

IN FOCUS 2021

THE AUSTRALIAN DAIRY INDUSTRY



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32%
of milk production
is exported



MAJOR EXPORT MARKETS tonnes

318,507 t Greater China	70,717 t Singapore
69,188 t Japan	67,979 t Malaysia
	52,323 t Indonesia

ANNUAL PRODUCTION OF MAIN COMMODITIES

366,201 t
Cheese

206,199 t
Milk powders

81,704 t
Butter



AVERAGE ANNUAL MILK PRODUCTION PER COW

6,380
litres

8,858
million litres



VALUE OF PRODUCTION AT FARMGATE

\$4.7
billion



AUSTRALIAN MILK UTILISATION

39% Cheese

4% Whole milk powder

29% Drinking milk

6% Other

22% Skim milk powder or butter



ANNUAL PER CAPITA CONSUMPTION

94.4 litres
milk

13.4 kg
cheese



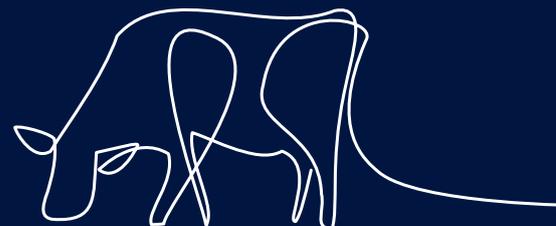
4,618
Dairy farms

3rd
Dairy is Australia's
third-largest
rural industry



AVERAGE HERD SIZE

300
cows



AUSTRALIAN DAIRY HERD

1.38 million
cows

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FOREWORD

The dairy industry is the third largest rural industry in Australia and is a key sector of the agricultural economy. Dairy generated \$4.7 billion in farmgate value in the 2020/21 financial year.

The Australian Dairy Industry In Focus 2021 report provides a snapshot of Australia's role in the global dairy industry, based on statistics for the 2020/21 year.

The 2020/21 season will be remembered by many as one of the best in recent memory. After several challenging years, favourable weather delivered a turnaround in operating conditions on farm. Above average rain and warm temperatures during spring and summer resulted in a close to record large winter crop harvest and plentiful pasture growth. This significantly improved feed availability and lowered input costs for most farmers across the country. Combined with a historically strong farmgate milk price, a vast majority of farmers reported making an operating profit during 2020/21. Favourable conditions for most of the year encouraged many farmers to retain stock and begin to focus on rebuilding the herd. As a result, Australia's national milk pool increased for the first time in three years, ending the season up 0.7%, at 8,858 million litres.

Australia accounts for less than 2% of the world's estimated milk production but remains a significant exporter of dairy products. The country currently ranks fourth in terms of world dairy trade – with a 4% share, behind New Zealand, the European Union and United Kingdom (as a bloc) and the United States.

In 2020/21, 32% of milk produced in Australia was exported, worth a total of A\$3.3 billion.

More than 88% of Australian exports were destined for Asia in 2020/21, with Greater China remaining one of Australia's fastest growing export markets by volume. Measured by dollar value, the top five export markets were Greater China, Japan, Malaysia, Indonesia and Singapore. Japan remains a vital trade partner for Australian exporters, as a mature, high-value market with long-established business relationships.

Drinking milk is a staple item in almost all Australian households. Currently, per capita consumption of drinking milk is estimated at 94.4 litres. This has marginally declined over recent years, however, compared to other developed countries, Australia's consumption of drinking milk is high. This can be partly attributed to the expansion of the 'coffee culture' in Australia and growth in flavoured milk products.

Australians are returning to full cream white milk, with the proportion of sales of low-fat and skim milks declining. While white milk (unflavoured) still accounts for most of drinking milk sold, sales of flavoured milk have also grown. Following the COVID-19 outbreak, UHT milk has also grown in popularity, however, fresh milk remains by far the most popular variety amongst consumers.

I trust you will find the Australian Dairy Industry In Focus continues to provide valuable information on one of this country's most important industries. The dairy processors make a significant contribution to this report through providing regular data, and this is greatly appreciated. Most of the statistics referred to in this report are updated monthly and are available at dairyaustralia.com.au.



A handwritten signature in black ink, appearing to read 'D Nation', written over a horizontal line.

David Nation Managing Director

THE AUSTRALIAN DAIRY INDUSTRY

An important rural industry

The dairy industry is a major rural industry in Australia. Based on a farmgate value of production totaling \$4.7 billion, it currently ranks third behind the beef and wheat industries. The dairy industry is a significant source of employment across regional areas and is one of Australia's leading rural industries in terms of adding value through further downstream processing. It is estimated approximately 37,400 people were directly employed on dairy farms and by dairy processing companies in 2020/21. Associated transport, distribution, farm services and research and development activities represent further employment connected to the industry. Much of this occurs close to farming areas, thereby generating significant economic activity and employment in regional Australia.

Dairying is well-established across the temperate and some subtropical regions of Australia. While the bulk of milk production occurs in southeastern Australia, all states have dairy industries that supply fresh drinking milk to nearby cities and towns. A range of high-quality consumer products, including fresh milks, custards, yoghurts and specialty cheeses, are produced in most states. The manufacturing of dairy commodity products

for export is mainly concentrated in southeastern Australia. These products include cheddar, mozzarella cheese, specialised milk powders and butterfats.

Throughout the 1990s, the dairy industry experienced strong growth, but this has stalled since the early 2000s. In addition to industry deregulation, this period coincided with 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. In line with long-term trends, the number of dairy farms continued to fall in 2020/21, down 9%, compared to the year prior. While farm numbers have decreased, the average size of farms has increased with the number of large farms and their share of milk production growing. Consolidation has also continued amongst processors, with manufacturing facilities facing continued rationalisation.

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 Australian dairy industry – long-term trends

At June 30	1990	2000	CAGR % 1990s	2010	CAGR % 2000s	2020	CAGR % 2010s	2021 (p)	CAGR % 2020s
Milk production (ML)	6,262	10,847	5.6	9,023	-1.8	8,797	-0.3	8,858	0.7
Dairy cows ('000)	1,654	2,171	2.8	1,596	-3.0	1,394	-1.3	1,384	-0.7
Farm numbers	15,396	12,896	-1.8	7,511	-5.3	5,055	-3.9	4,618	-8.6
Value of farm production*(\$m)	3,388	4,297	2.4	3,366	-2.4	4,829	3.7	4,688	-2.9
Per capita consumption (milk equivalent)	245	274	1.1	301	0.9	319	0.6	309	-3.1
Export value*(\$m)	613	3,918	20.4	2,391	-4.8	3,378	3.5	3,296	-2.4
Export share of production (%)	31	54		45		29		32	

*Expressed in 2020/21 dollars.

CAGR = Compound Annual Growth Rate

Source: ABS, ADC, DA, state authorities



A world competitive industry

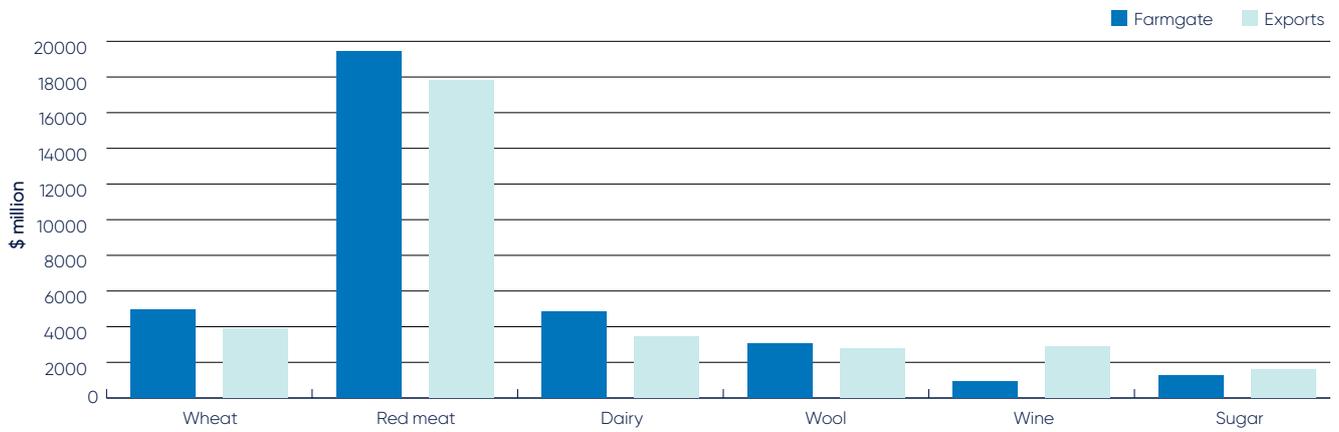
In 2000/01, the dairy industry completed deregulation and since then Australian dairy farmers have operated in an open market with minimal government intervention. As a result, Australia's domestic dairy market is subject to international pressures, either through direct competition for export sales or competition from imports. While most of the milk produced is consumed domestically, Australia is also a major exporter and importer (predominantly from New Zealand) of dairy products. International markets and events have a major influence on Australian farmgate milk prices.

Australian dairy farmers received an average of US\$39 per 100kg of milk (A\$6.91/kg MS) in 2020/21, as strong competition for milk between processors resulted in a historically high farmgate price. This price is above the amount paid to farmers in New Zealand, but below prices paid in the European Union and United States. These indices represent milk receipts only, and do not include other components of total farm income such as decoupled government support, livestock sales or other activities.

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.

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 manifested as higher expenditure on purchases of supplementary feed and temporary water allocations – particularly in northern Victoria and southern New South Wales. Since deregulation, local milk production has declined while the size of the domestic market has increased due to population growth. As a result, the share of milk that is exported, and Australia's share of international dairy trade, have both contracted.

Figure 1 Farmgate value vs export sales value in 2019/20



Source: ABARES Australian Commodity Qtly Report

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



Source: Dairy Australia

FARM FACTS

Dairy farms are located in all states of Australia. The majority of milk production occurs in southeastern Australia, where the climate and natural resources are generally favourable for dairying. This allows the industry to be predominantly pasture-based, resulting in cost-efficient systems producing high-quality milk. In a year of 'normal' seasonal conditions, approximately 60%–65% of cattle feed requirements come from grazing.

Most farms are located in coastal areas where pasture growth is generally reliant on rainfall. There are also several inland dairying areas which utilise irrigation schemes, most notably in northern Victoria and the New South Wales Riverina. Dairy farm systems vary across Australia; in New South Wales and Queensland, a greater incidence of more intensive feeding practices is observed, with high rates of supplementary feeding. While many farms utilise pasture as the herd's main feed source, the use of supplementary feed is widespread across Australia.

Over the past decade, the use of supplementary feeding has increased significantly as farmers adapt to drier conditions, and/or seek to flatten their farm's seasonal milk production profile. Supplementary feed can be

purchased or homegrown and includes grain, hay, silage, and in limited situations, feed byproducts. Such changes in production systems can introduce additional input costs, price risk, and management complexity, and can lead to greater variability of farm returns.

The 2021 Dairy Australia National Dairy Farmer Survey showed that nearly all dairy farmers engaged in some level of supplementary feeding. In line with the previous year, the national average feeding rate in 2020/21 was around 1.7 tonnes per cow per year. Feeding moderate to high levels of concentrates is practised across all regions, with feed rates remaining relatively consistent this season.

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

Since 1979/80, the number of dairy farms in Australia has been steadily declining, to 4,618 in 2020/21. The trend in farm numbers has previously followed changes in farmgate milk prices from season to season. Strong prices tend to slow the rate of attrition. Periods of weaker farmgate prices and/or adverse seasonal conditions can accelerate farm exits, as more farmers choose to sell their properties, or transition to other farming activities such as raising beef cattle.

Table 2 Number of registered dairy farms

	NSW	Vic	Qld	SA	WA	Tas	Aust
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	575	3,516	356	212	150	404	5,213
2019/20	534	3,462	327	206	135	391	5,055
2020/21 (p)	523	3,080	307	198	132	378	4,618

Source: State milk authorities and Dairy Australia

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 2020/21 it has grown to 300. There is also an emerging trend of large farm operations milking more than 700 cows.

