,563	1,536	1,900	1,404
Thailand	10,177	11,317	10,471	6,728	10,882	9,261
Others	10,420	24,594	29,583	22,201	19,077	21,526
Total Asia	**107,957**	**150,124**	**147,844**	**135,998**	**137,629**	**136,671**
Africa	**1,392**	**386**	**5,829**	**1,428**	**5,761**	**236**
Americas	**244**	**1,473**	**552**	**47**	**0**	**0**
Europe	**563**	**540**	**43**	**0**	**0**	**0**
Middle East	**31,429**	**26,927**	**23,249**	**14,057**	**11,630**	**12,559**
Pacific	**1,584**	**5,376**	**3,857**	**1,775**	**1,586**	**1,737**
Total	**143,169**	**184,826**	**181,374**	**153,305**	**156,606**	**151,203**

Source: ABS

Table A18 Australian exports of butter oil (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
Bangladesh	202	101	218	151	101	151
Indonesia	302	410	86	84	67	118
Malaysia	687	907	974	554	823	50
Philippines	102	101	50	134	286	84
Singapore	240	128	69	193	101	28
Others	3,476	3,013	3,039	3149	3112	4,297
Total Asia	**5,009**	**4,660**	**4,436**	**4,265**	**4,490**	**4,728**
Middle East	**386**	**829**	**446**	**101**	**0**	**101**
Africa	**86**	**101**	**67**	**66**	**32**	**44**
Americas	**517**	**3,512**	**3,007**	**671**	**287**	**1,172**
Europe	**1,530**	**433**	**363**	**436**	**303**	**314**
Pacific	**87**	**19**	**54**	**11**	**4**	**171**
Total	**7,615**	**9,554**	**8,375**	**5,550**	**5,116**	**6,530**

Actual product weight (not CBE)
Source: ABS.

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

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
Singapore	30,474	33,254	36,590	40,101	42,538	42,077
Philippines	8,307	7,937	10,273	13,703	19,329	17,784
Malaysia	7,266	4,454	13,572	15,680	19,753	22,407
Indonesia	426	367	370	310	241	144
Hong Kong	14,440	13,716	14,077	14,665	15,297	17,390
China	25,061	54,507	70,971	68,087	82,304	94,858
Other Asia	16,646	17,403	15,702	18,802	21,004	23,382
Total Asia	**102,620**	**131,638**	**161,555**	**171,348**	**200,466**	**218,042**
Africa	**659**	**766**	**606**	**593**	**487**	**519**
Pacific	**12,596**	**14,650**	**16,115**	**15,617**	**16,008**	**17,935**
Others	**2,256**	**645**	**1,002**	**1,036**	**334**	**220**
Total	**118,131**	**147,699**	**179,278**	**188,594**	**217,295**	**236,716**

Source: ABS

Table A20 Australian exports of whey products* (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia	26,278	29,708	35,065	35,288	34,895	38,411
Europe	1,462	579	16	20	571	327
Other	5,567	4,769	5,740	3,501	2,535	3,123
Total	**33,307**	**35,056**	**40,821**	**38,809**	**38,001**	**41,861**

*Includes whey protein concentrate
Source: ABS.

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

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Asia						
China	78,775	62,574	56,145	59,109	28,412	75,072
Indonesia	800	1,514	1,307	1,203	4,118	1,933
Japan	345	0	303	437	2,936	2,193
Malaysia	1110	2,124	2,132	1,346	2,201	3,002
Pakistan	6,425	1,989	3,507	6,502	5,620	2,428
Taiwan	554	3	628	1,793	1,813	1,827
Vietnam	440	3,383	2,755	1,735	958	231
Other Asia	267	1,335	1,627	289	531	467
Total Asia	**88,716**	**72,922**	**68,404**	**72,414**	**46,589**	**87,153**
Europe	3,595	0	0	0	0	0
Middle East	29	283	3,503	633	275	5,303
Africa	0	0	0	0	0	0
Others	0	0	0	4	15	0
Total	**92,340**	**73,205**	**71,907**	**73,051**	**46,879**	**92,456**

Source: ABS

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

	NSW	Vic	Qld	SA	WA	Tas	Aust
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)	242	69,486	0	230	1,949	0	**71,907**
2016–17	647	70,395	240	0	1,769	0	**73,051**
2017–18 (r)	1,612	43,258	345	48	1,616	0	**46,879**
2018–19 (p)	719	90,978	459	24	276	0	**92,456**

Source: ABS

Appendix 9 Australian imports

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

	New Zealand	Other	Total 2017–18 (r)	New Zealand	Other	Total 2018–19 (p)
Skim milk powder	6,175	3,951	**10,126**	8,003	5,098	**13,101**
Buttermilk powder	2,520	2,696	**5,216**	1,685	1,677	**3,362**
Whole milk powder*	62,322	9,599	**71,921**	54,443	10,678	**65,121**
Whey powder and concentrates	1,124	14,580	**15,704**	524	12,226	**12,750**
Condensed milk	15	3,079	**3,094**	32	3,550	**3,582**
Milk	2,044	370	**2,414**	2,045	349	**2,394**
Cream	3,041	80	**3,121**	3,218	42	**3,260**
Yoghurt	543	1,134	**1,677**	447	1,128	**1,575**
Butter**	26,229	3,402	**29,631**	28,409	2,553	**30,962**
Butter oil	5,790	950	**6,740**	5,121	1,448	**6,569**
Cheese	56,571	54,387	**110,958**	42,734	51,451	**94,185**
Casein	328	125	**453**	192	296	**488**
Caseinates	1258	493	**1,751**	1216	403	**1,619**
Lactose	2,307	25,647	**27,954**	860	16,548	**17,408**
Ice cream ('000 lts)	1,727	22,394	**24,121**	1,860	21,726	**23,586**

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

Table A24 Australian cheese imports by country (tonnes)

	2013–14	2014–15	2015–16	2016–17	2017–18 (r)	2018–19 (p)
Austria	746	584	678	600	640	893
Bulgaria	1,312	1,476	1,293	1,276	1,241	809
Denmark	2,133	1,529	2,042	1,990	2,275	2,241
France	1,690	1,775	1,911	2,047	2,482	2,427
Germany	1,326	1,566	2,271	2,481	2,359	2,430
Greece	1,761	2,110	2,104	2,068	2,027	2,117
Italy	3,981	4,222	4,150	4,834	4,829	4,920
Netherlands	2,307	2,024	2,601	2,979	2,880	3,410
Poland	530	595	795	840	1,126	1,070
United Kingdom	463	625	1,129	1,438	1,026	1,316
Other	1,543	1,764	2,112	3,294	3,920	3,493
Total EU	**17,792**	**18,270**	**21,086**	**23,847**	**24,805**	**25,126**
New Zealand	**39,623**	**45,235**	**55,030**	**65,723**	**56,571**	**42,734**
United States	**16,200**	**16,709**	**11,658**	**20,987**	**28,147**	**24,504**
Norway	**1,787**	**1,745**	**1,134**	**1,090**	**916**	**1,264**
Switzerland	**196**	**180**	**208**	**210**	**232**	**244**
Other	**219**	**257**	**210**	**272**	**287**	**313**
Total cheese imports	**75,817**	**82,396**	**89,326**	**112,129**	**110,958**	**94,185**

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)
DA	Dairy Australia
DFMP	Dairy Farm Monitor Project
(e)	Estimated data
EU	European Union
ML	Million litres
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)
(p)	Provisional data
QDAS	Queensland Dairy Accounting Scheme
(r)	Revised data
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

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