Despite the increase in average herd sizes over time, Australia's national herd has been declining, limiting total milk production. Increased volatility in farm cash incomes has seen many farmers participate in the export heifer trade or selling dairy cows for slaughter, as an additional source of farm income. In 2020/21, the national herd decreased as high beef values enticed some farmers to sell stock or diversify their business, while some chose to exit the industry.

In Australia, the dominant dairy breed is the Holstein, accounting for around two thirds of all dairy cattle. Other important breeds include the Jersey, Holstein/Jersey cross, Brown Swiss, Ayrshire and local breeds, the Australian Red and the Illawarra. Australian farmers have access to some

of the best genetic material in the world, and artificial insemination is the most commonly used breeding practice on farm. Herd recording is widely utilised, 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 6,380 litres in 2020/21. 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
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	166	1,023	85	67	56	149	1,547
2018/19*	149	898	78	72	56	175	1,428
2019/20 (r)	144	883	64	70	51	182	1,394
2020/21 (e)	143	880	63	69	50	179	1,384

*From 2018/19 SA and Tas data sourced from State milk authorities
Source: ABS, State milk authorities, and Dairy Australia

Farmgate milk prices

The price paid to Australian dairy farmers is based on the milkfat and protein content of the milk produced on farm. Each component is valued differently, with the protein content of milk typically worth more than fat. Farmgate milk prices vary between processors and payment structures from dairy companies to individual farmers can differ significantly. Milk supply agreements can provide a range of incentives for milk quality, productivity or volume levels and for year-round milk supply. There may also be volume growth incentives in place to encourage milk supply to processing plants to improve operating efficiencies, or loyalty incentives to guarantee supply for long periods. These all affect the final farmgate price received.

Unlike many countries around the world, the Australian government has no legislative control over the farmgate milk price. Since deregulation in 2000/01, all prices within the industry are set by market forces. The returns received by an individual company are affected by various factors, including market and product mix, marketing strategies, utilisation and efficiencies in factory processing capacity, and exchange rate hedging policies. Furthermore, competition for milk among processors will also influence farmgate milk prices from season to season.

Australian dairy companies operate in an open and internationally competitive market. This includes free trade under the Closer Economic Relations (CER) 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 32% of local milk exported as butter, cheese and milk powders, which must compete with other countries' exports. Global prices also influence the additional 40% of production that goes into locally consumed manufactured dairy products, which must be competitively priced against imports. As a result, over 70% of milk produced in Australia is exposed to global dairy prices, while the remainder is consumed domestically as liquid drinking milk.

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

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	6,719	5,621	4,644	7,634	6,669	5,981	5,841
2016/17	6,434	5,749	4,823	6,520	6,342	5,511	5,813
2017/18	6,949	6,058	4,670	7,195	6,199	5,805	6,108
2018/19 (r)	6,757	5,622	4,325	6,937	6,674	5,203	5,723
2019/20 (r)	7,146	6,289	4,505	7,007	6,661	5,208	6,201
2020/21 (e)	7,476	6,407	4,845	7,230	7,157	5,366	6,380

Source: Dairy manufacturers, ABS, State milk authorities and Dairy Australia

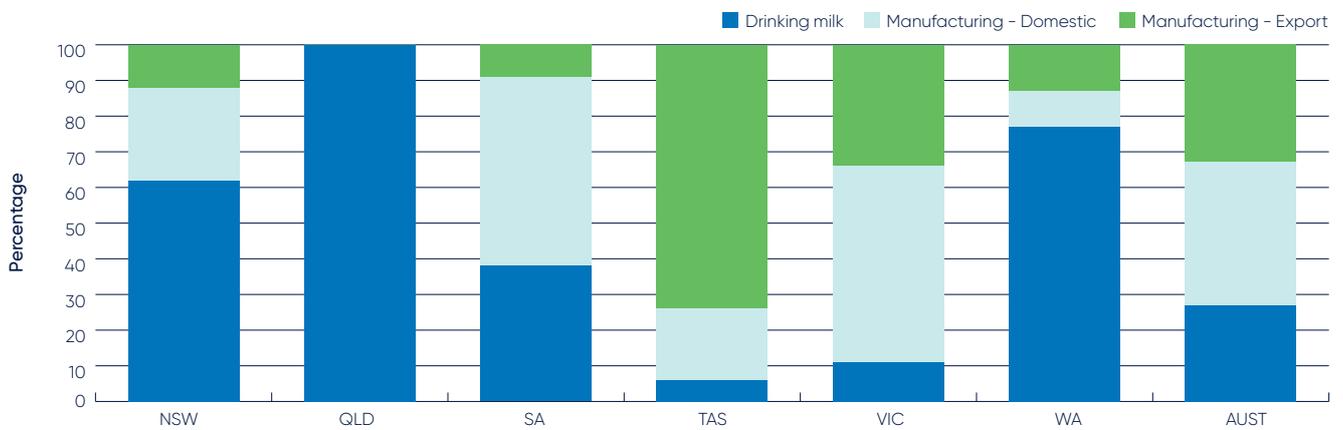
Thus, the farmgate milk price farmers receive can vary significantly around Australia, depending on how milk is used in the marketplace.

As shown in Figure 3, milk for processing (export and domestic use) accounts for most milk produced in the southeast of Australia.

Hence, the average farmgate milk price received in these regions 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 is more important.

Figure 3 Use of Australian milk by state in 2020/21



Source: Dairy Australia

Figure 4 Factory paid milk prices



Source: Dairy manufacturers and ABARES

Table 5 Indicative factory paid milk prices by state

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
NSW	¢/litre	51.0	49.0	50.5	54.7	62.0	62.3
	\$/kg milk solids	7.06	6.81	6.99	7.67	8.55	8.53
Vic	¢/litre	42.8	38.0	44.2	48.2	53.6	50.7
	\$/kg milk solids	5.68	5.04	5.87	6.40	7.01	6.59
Qld	¢/litre	58.5	60.0	57.7	61.0	68.0	66.8
	\$/kg milk solids	7.99	8.22	7.84	8.31	9.31	9.06
SA	¢/litre	42.5	37.1	42.9	47.2	53.6	52.6
	\$/kg milk solids	6.03	5.19	6.06	6.62	7.40	7.28
WA	¢/litre	52.3	50.6	49.9	50.2	52.3	53.5
	\$/kg milk solids	7.32	7.06	6.97	7.05	7.27	7.39
Tas	¢/litre	43.7	39.0	47.0	50.3	53.3	51.0
	\$/kg milk solids	5.61	4.97	6.01	6.37	6.70	6.41
Aust	¢/litre	44.9	40.9	46.0	49.7	54.7	52.7
	\$/kg milk solids	6.01	5.46	6.14	6.64	7.19	6.91

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 participant dairy farms in all major dairying regions across Australia. The data allows for analysis of dairy farm productivity and profitability to support government and industry policy and service delivery. It also facilitates comparison and benchmarking by farmers and farm business consultants to improve farm business performance.

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

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

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

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

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

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
NSW	5.72	5.75	6.25	7.04	7.69	6.88
Vic	4.70	4.15	4.51	5.39	5.34	4.94
Qld	6.27	6.18	6.63	7.49	8.33	7.67
SA	5.31	5.09	4.89	5.32	5.93	5.55
WA	5.46	5.33	5.73	6.14	6.35	6.26
Tas	4.70	4.19	4.36	4.65	4.83	5.05

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Eastern	4.33	3.74	4.24	5.03	4.74	4.47
Northern	5.09	4.73	4.74	6.12	6.02	5.53
Western	4.67	3.98	4.56	5.04	5.12	4.69

Source: Dairy Farm Monitor Project

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
NSW	2.34	2.01	1.66	1.60	2.13	3.04
Vic	1.34	1.58	1.76	1.30	2.50	2.61
Qld	2.36	2.59	2.05	1.79	2.01	3.17
SA	1.49	1.50	1.95	1.84	2.45	2.93
WA	2.76	2.51	2.28	2.13	2.33	2.80
Tas	1.40	1.54	1.99	1.93	2.92	2.70

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Eastern	1.49	1.72	1.91	1.42	2.71	2.74
Northern	1.06	1.11	1.51	0.73	1.95	2.16
Western	1.46	1.89	1.87	1.76	2.96	3.01

Source: Dairy Farm Monitor Project

In 2020/21, most Australian dairy regions experienced favourable seasonal conditions. This assisted the production of homegrown feed on farm and enabled access to feed inputs at prices lower than previous years. A wetter than average spring impacted the ability of some regions to conserve high quality feeds, while also extending the growing season into summer.

The majority of New South Wales dairy farms experienced above average rainfall in 2020/21, with the New South Wales coast recording its wettest week on record in late March. This caused significant flooding in a number of dairy regions. Whilst the above average rainfall provided favourable growing conditions in many areas, the flood damage boosted requirements for purchased feeds. Many farm businesses benefited from decreased feed costs from the prior year.

Most dairying areas in Tasmania experienced relatively good spring conditions, with sporadic rain throughout summer. Plant growth was supported through autumn, but as a result, the irrigation season spanned longer than normal. Cooler weather in the Meander region also impacted the growing season.

After three years of severe drought, most dairy regions of Queensland received average to above average rainfall during 2020/21. These conditions lowered demand for purchased feed, easing feed prices and increasing profitability. On farm feed production surged, with reasonable summer crop yields and good winter crop conditions towards the end of 2020/21. However, some districts did not receive strong rainfall and as a result, continued to buy in fodder.

Seasonal conditions improved in Western Australia, with above average winter rainfall in most regions increasing feed produced on farm. Parts of southwest Western Australia recorded their wettest winter on record, causing challenges associated with waterlogged paddocks and smaller windows for spraying and fertiliser.

As a result, the quality of some fodder crops was affected. Fertiliser prices surged throughout 2020/21, with strong demand for limited global supply. At the same time, access to labour from domestic and international border restrictions posed a challenge on farm. These issues were not isolated to Western Australian farmers, but were experienced across all dairy regions of Australia.

In general, Victoria experienced favourable seasonal conditions in 2020/21, with many farms experiencing above average rainfall. These growing conditions supported the production of homegrown feed on most farms. Spring rainfall presented challenges for producing high quality conserved feed on farm, however, the rain over summer helped extend the growing season. Improved seasonal conditions across Australia saw a drop in purchased feed costs for farm businesses and supported farmer profitability.

In South Australia, above average rainfall through spring resulted in extended pasture growth and saw high silage and hay yields. However, the quality of conserved fodder was affected from consistent rain. There was an abundance of feed produced in neighbouring broadacre cropping regions, which could be purchased at prices lower than the previous season. After a warm summer, the region experienced a relatively late autumn break, particularly across the southern Fleurieu Peninsula. Consequently, early pasture supply was tight on dryland farms in May to June 2021, with early oversowings of annual ryegrass not developing as expected on many farms.

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

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
NSW	1.01	0.82	0.33	0.38	1.05	2.01
Vic	0.10	0.69	0.66	0.25	1.68	1.86
Qld	0.96	1.20	0.55	(0.17)	(0.08)	1.31
SA	0.74	0.70	1.17	1.09	1.84	2.26
WA	1.97	1.92	1.31	1.16	1.44	2.20
Tas	0.90	0.94	1.32	1.44	2.50	1.93

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Eastern	0.26	0.65	0.84	0.51	2.07	1.78
Northern	-0.07	0.37	0.67	(0.45)	1.22	1.76
Western	0.11	1.06	0.48	0.71	1.83	2.04

Source: Dairy Farm Monitor Project

Table 12 Average return on total assets by state (%)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
NSW	2.7	2.1	1.2	0.7	2.7	4.7
Vic	0.3	2.3	2.5	0.7	5.4	5.7
Qld	2.8	3.6	1.8	0.0	0.3	3.1
SA	2.9	2.6	4.4	3.5	5.8	6.7
WA	6.4	6.5	3.8	3.2	3.9	5.6
Tas	3.8	3.6	5.1	5.2	8.7	5.6

Source: Dairy Farm Monitor Project and Queensland Dairy Accounting Scheme

Table 13 Average Victorian regional return on total assets (%)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Eastern	1.0	2.1	3.0	1.7	6.6	5.4
Northern	-0.5	1.0	2.6	-1.7	4.1	6.0
Western	0.3	3.9	1.9	2.3	5.8	5.5

Source: Dairy Farm Monitor Project

MILK PRODUCTION

Farm numbers in Australia have steadily decreased, while the 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 became a period of consolidation for the industry, with falling cow numbers and dry seasonal conditions constraining production. This was especially the case in northern Victoria, where reduced irrigation water availability saw prices rise significantly.

In recent years, volatility in farmgate milk prices and farm incomes have impacted farmer confidence and the industry's ability to grow. The disruption caused by the late season step-downs in 2015/16, lower average milk prices and challenging seasonal conditions in the subsequent years, shifted the focus of many farmers. Their priority transitioned from longer term investments and increasing milk production, to cost control, refinancing and business consolidation. In many cases, farmers culled extensively during these years, taking advantage of higher beef prices to maintain cashflow.

In contrast, the 2020/21 season will be remembered by many as one of the best in recent memory. After several challenging years, favourable weather delivered a turnaround in operating conditions on farm. Above average rain and warm temperatures during spring and summer resulted in a close to record large winter crop harvest and plentiful pasture growth. This significantly improved feed availability and lowered input costs for most farmers across the country. Combined with a historically strong farmgate milk price, a vast majority of farmers reported making an operating profit during 2020/21. Favourable conditions for most of the year encouraged many farmers to retain stock and begin to focus on rebuilding the herd. As a result, Australia's national milk pool increased for the first time in three years, ending the season up 0.7% at 8,858 million litres.

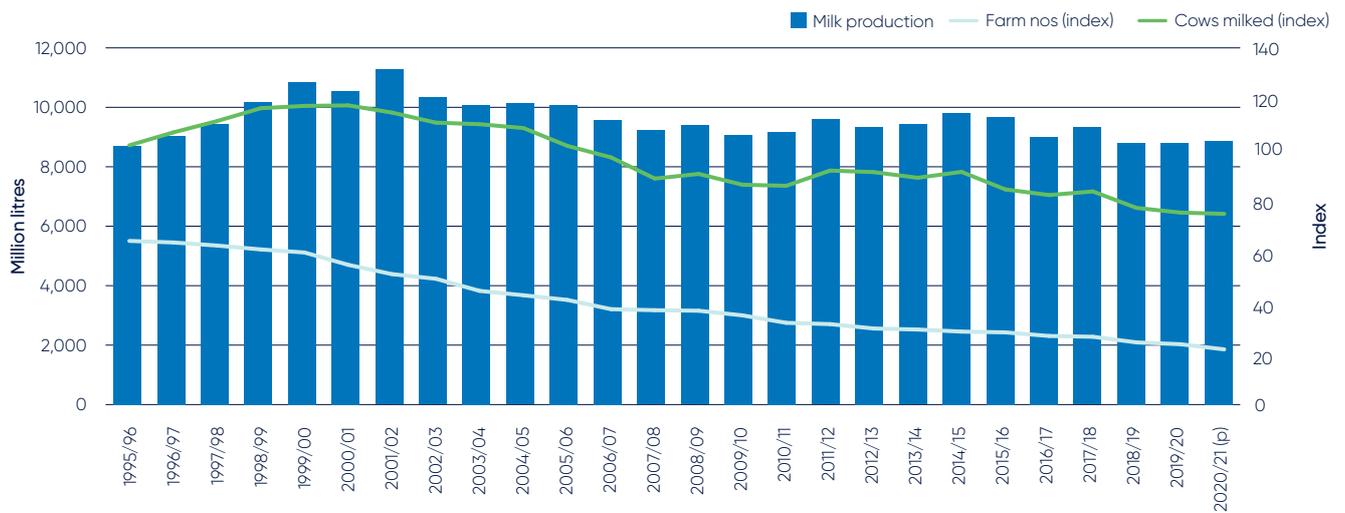
As Figure 5 indicates, the underlying trend has continued towards fewer farms, larger herds and increasing levels of milk production per farm.

Table 14 Milk production by state (million litres)

	NSW	Vic	Qld	SA	WA	Tas	Aust
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	1,144	5,979	399	505	385	913	9,325
2018/19 (r)	1,094	5,576	359	497	374	910	8,810
2019/20 (r)	1,054	5,625	315	489	364	950	8,797
2020/21 (p)	1,075	5,651	309	500	362	961	8,858

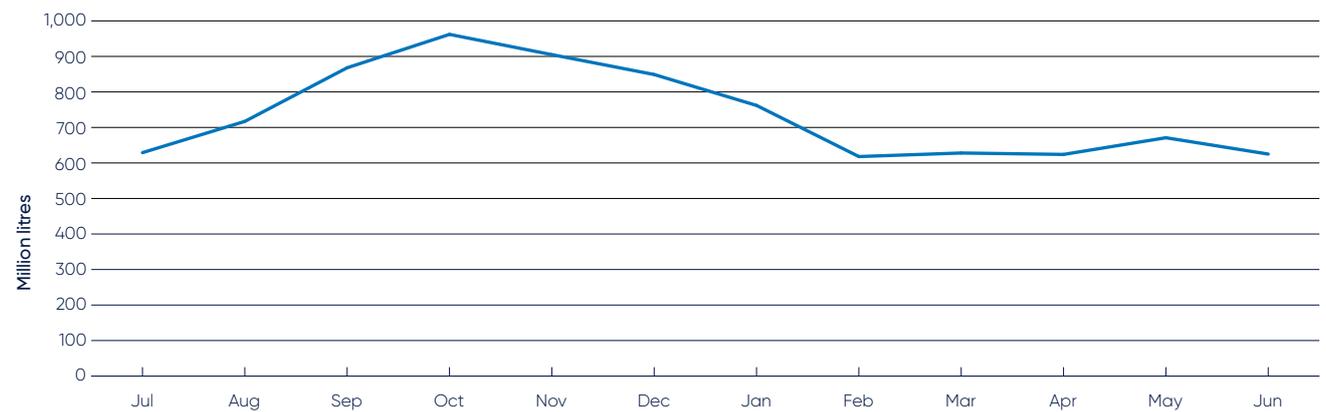
Source: Dairy manufacturers

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 2020/21



Source: Dairy manufacturers



As shown in Table 14, dairy farming is concentrated in the temperate zone of Australia. Australian milk production remains strongly seasonal in key southeastern dairying regions, reflecting the predominantly pasture-based nature of the industry. Production peaks in October, tapers off until late summer, and then flattens out into the cooler winter months (refer to Figure 6). The production of long shelf-life manufactured products in these parts of the country has enabled maximum milk utilisation within the seasonal cycle. However, the seasonality of milk output in Queensland, New South Wales and Western Australia is much less pronounced, due to a greater focus on drinking milk and fresh products. Farmers in these states manage calving and feed systems to ensure flatter, year-round milk production.

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

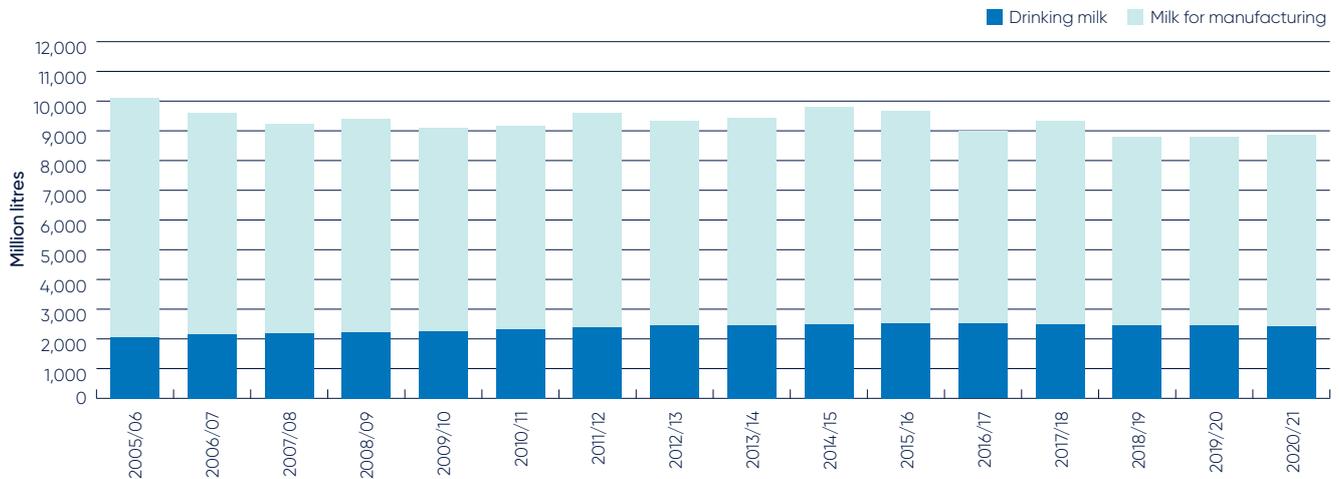
Solids such as milkfat, protein, lactose and minerals are the core constituents of cows' milk, with water making up about 87% of the volume. The milkfat and protein components are those on which companies base their farmgate milk prices.

Milk composition can vary between regions and seasons, as shown in Table 15. This may be due to several factors, including 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 2020/21, 27% of Australia's production was used for drinking milk, compared to 18% in 2001/02. About 40% of milk produced in 2020/21 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 32% in 2020/21. 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 significant share of its milk production, despite having a larger domestic market and lower milk production.

Figure 7 Drinking and manufacturing milk production



Source: Dairy manufacturers

Table 15 Average fat/protein 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	3.89	4.12	4.05	3.84	3.90	4.39	4.10
2019/20	3.95	4.18	4.01	3.90	3.91	4.37	4.15
2020/21 (p)	3.99	4.24	4.03	3.88	3.93	4.41	4.20
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	3.25	3.40	3.29	3.29	3.22	3.50	3.38
2019/20	3.30	3.47	3.30	3.35	3.28	3.58	3.45
2020/21 (p)	3.31	3.45	3.35	3.35	3.32	3.55	3.43

Source: Dairy manufacturers

DAIRY MANUFACTURING

There are 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 cooperatives no longer dominate the Australian industry. Some large multinational companies have operated in the Australian dairy industry for many years, including Fonterra (New Zealand), Lactalis (France) and Saputo (Canada).

Over the past two decades, Australia's contracting milk pool has reduced the need for local dairy companies to invest in processing capacity, however, several new investments have still been made. The age of existing plants and the need to rationalise production have seen some processors close plants to reduce costs. Others have chosen to increase capacity at remaining sites, or upgrade plants to produce higher specification products.

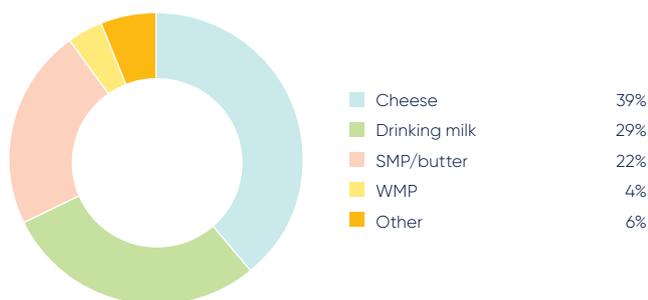
Several major developments occurred in 2020/21. In January, Bega Cheese finalised the acquisition of Lion Dairy & Drinks. In the same month, Corio Bay Dairy Group's spray drying facility in Geelong, Victoria, was

sold to Maeil Dairies. The Milk Exchange hosted its first online event for 2021/22 milk contracts, allowing farmers to nominate quantity and price for their milk for buyers to bid on. Furthermore, a review of the Dairy Mandatory Code of Conduct was launched, with complete findings to be reported to the Federal Treasurer by end of the 2021 calendar year.

In 2020/21, around 44% (in milk equivalent terms) of manufactured product such as cheese and butter was exported, with the remaining 56% sold on the Australian market. This contrasts with drinking milk, where most was consumed domestically.

Cheese is consistently the major product stream, accounting for 39% of Australia's milk production in 2020/21. Recent investments in cheese production suggest that this is likely to remain the case in future. Drinking milk and skim milk powder/butter production represent the next two largest utilisers of milk, accounting for 29% and 22% of Australian milk respectively.

Figure 8 Australian milk utilisation in 2020/21



Source: Dairy Australia

DAIRY MARKETS

Australia's milk production exceeds the volume required for domestic consumption and this has traditionally created a surplus destined for export markets. As illustrated in figure 9, the share of total production destined for export has ranged from around 30%-50% over the past two decades. A larger domestic market from population growth and an overall decline in milk production, have seen the share of milk exported contract. In recent years, Australia has exported around one third of its milk, with 32% of milk produced exported in 2020/21.

Australia accounts for less than 2% of the world's estimated milk production but remains a significant exporter of dairy products. The country currently ranks fourth in terms of world dairy trade – with a 4% share, behind New Zealand, the European Union and United Kingdom (as a bloc) and the United States.

For a number of years, Greater China (including China, Hong Kong and Macau) has been Australia's largest market, as a destination for about 38% of exports by volume. Greater China remains one of Australia's fastest growing export markets by volume, with other large export destinations including Singapore, Japan, Malaysia and Indonesia.

Japan remains a vital trade partner for Australian exporters, as a mature, high-value market with long-established business relationships. All in all, more than 88% of Australian exports were destined for Asia in 2020/21.

Australia's total exports were valued at A\$3.3 billion in 2020/21. Measured by dollar value, the top five export markets were Greater China, Japan, Malaysia, Indonesia and Singapore. This order differs slightly from export rankings by volume, highlighting the differences in value for various dairy products imported.

The concentration of Australian exports to Asia reflects the geographical proximity to these markets, and the extent to which Australia has been hindered from accessing 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.

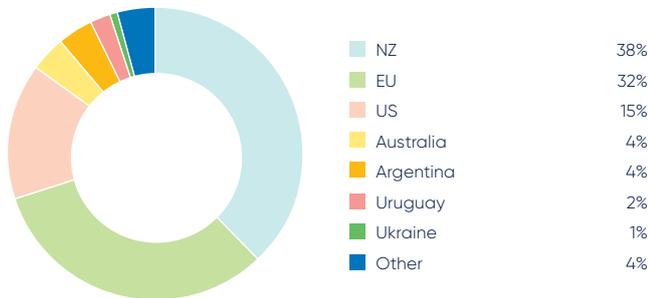
See Appendix 8 for detailed tables of Australia's export markets.

Figure 9 Australian production and exports (milk equivalents)



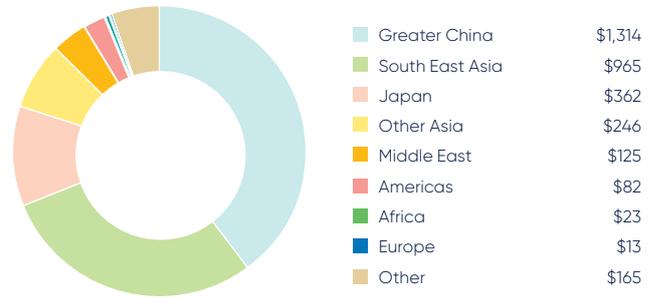
Source: Dairy manufacturers and ABS

Figure 10 Exporters' share of world dairy trade in 2020 (milk equivalents)



Source: Dairy Australia

Figure 11 Australian exports by region in 2020/21 (A\$ million)



Source: ABS

Table 16 Australian dairy exports by product by region 2020/21 (\$A million)

	SE Asia	Other Asia	Europe	Middle East	Africa	Americas	Other	Total
Butter/AMF	62	55	3	7	6	12	2	147
Cheese	227	532	2	36	13	45	34	889
Milk	121	227	0	0	0	1	20	370
SMP	182	286	0	42	1	0	2	511
WMP*	97	360	0	3	1	1	7	469
Other	275	462	9	38	3	23	100	910
Total	965	1,922	13	125	23	82	165	3,296

*Also includes infant powder.

Other includes buttermilk powder, casein, condensed milk, ice cream, lactose, whey powder, yoghurt and mixtures.

Source: ABS

Table 17 Top 10 Australian export destinations in 2020/21

Country	Volume (tonnes)	% of total	Country	Value (A\$ million)	% of total
Greater China*	318,507	38	Greater China*	1,314	40
Singapore	70,717	9	Japan	362	11
Japan	69,188	8	Malaysia	224	7
Malaysia	67,979	8	Indonesia	217	7
Indonesia	52,323	6	Singapore	186	6
Philippines	37,830	5	New Zealand	119	4
New Zealand	30,076	4	Philippines	110	3
Vietnam	29,765	4	Thailand	109	3
Taiwan	25,715	3	Vietnam	107	3
Thailand	24,752	3	Taiwan	104	3

*Includes China, Hong Kong and Macau

Source: Dairy Australia and ABS

AUSTRALIAN CONSUMPTION OF DAIRY PRODUCTS

In Australia, the main consumer dairy products are drinking milk, cheese, butter/butter blends and yoghurt. Over the past two decades, per capita consumption trends have varied quite significantly by individual product. These trends reflect changes in consumer tastes in response to multicultural influences on food trends, health perceptions surrounding dairy products, as well as flavour and packaging innovations.

Currently, per capita consumption of drinking milk is estimated at 94.4 litres. This has marginally declined over recent years, however, compared to other developed countries, Australia's consumption of drinking milk is high. This can be partly attributed to the expansion of the 'coffee culture' in Australia and growth in flavoured milk products. Following the COVID-19 outbreak, UHT milk has also grown in popularity. Despite this increase in demand for UHT products, fresh milk remains by far the most popular variety amongst consumers.

In recent years, cheese consumption has stabilised and in 2020/21 per capita consumption is estimated at 13.4kg. While 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 rising demand for mozzarella cheese in the foodservice sector and retail stores, as well as growth in specialist cheese varieties.

Annual per capita consumption of butter in Australia was around 3.6kg in 2020/21. Australian consumers are attracted to the natural characteristics of butter, along with its superior taste and cooking functionality. Sales of

this product are also underpinned by findings in health and nutritional science, changing consumer perception of health risks associated with saturated fats and butter. Butter consumption decreased in 2020/21, partly due to an increase in exports, and weaker foodservice demand as a result of COVID-19 induced restrictions. While butter consumption eased, some Australian consumers opted for other fat-filled products, and sales of cream grew.

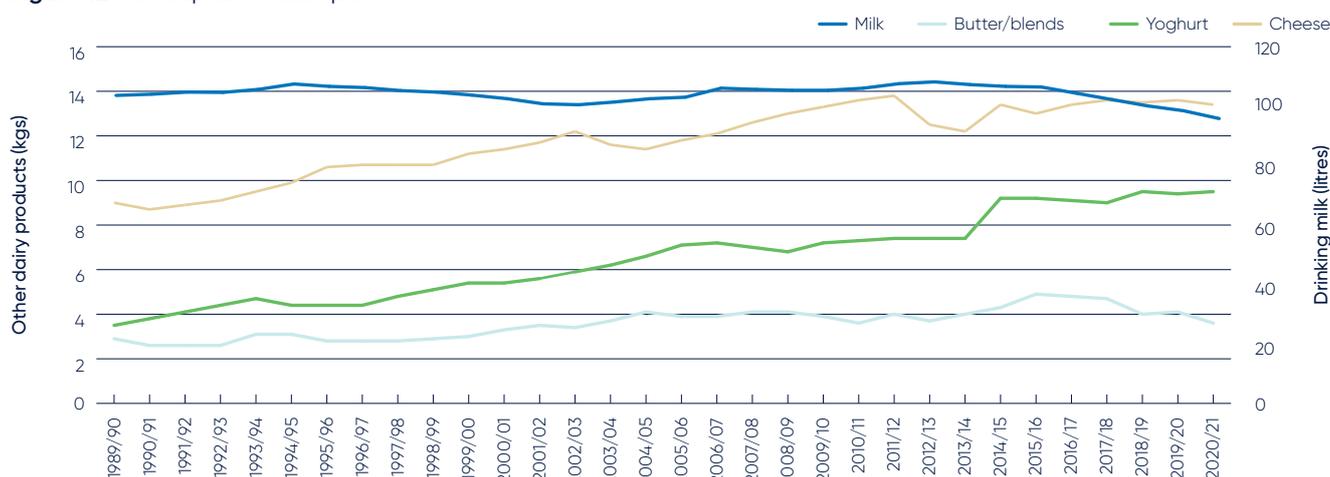
Yoghurt is a healthy snack for consumers, combining both convenience and health attributes, with a growing per capita consumption, currently estimated at 9.5 kg per year. Consumer preferences have shifted with heightened focus on natural and healthy products, and increased awareness surrounding the health risks of sugar. As a result, consumers have transitioned away from sweetened and flavoured yoghurt varieties, towards Greek and natural style yoghurts.

Table 18 Per capita consumption of major dairy products

	Milk (l)	Cheese (kg)	Butter/ blends (kg)	Yoghurt (kg)
2016/17	102.8	13.4	4.8	9.1
2017/18	100.7	13.6	4.7	9.0
2018/19	98.6	13.5	4.0	9.5
2019/20	97.0	13.6	4.1	9.4
2020/21 (p)	94.4	13.4	3.6	9.5

Source: Dairy manufacturers and Dairy Australia

Figure 12 Per capita consumption



Source: Dairy manufacturers and Dairy Australia

DRINKING MILK

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

Australian consumers 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. While fresh milk accounts for the vast majority of milk sales in Australia, the share of supermarket sales by volume for UHT milk (heated to 140 degrees for two seconds) has increased over the past two decades. The COVID-19 pandemic and associated panic buying have further increased sales of UHT milk.

Regular or full cream milk has a milkfat content of 3.4% to 3.6%, while 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 and 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 sales volumes of low-fat and skim milks have declined. While white milk (unflavoured) still accounts for most of drinking milk sold, sales of flavoured milk have also grown.

Flavoured milk is an important source of revenue for the industry due to its higher unit prices. Sales of this milk variety 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. Demand in states like Victoria tends to be seasonal.

There are several major players in the Australian drinking milk market, with the two largest being Bega Cheese (following the recent acquisition of Lion Dairy and Drinks assets) and Lactalis Australia (with the Pauls and Harvey Fresh brands). Fonterra Australia and Saputo Dairy Australia entered the drinking milk market after 2011, by taking major supermarket private label contracts in Victoria and New South Wales. Some major retailers also directly source milk for private label supermarket sales. 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.

Historically, Australia only exported relatively small volumes of liquid milk. However, in recent years, export volumes have grown significantly. In 2020/21, Australia exported over 280 million litres of milk, up 15% compared to last year. This product was predominantly UHT. About 95% of the total volume exported went into Asia, with the remainder going towards the island countries of the Pacific and some markets in the Middle East.

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	659	88	241	257	2,489
2015/16	1,311	617	80	246	266	2,520
2016/17 (r)	1,362	566	71	246	256	2,501
2017/18	1,397	538	64	242	252	2,493
2018/19 (r)	1,409	518	63	233	248	2,471
2019/20 (r)	1,402	514	69	227	256	2,468
2020/21 (p)	1,371	500	62	235	257	2,425

(Dairy Australia estimates that this collection covers over 95% of milk sales)

Source: Milk processors and State milk authorities

Table 20 Drinking milk sales by state (million litres)

	NSW	Vic	Qld	SA	WA	Tas	Aust
1979/80	531	437	249	127	119	41	1,504
1989/90	582	449	316	150	164	47	1,730
1999/00	597	440	383	185	190	48	1,933
2009/10	708	545	499	213	247	57	2,269
2010/11	715	566	502	213	262	58	2,316
2011/12	721	582	531	221	274	58	2,387
2012/13	719	600	563	222	280	61	2,445
2013/14	711	612	584	221	279	59	2,466
2014/15	715	625	581	222	285	61	2,489
2015/16	732	637	583	222	285	61	2,520
2016/17 (r)	721	633	578	226	283	60	2,501
2017/18	719	627	583	223	281	60	2,493
2018/19 (r)	708	636	576	217	276	58	2,471
2019/20 (r)	691	655	575	215	277	55	2,468
2020/21 (p)	679	626	573	212	280	55	2,425

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

(Dairy Australia estimates that this collection covers over 95% of milk sales)

Source: Milk processors and State milk authorities

CHEESE

Australia produced approximately 366,000 tonnes of cheese in 2020/21, close to the production volumes of the early to mid-2000s. In recent years, dairy companies have adjusted export mixes to take advantage of favourable movement in international commodity prices, which significantly impacts production volumes. This often leads to increased cheese production when international price trends make it an attractive revenue stream, which has been the case for the last few years.

Cheese is a major product for the Australian dairy industry, utilising more than a third of Australian milk. 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 51% in 2020/21.

In 2020/21, Australia exported approximately 155,000 tonnes of cheese to 57 different countries, worth a total of \$879 million.

Japan continues to be Australia's most important overseas cheese market, accounting for around 39% of cheese exported in 2020/21. This product is mostly fresh or cream cheese varieties, used for processing. Other important overseas markets include Greater China, Malaysia, South Korea, the Philippines, Singapore and the United States.

The trend away from cheddar cheeses towards non-cheddar cheese types is also evident in Australia's cheese exports. The non-cheddar share of total export sales has steadily increased from around 60% two decades ago, to over 71% in 2020/21.

Australia is also a major importer of cheese; over the past ten years imports have grown more than 50%. Imports from New Zealand totalled about 42,000 tonnes, with the European Union and United States largely accounting for the balance.

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

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Cheddar	171,590	186,145	202,032	196,013	198,284	179,084
Semi hard	49,559	51,703	60,511	64,467	66,286	73,655
Hard grating	5,040	5,993	4,022	8,417	10,005	15,363
Fresh	110,767	97,054	103,510	104,586	89,781	91,306
Mould	7,300	7,757	7,652	7,628	6,775	6,793
Total cheese	344,257	348,652	377,727	381,111	371,131	366,201

(Dairy Australia estimates that this collection covers over 90% of cheese production)
Source: Dairy manufacturers

BUTTER

In 2020/21, Australia produced close to 82,000 tonnes of butter and anhydrous milkfat (AMF) in commercial butter equivalent terms (CBE). AMF is butter with the water removed, similar to ghee. When manufacturing butter, skim milk powder is created as a coproduct, utilising the solids nonfat components of the milk. It is primarily produced for export and domestic food manufacturing applications, such as bakery and confectionery. While these sectors all utilise butter, most domestic butter sales are through retail and foodservice outlets.

In 2020/21, around 65% of domestic dairy spread sales were through supermarkets. The COVID-19 outbreak, and consequential restrictions to curb the spread of the virus, impacted consumer habits. The temporary closure of many foodservice venues diverted consumer spending to grocery outlets. As a result, the shift in overall demand from the foodservice to retail sector has supported supermarket sales of dairy blends.

Butter imported into Australia accounted for over one-third of the butter market by volume in 2020/21. Of the 37,000 tonnes of butter and butteroil imported into Australia, almost 84% came from New Zealand with the remaining product sourced mostly from various European countries.

Australian exports of butter and AMF can vary significantly from year to year. This often depends on milk availability during the season and local dairy company responses to international prices for competing products. In 2020/21, export volumes increased roughly 110%, rising to almost 25,000 tonnes. Out of 36 countries, Australia's most important overseas markets for butter and AMF were Greater China, Thailand, Singapore and Malaysia.

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

Table 22 Butter and AMF production (tonnes)

	2015/16	2016/17	2017/18 (r)	2018/19 (r)	2019/20 (r)	2020/21 (p)
Butter/butter blends (CBE)	99,015	85,459	79,749	61,177	63,567	69,227
AMF (CBE)	19,610	14,539	13,570	12,270	9,601	12,477

(Dairy Australia estimates that this collection covers over 85% of butter/AMF production)
Source: Dairy manufacturers

Table 23 Australian exports of butter and AMF (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Butter	23,051	14,409	9,721	13,183	8,044	17,691
AMF (CBE)	10,404	6,896	6,354	8,089	3,809	7,222

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, and frozen products such as ice-cream.

Over the past two decades, yoghurt production has grown considerably. The product category's ability to meet rising consumer preferences for convenient, yet healthy snacks has been advantageous in an environment of time-poor lifestyles. Yoghurt sales have remained strong during the COVID-19 pandemic, as consumers purchase more products when cooking and baking at home. Featuring international brands, such as Ski, Yoplait and Chobani, there is an ongoing trend away from sweetened and flavoured varieties in the yoghurt market. Traditional, unflavoured types, such as Greek-style yoghurt, are perceived to be healthier and more 'natural' to health-conscious consumers. This shift in perception has strengthened sales of unflavoured, traditional type yoghurts, overtaking sweetened and flavoured yoghurts as the most sold yoghurt product.

Growth in yoghurt sales has also been underpinned by regular product innovation, particularly in areas such as 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 and high value dairy category, including products like mousses, crème caramels and fromage frais. Marketed as an indulgence or treat item, they are generally targeted to adult consumers. Fromage frais and flavoured custards are examples of children's products which often feature popular cartoon characters on-pack.

As a traditional favourite, chilled custard sales have marginally increased in recent years, as manufacturers expand their product offerings. This includes branching out into new flavours and small, snack-sized, single-serve plastic cups sold in multi-packs.

Cream sales increased 12% in 2020/21, remaining an important fresh dairy product widely utilised in cooking. Both regular and sour creams are used extensively as accompaniments or ingredients. Similar to butter, consumers remain interested in cream's superior taste and cooking functionality, relative to plant-based substitutes.

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

MILK POWDERS

Australian manufacturers produce a wide range of milk powders. The technology used in both the production and utilisation of powders has allowed the range of specifications available from Australian manufacturers to expand in line with customer needs.

As milk production grew steadily in the years to 2000, whole milk powder production expanded to represent a larger share of total milk powder production. However, in 2001/02 this trend reversed, and skim milk powder production is now the predominant milk powder. In 2020/21, skim milk powder accounted for more than three-quarters of milk powders produced. Following several challenging years for the dairy industry, manufacturers have had access to a smaller national milk pool and a wider variety of markets. As a result, companies have had to be more flexible with their product mixes, taking advantage of relative movements in international commodity prices. Differing market access arrangements also impact 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 is exported overseas.

Only a small portion of Australia's powder production is sold domestically, with local product mainly used as an ingredient in food manufacturing. Infant formula is a high-value product that has shown considerable growth in the past five years. Infant formula growth is generated through Australian supermarket sales (partly due to the demand from informal re-export trades, such as the Diagou-trade), as well as through direct exports.

Australia also imported roughly 73,000 million tonnes of milk powders in 2020/21. Despite decreasing from last year, imports of milk powders have been growing steadily over the past decade. 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. This is mainly due to insufficient local production and/or limited development of cold chain distribution facilities. These products are also used in bakery items (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 often used for stockfeed.

The major export markets for Australian milk powders are concentrated in Asia, where over 90% of skim milk powder and whole milk powder exports were destined in 2020/21.

Out of 28 export destinations, the largest export market for Australian-produced skim milk powder in 2020/21 was Greater China, followed by Indonesia, Yemen, Vietnam, Thailand and Singapore.

Exports of Australian-produced whole milk powder were sent to 32 destinations in 2020/21, with Greater China representing the largest market. This was followed by Thailand, Bangladesh, Singapore, Malaysia and Sri Lanka.

See Appendix 8 for more details on milk powder exports.

Table 24 Australian production of milk powders (tonnes)

	2015/16	2016/17	2017/18 (r)	2018/19 (r)	2019/20 (r)	2020/21 (p)
Skim milk powder	255,792	222,109	201,426	192,373	160,180	153,741
Whole milk powder*	66,125	63,242	83,999	48,534	44,636	52,458

*Includes infant powders.

(Dairy Australia estimates that this collection covers over 80% of WMP production and over 85% of SMP production)

Source: Dairy manufacturers

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

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia	147,843	135,998	137,629	136,669	94,576	112,838
Middle East	23,249	14,057	11,630	12,559	11,140	9,944
Africa	5,829	1,428	5,761	236	25	150
Pacific	3,857	1,775	1,586	1,737	1,901	478
Americas	552	47	0	0	0	0
Europe	43	0	0	0	0	5
Total	181,374	153,305	156,606	151,201	107,642	123,415

Source: ABS

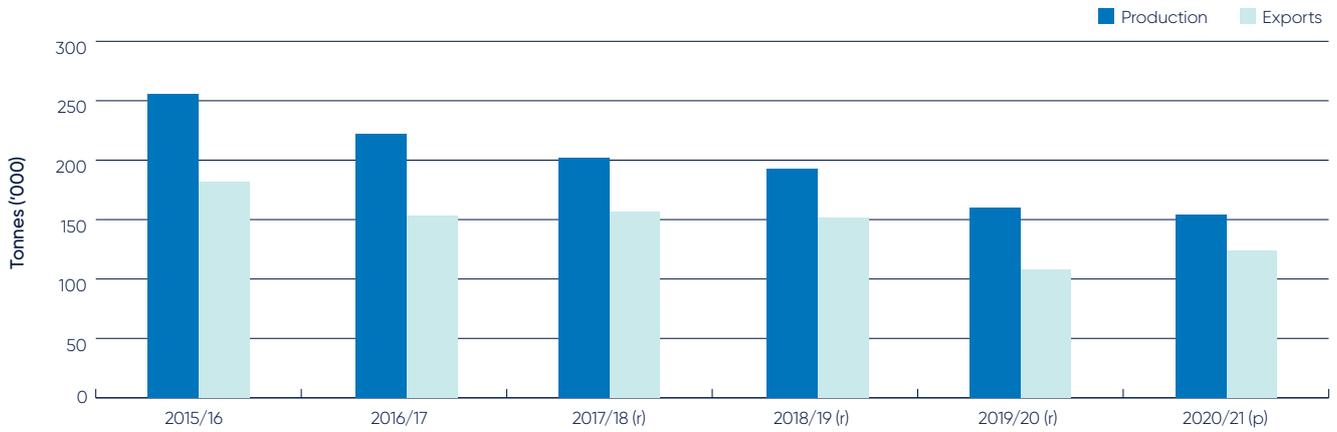
Table 26 Australian exports of whole milk powder by region* (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia	62,548	77,157	73,851	49,508	44,174	53,005
Middle East	5,050	4,158	4,467	1,953	846	636
Africa	368	243	5,558	67	13	172
Pacific	4,348	2,083	2,170	1,860	1,032	1,183
Americas	4,227	3,063	1,315	1,324	491	217
Europe	511	104	200	0	0	0
Total	77,052	86,808	87,561	54,712	46,556	55,213

*Includes infant powders

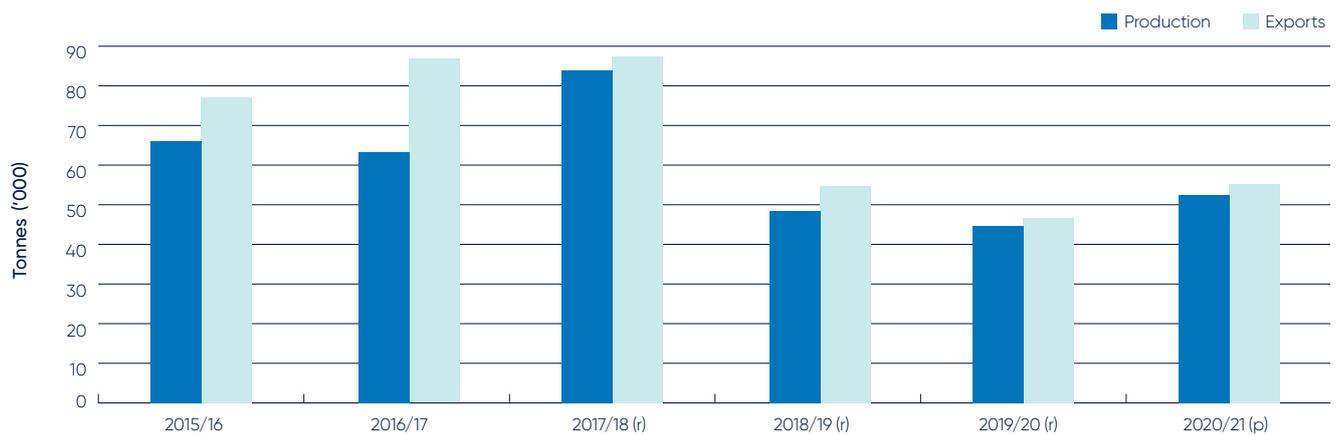
Source: ABS

Figure 13 Australian production and exports of skim milk powder



(Dairy Australia estimates that this collection covers over 85% of SMP production)
 Source: Dairy manufacturers and ABS

Figure 14 Australian production and exports of whole milk powder



(Dairy Australia estimates that this collection covers over 80% of WMP production)
 Source: Dairy manufacturers and ABS

WHEY PRODUCTS AND CASEIN

As a by-product of the cheese making process, traditionally whey has been disposed of in its liquid form. However, over the past few decades, recognition of the value of whey's components and properties has increased the utilisation of whey powder and protein concentrates.

Food-grade whey powder is utilised in manufacturing 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.

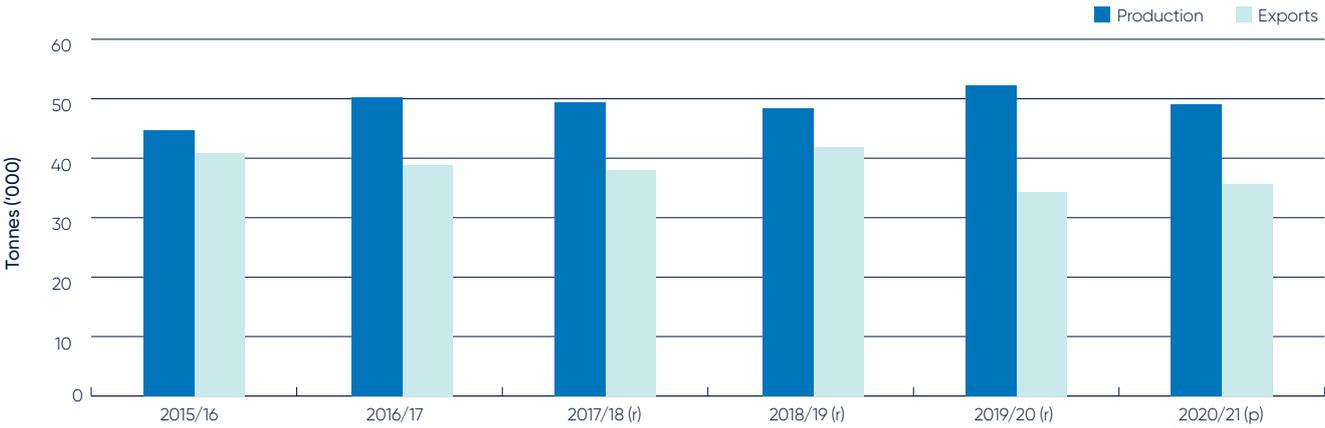
Whey protein concentrates are used in snack foods, juices, confectionery, ice-cream, biscuits, processed meats, protein drinks, desserts, infant foods and dietetic products. Furthermore, products such as cosmetics, skin creams, bath salts and detergents also contain protein concentrates.

In Australia, whey is used domestically in manufacturing infant formula, biscuits and ice-cream, while the remainder is exported. In 2020/21, Indonesia, Greater China, Malaysia, Thailand, Japan and Singapore were the largest export markets for Australian whey powders.

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. These mainly originate from New Zealand (approximately 60% of the total volume), with the balance from Europe and the United States in 2020/21.

Figure 15 Australian production and exports of whey products



(Dairy Australia estimates that this collection covers over 95% of whey production)
Source: Dairy manufacturers and ABS

INDUSTRY ORGANISATIONS AND STRUCTURE

Dairy Australia

- is the dairy industry's national service 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 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 the national service body for the Australian dairy industry. Dairy Australia is funded by a combination of levies paid by dairy farmers, calculated on the fat and protein content of milk, and matching payments from the Commonwealth government for eligible research and development (R&D) activities.

Animal Health Australia

Australian dairy farmers also 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 2020/21

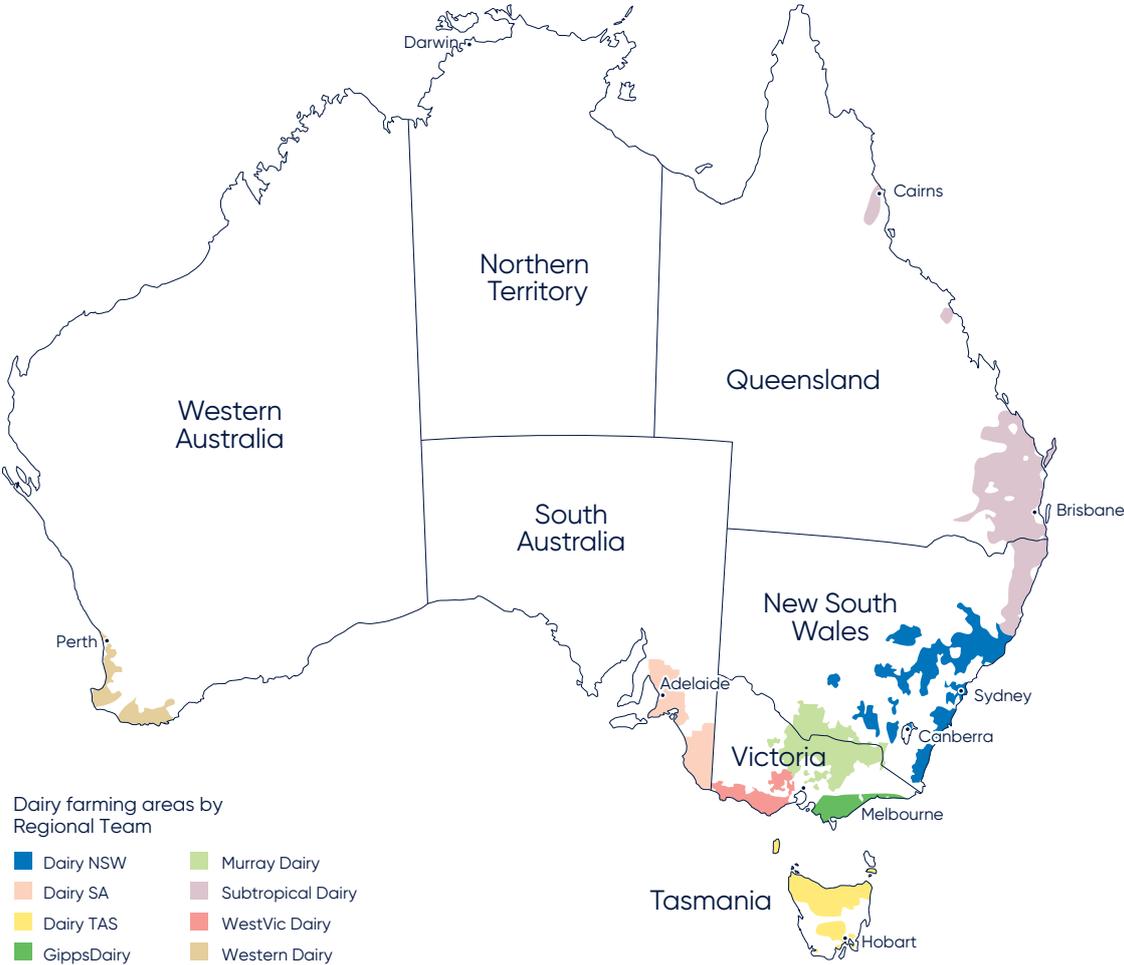
	Milkfat (¢/kg)	Protein (¢/kg)	Milk* (¢/litre)	Milk solids (¢/kg)
Animal Health Australia	0.0580	0.1385	0.007	0.09
Dairy Service	2.8683	6.9914	0.360	4.72

*Based on average 2020/21 Australian milk composition of 4.20% milkfat and 3.43% protein



APPENDICES

Appendix 1 Dairying regions



Appendix 2 Australian industry footprint

Table A1 Australian state/region breakdown 2020/21

	Qld	NSW	Vic	SA	WA	Tas	Aust
Dairy farms ¹	307	523	3,080	198	132	378	4,618
Cows in milk and dry ('000) ²	63	143	880	69	50	179	1,384
People employed on farm (full time and part-time) ³	2,200	2,300	9,900	900	600	1,600	17,500
People employed in processing (full time and part-time) ³	2,300	3,300	11,700	700	600	1,300	19,900
People directly working in dairy (full time and part-time) ³	4,500	5,600	21,600	1,600	1,200	2,900	37,400
Volume of milk produced (ML) ⁴	309	1,075	5,651	499	362	961	8,858
Share of national milk production (%)	3.5	12.1	63.8	5.6	4.1	10.8	
Value of milk leaving farms (\$m)	207	670	2,864	263	194	490	4,688
Value of dairy products exported (\$m) ⁵	59	413	2,077	194	56	498	3,296
Share of national dairy exports – value (%)	2	13	63	6	2	15	
Volume of dairy products exported ('000)	18	53	591	51	48	71	831
Share of national dairy exports – volume (%)	2	6	71	6	6	9	

Source: ¹ State milk authorities and Dairy Australia; ² ABS and Dairy Australia; ³ Employment derived from a three-yearly median state level figures from ABS Labor Force Statistics, May 2021 Quarter publication: 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	Gipps Dairy	Murray Dairy	WestVic Dairy	DairySA	Western Dairy	Dairy Tas	Aust
Dairy farms ¹	418	349	1,097	977	1,069	198	132	378	4,618
Cows in milk and dry ('000) ²	82	93	313	293	305	69	50	179	1,384
People employed on farm (full time and part-time) ³	2,300	2,000	3,400	3,200	3,500	900	600	1,600	17,500
People employed in processing (full time and part-time) ³	2,400	3,100	4,100	3,900	3,800	700	600	1,300	19,900
People directly working in dairy (full time and part-time) ³	4,700	5,100	7,500	7,100	7,300	1,600	1,200	2,900	37,400
Volume of milk produced (ML) ⁴	440	803	2,022	1,777	1,995	499	362	961	8,858
Share of national milk production (%)	5.0	9.1	22.8	20.1	22.5	5.6	4.1	10.8	
Value of milk leaving farms (\$m)	294	500	1,025	912	1,011	263	194	961	4,688
Value of dairy products exported (\$m) ⁵	69	403	712	662	703	194	56	498	3,296
Share of national dairy exports – value (%)	2	12	22	20	21	6	2	15	
Volume of dairy products exported ('000)	19	50	204	187	201	51	48	71	831
Share of national dairy exports – volume (%)	2	6	25	23	24	6	6	9	

Source: ¹ State milk authorities and Dairy Australia; ² ABS and Dairy Australia; ³ Employment derived from a three-yearly median state level figures from ABS Labor Force Statistics, May 2021 Quarter publication: 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 Feed prices

Table A2 Indicative Australian grain prices (\$ per tonne)

		Wheat	Barley	Maize	Sorghum	Canola meal	Oats
Atherton Tablelands	2018/19	453	567	564	408		
	2019/20	434	522	562	421		
	2020/21	358	306	391	343		
Darling Downs	2018/19	437	415	558	393		
	2019/20	422	386	558	405		
	2020/21	328	283	379	325		
North Coast NSW	2018/19	425	415	559	398		
	2019/20	426	404	568	413		
	2020/21	293	242	359	311		
Central West NSW	2018/19	360	351	461	383		
	2019/20	363	331	458	400		
	2020/21	266	212	364	288		
Bega Valley	2018/19	447	446	506		516	
	2019/20	418	374	488		456	
	2020/21	320	255	381		437	
Goulburn/Murray Valley	2018/19	397	398	456		484	
	2019/20	359	318	480		416	
	2020/21	298	235	364		431	
Gippsland	2018/19	442	432	496		510	
	2019/20	375	337	487		436	
	2020/21	313	254	385		440	
South West Victoria	2018/19	397	371	504		519	
	2019/20	367	319	488		431	
	2020/21	296	236	387		431	
South East South Australia	2018/19	368	347	520		448	
	2019/20	324	285	503		311	
	2020/21	305	232	415		433	
Central Districts SA	2018/19	343	312	505		475	
	2019/20	302	264	489		405	
	2020/21	302	226	424		328	
South West WA	2018/19	320	329	391			337
	2019/20	306	269	380			389
	2020/21	322	258	313			303
North West Tasmania	2018/19	464	456	584		545	
	2019/20	454	391	506		469	
	2020/21	407	337	395		516	

(Data represents a simple average of yearly data in each region)
Source: Profarmer

Table A3 Indicative Australian hay prices (\$ per tonne)

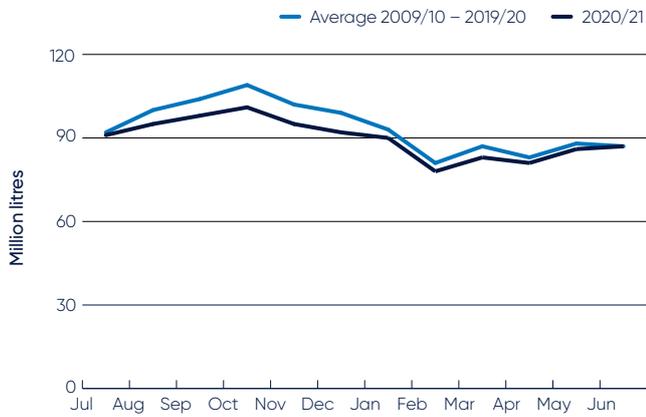
		Pasture hay	Cereal hay	Lucerne hay	Straw
Atherton Tablelands	2018/19	344			
	2019/20	359			
	2020/21	305			
Darling Downs	2018/19	348	523	592	344
	2019/20	412	471	645	304
	2020/21	220	312	419	65
North Coast NSW	2018/19	328	468	616	297
	2019/20	326	462	593	252
	2020/21	227	285	421	125
Central West NSW	2018/19	381	480	568	294
	2019/20	372	442	616	271
	2020/21	180	262	504	70
Bega Valley	2018/19	433	458	562	219
	2019/20	450	436	653	275
	2020/21	408	344	615	215
Goulburn/Murray Valley	2018/19	358	364	526	163
	2019/20	334	303	579	140
	2020/21	274	203	475	90
Gippsland	2018/19	383	436	533	219
	2019/20	346	373	597	209
	2020/21	126	302	600	82
South West Victoria	2018/19	293	323	438	174
	2019/20	279	303	527	156
	2020/21	165	208	451	70
South East South Australia	2018/19	294	324	455	156
	2019/20	301	318	495	154
	2020/21	190	230	341	110
Central Districts SA	2018/19		344	448	182
	2019/20		304	545	175
	2020/21		221	437	115
South West WA	2018/19	195	287	470	131
	2019/20	245	341	470	141
	2020/21	210	326	470	130
North West Tasmania	2018/19	149	207	311	148
	2019/20	239	266	378	131
	2020/21	273	240	328	175

(Data represents a simple average of yearly data in each region)
Source: Australian Fodder Industry Association (AFIA)

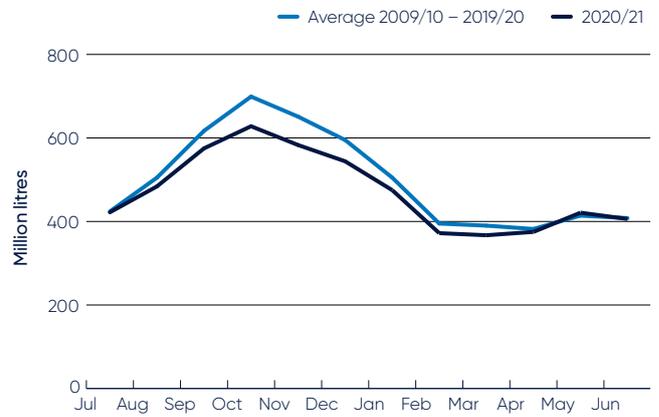


Appendix 4 Milk production

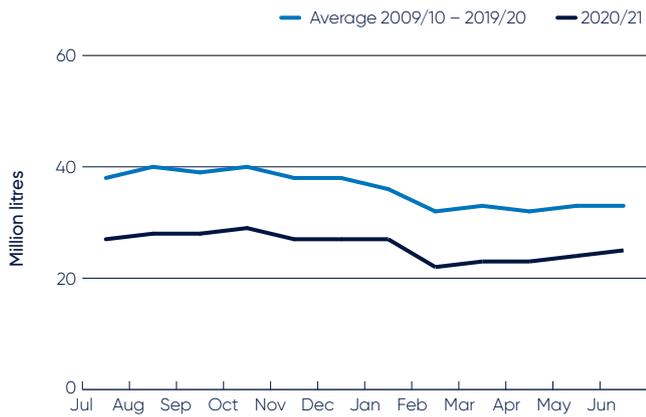
Figure A1 Seasonality of milk production in 2020/21
New South Wales



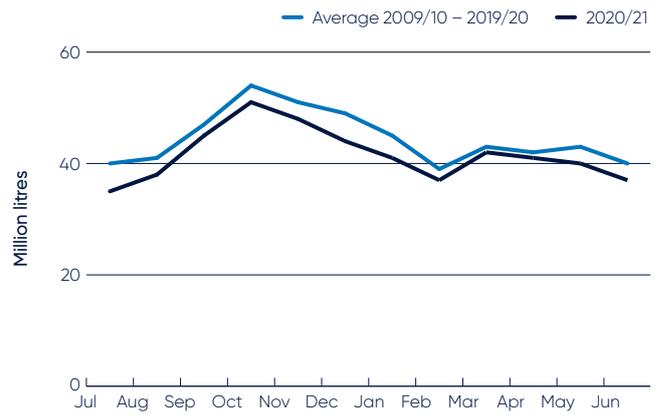
Victoria



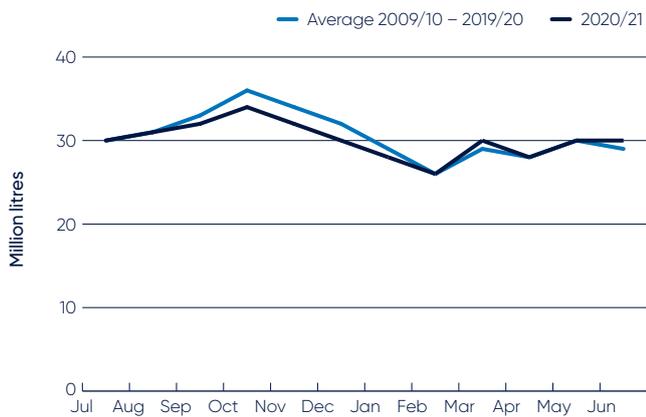
Queensland



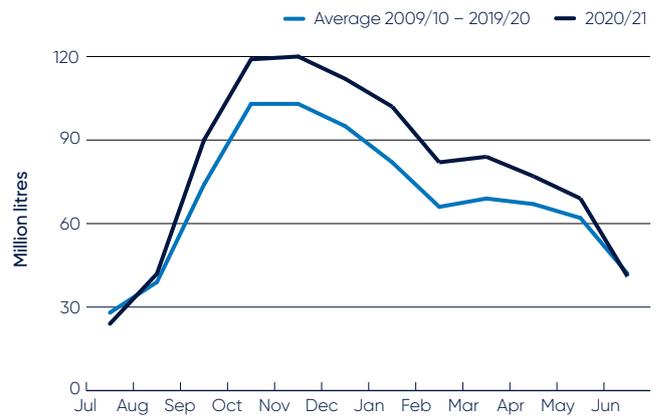
South Australia



Western Australia



Tasmania



Appendix 5 Manufacturing processes

Figure A2 Product yield from 10,000 litres of milk 2020/21



The milkfat and solids in manufacturing milk can be used to produce a wide variety of dairy products. There are four major production processes: two joint product processes for butter/skim milk powder (SMP) production and butter/casein production, and single product processes for whole milk powder (WMP) and cheese production. 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 SMP. The cream is churned until the fat globules form into solid butter, leaving a liquid by-product, buttermilk. This liquid can be dried to make buttermilk powder (BMP).

While there are various ways of making casein, one of the most common methods stems from the joint product process for creating butter. After separating whole milk into cream and skim milk, the skim milk can be set by mixing with acid to produce curd. The curd is shaken to remove large clumps, leaving a liquid whey by-product which is removed. The curd is then repeatedly rinsed in water and drained, with any excess moisture extracted by pressing the curd. This is then milled, dried, ground down and passed through a sieve to be broken into particle size.

To produce WMP, milk, with some cream removed, is evaporated, concentrated and dried, either by roller or spray process to form a powder. The spray drying method 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.

The techniques to produce cheese can vary substantially, differing by the producer and variety of cheese created. 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 approximately 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 manufacturing contains protein, lactose and a small portion of fat. It can be dried to make products for pharmaceutical purposes, as a useful supplement in stock feed, and in the creation of ice-cream.

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

Table A4 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 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 (r)	79,749	13,570	201,426	83,999	49,469
2018/19 (r)	61,177	12,270	192,373	48,534	48,385
2019/20 (r)	63,567	9,601	160,180	44,636	52,251
2020/21 (p)	69,227	12,477	153,741	52,458	49,046

*Includes butter blends as CBE. **Includes infant powders.

Source: Dairy manufacturers

Table A6 Australian cheese production by variety (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Cheddar & cheddar types						
Cheddar ¹	149,863	148,649	159,361	155,345	165,429	147,619
Reduced fat cheddar	15,360	14,384	15,804	12,955	13,270	13,500
Other cheddar type cheese ²	6,366	23,111	26,867	27,713	19,584	17,965
Total cheddar	171,589	186,144	202,032	196,013	198,283	179,084
Semi hard cheese						
Mozzarella and pizza	41,133	44,986	52,419	56,869	59,351	64,374
Other stretch curd and shredding	1,796	2,546	2,465	2,717	1,619	1,672
Other semi hard/eye cheese ³	6,631	4,171	5,628	4,881	5,317	7,609
Total semi hard cheese	49,560	51,703	60,511	64,467	66,287	73,655
Hard grating cheese						
All types ⁴	5,040	5,993	4,022	8,417	10,005	15,363
Total	5,040	5,993	4,022	8,417	10,005	15,363
Fresh types						
Cream cheese and neufchatel	93,403	79,285	86,446	87,909	82,691	84,255
Fetta	7,229	8,211	8,175	8,111	4,926	4,852
Ricotta	7,373	6,600	6,266	5,956	2,061	2,105
Other fresh types ⁵	2,762	2,957	2,622	2,610	103	94
Total	110,767	97,053	103,510	104,586	89,781	91,306
Mould ripened						
Blue vein	603	664	716	550	332	268
Brie and camembert	5,960	6,452	6,297	6,437	5,945	5,628
Other mould ripened	737	641	639	641	498	897
Total	7,300	7,757	7,652	7,628	6,775	6,793
Total cheese	344,256	348,650	377,727	381,110	371,131	366,201

¹ Includes Vintage² Includes Cheedam, Colby, Cheshire, Gloucester, Lancashire, Leicester, Nimbin and semi processed cheddar³ Includes Edam, Gouda, Swiss, Emmenthal, Fontina, Raclette, Havarti, Samsøe, Tilsit, Buetten, Vacherin, Bakers, Casalinga, Goya⁴ Includes Parmesan, Pecorino, Romano, Fresh Pecorino, Melbourne, Pepato, Parmagiano⁵ Includes Cottage, Quark, Stracchino, Mascarpone

(Dairy Australia estimates that this collection covers over 90% of cheese production)

Source: Dairy manufacturers

Appendix 6 Domestic sales

Table A7 Dairy company domestic sales (tonnes)

Major dairy products (excl drinking milk)	Sales channel	2018/19 (r)	2019/20 (r)	2020/21 (p)
Butter	Grocery	42,358	44,158	44,812
	Non-grocery	35,564	22,515	24,660
Butter total		77,922	66,673	69,472
Cheese	Grocery	144,460	137,478	159,741
	Non-grocery	147,953	129,461	137,438
Cheese total		292,413	266,939	297,179
Cream	Grocery	64,293	72,859	78,558
	Non-grocery	86,046	69,850	81,131
Cream total		150,339	142,709	159,689
Custard	Grocery	19,928	20,286	21,136
	Non-grocery	1,741	1,617	1,601
Custard total		21,669	21,903	22,737
Dairy desserts	Grocery	9,475	9,155	9,101
	Non-grocery	125	123	155
Dairy desserts total		9,600	9,278	9,256
Milk powder	Grocery	11,747	7,238	3,991
	Non-grocery	69,215	81,815	63,456
Milk powder total		80,962	89,053	67,447
Yoghurt	Grocery	111,911	117,112	128,181
	Non-grocery	11,055	11,075	10,590
Yoghurt total		122,966	128,187	138,771

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 foodservice and industrial channels.

Source: Dairy manufacturers



Appendix 7 Supermarket sales

Milk

Table A8 Supermarket milk sales by state ('000 litres)

	NSW	VIC	QLD	SA	WA	Tas & NT	TOTAL
MAT 12 Jul 2020	444,055	342,014	306,730	106,022	160,121	47,905	1,406,847
MAT 11 Jul 2021	435,314	337,071	299,982	103,803	156,900	45,279	1,378,350

Table A9 Supermarket milk sales by type ('000 litres)

	Regular	Reduced Fat	No Fat	UHT	Total
MAT 12 Jul 2020	817,425	313,050	23,268	253,104	1,406,847
MAT 11 Jul 2021	812,435	304,668	23,618	237,628	1,378,350

Table A10 Supermarket milk sales - flavoured vs unflavoured ('000 litres)

	Flavoured	Unflavoured	Total
MAT 12 Jul 2020	119,005	1,287,842	1,406,847
MAT 11 Jul 2021	117,678	1,260,672	1,378,350

Table A11 Supermarket milk sales - branded vs private label

	MAT 12 Jul 2020			MAT 11 Jul 2021		
	Volume	Value	Price/Litre	Volume	Value	Price/Litre
	'000 litres	'000 dollars		'000 litres	'000 dollars	
Total branded milk	597,974	1,311,849	\$2.19	597,010	1,339,983	\$2.24
Total private label milk	808,873	1,019,566	\$1.26	781,340	1,016,444	\$1.30
Total milk	1,406,847	2,331,415	\$1.66	1,378,350	2,356,426	\$1.71

NielsenIQ Homescan based on a continuous panel of 10,000 households; excludes non-private dwellings & businesses, non-permanently occupied households & out-of-home/impulse purchasing. DAIRY AUSTRALIA calculation based in part on data reported by NielsenIQ through its Homescan Service for the dairy category for the 52-week period ending 11/07/2021, for the total Australian market, according to the NielsenIQ standard product hierarchy. Copyright (c) 2021, Nielsen Consumer LLC.

Dairy spreads

Table A12 Supermarket dairy spreads sales by type

	MAT 12 Jul 2020			MAT 11 Jul 2021		
	Volume	Value	Price/Litre	Volume	Value	Price/Litre
	Tonnes	'000 dollars		Tonnes	'000 dollars	
Butter	29,198	335,527	\$11.49	29,106	331,090	\$11.38
Margarine	64,667	496,097	\$7.67	61,978	485,776	\$7.84
Total dairy spreads	93,865	831,624	\$8.86	91,084	816,865	\$8.97

Table A13 Retail sales of butter by pack size

	MAT 12 Jul 2020			MAT 11 Jul 2021		
	Volume	Value	Price/kg	Volume	Value	Price/kg
	Tonnes	'000 dollars		Tonnes	'000 dollars	
250 gram	11,013	144,228	\$13.10	9,663	126,154	\$13.06
500 gram	15,553	168,488	\$10.83	15,737	170,865	\$10.86
Other sizes	1,935	12,489	\$6.45	2,961	22,168	\$7.49
Total butter sales	28,501	325,204	\$11.41	28,361	319,187	\$11.25

Table A14 Retail sales of margarine by pack size

	MAT 12 Jul 2020			MAT 11 Jul 2021		
	Volume	Value	Price/kg	Volume	Value	Price/kg
	Tonnes	'000 dollars		Tonnes	'000 dollars	
250 gram	1,997	30,970	\$15.51	1,884	28,316	\$15.03
500 gram	39,282	308,729	\$7.86	37,474	300,000	\$8.01
Other sizes	22,714	152,863	\$6.73	21,789	152,619	\$7.00
Total margarine sales	63,993	492,563	\$7.70	61,147	480,936	\$7.87

NielsenIQ Homescan based on a continuous panel of 10,000 households; excludes non-private dwellings & businesses, non-permanently occupied households & out-of-home/impulse purchasing. DAIRY AUSTRALIA calculation based in part on data reported by NielsenIQ through its Homescan Service for the dairy category for the 52-week period ending 11/07/2021, for the total Australian market, according to the NielsenIQ standard product hierarchy. Copyright (c) 2021, Nielsen Consumer LLC.

Appendix 8 Australian exports

Table A15 Australian exports of cheese (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia						
China, Hong Kong	21,207	24,530	22,555	22,762	20,898	25,885
Indonesia	2,809	3,989	4,527	3,701	3,960	2,491
Japan	90,635	81,351	86,793	84,770	76,626	61,242
Korea, South	7,942	10,400	9,112	8,782	8,140	7,954
Malaysia	7,841	8,325	8,081	7,743	9,065	12,914
Philippines	4,922	4,278	7,062	5,663	6,599	7,488
Singapore	5,401	5,310	4,902	4,860	4,933	5,529
Taiwan	3,863	4,183	3,541	3,069	3,200	3,224
Thailand	2,845	3,495	4,093	4,389	5,211	4,335
Other Asia	1,579	1,620	2,209	2,442	3,034	3,606
Total Asia	149,044	147,481	152,875	148,181	141,666	134,668
Middle East						
Saudi Arabia	2,076	761	1,520	1,003	1,278	1,451
U.A.E.	1,529	1,492	1,577	1,474	1,254	1,150
Other Middle East	4,591	4,421	4,176	4,475	3,974	2,884
Total Middle East	8,196	6,674	7,273	6,952	6,506	5,485
Africa						
Egypt	34	0	0	0	0	0
Other Africa	3,168	2,741	2,403	2,903	1,649	1,752
Total Africa	3,202	2,741	2,403	2,903	1,649	1,752
Pacific						
New Zealand	2,960	3,434	4,059	3,489	3,516	3,563
Others	1,057	1,134	1,279	1,289	1,201	1,332
Total Pacific	4,017	4,568	5,338	4,778	4,717	4,895
Americas						
Caribbean	69	42	28	34	0	159
United States	6,163	4,745	1,944	1,709	1,323	5,652
Others	365	225	351	654	1,366	1,893
Total Americas	6,597	5,012	2,323	2,397	2,689	7,704
Europe	265	203	605	633	380	730
Total	171,321	166,679	170,817	165,844	157,607	155,234

Source: ABS

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

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia						
Bangladesh	6,225	4,814	5,663	4,211	716	5,358
China, Hong Kong	26,365	32,990	47,084	28,330	28,976	29,278
Indonesia	795	917	299	312	154	367
Japan	2	2	1	80	8	9
Malaysia	1,919	2,978	1,227	878	535	2,915
Philippines	252	396	275	111	7	179
Singapore	8,138	8,933	4,990	3,554	3,511	3,474
Sri Lanka	12,776	10,547	407	3,139	1,638	2,374
Taiwan	1,982	1,955	2,197	2,061	1,398	1,076
Thailand	1,387	3,617	9,000	5,563	5,658	4,998
Others	2,707	10,008	2,708	1,269	1,574	2,977
Total Asia	62,548	77,157	73,851	49,508	44,175	53,005
Africa	368	243	5,557	67	13	172
Americas	4,227	3,063	1,315	1,324	491	217
Europe	511	104	200	0	0	0
Middle East	5,050	4,158	4,467	1,953	846	636
Pacific	4,349	2,082	2,170	1,860	1,032	1,183
Total	77,053	86,807	87,560	54,712	46,557	55,213

*Also includes infant powder

Source: ABS.

Table A17 Australian exports of butter* (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Asia						
China, Hong Kong	4,441	3,130	2,758	3,714	2,386	7,187
Japan	437	381	236	507	175	177
Korea, South	2,334	1,531	470	932	574	910
Malaysia	2,446	2,048	1,662	1,809	1,206	1,483
Singapore	3,476	2,611	1,666	1,418	1,275	1,893
Taiwan	1,623	1,124	712	992	868	926
Others	1,335	963	762	732	961	1,076
Total Asia	16,092	11,789	8,266	10,104	7,445	13,652
Middle East	3,658	1,002	695	115	1	1,332
Africa	1,026	306	217	211	152	1,030
Pacific	691	847	264	215	108	236
Americas	1,225	270	277	2,519	320	1,241
Europe	360	196	2	20	20	200
Total	23,052	14,410	9,721	13,184	8,046	17,691

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

Source: ABS.

Table A18 Australian exports of skim milk powder (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia						
China, Hong Kong	19,873	23,930	30,311	43,354	32,460	56,996
Indonesia	40,812	36,430	33,828	32,352	24,698	23,558
Japan	1,637	3,110	8,287	4,973	3,019	2,201
Malaysia	19,179	18,880	13,368	9,139	2,825	3,158
Philippines	10,304	8,612	8,403	5,026	7,864	3,609
Singapore	14,422	14,571	11,573	9,636	6,068	4,851
Taiwan	1,563	1,536	1,900	1,404	1,950	1,763
Thailand	10,471	6,728	10,882	9,261	8,550	5,171
Others	29,583	22,201	19,077	21,526	7,142	11,531
Total Asia	147,844	135,998	137,629	136,671	94,576	112,838
Africa	5,829	1,428	5,761	236	25	150
Americas	552	47	0	0	0	0
Europe	43	0	0	0	0	5
Middle East	23,249	14,057	11,630	12,559	11,140	9,944
Pacific	3,857	1,775	1,586	1,737	1,901	478
Total	181,374	153,305	156,606	151,203	107,642	123,415

Source: ABS

Table A19 Australian exports of butter oil (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Asia						
Bangladesh	218	151	101	151	0	34
Indonesia	86	84	67	118	0	0
Malaysia	974	554	823	50	134	370
Philippines	50	134	286	84	185	1,077
Singapore	69	193	101	28	0	134
Others	3,039	3,149	3,112	4,297	2,268	2,522
Total Asia	4,436	4,265	4,490	4,728	2,587	4,137
Middle East	446	101	0	101	18	0
Africa	67	66	32	44	0	298
Americas	3,007	671	287	1,155	262	722
Europe	363	436	303	314	197	603
Pacific	54	11	4	171	1	54
Total	8,375	5,550	5,116	6,513	3,065	5,814

Actual product weight (not CBE)

Source: ABS.

Table A20 Australian exports of liquid milk ('000 litres)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia						
Singapore	36,590	40,101	42,538	42,074	48,420	46,814
Philippines	10,273	13,703	19,329	17,763	16,637	20,244
Malaysia	13,572	15,680	19,753	22,362	26,995	23,661
Indonesia	370	310	241	144	152	295
Hong Kong	14,077	14,665	15,297	17,367	14,955	15,058
China	70,971	68,087	82,304	94,146	90,301	130,737
Other Asia	15,702	18,802	21,004	23,273	27,328	28,358
Total Asia	161,555	171,348	200,466	217,129	224,788	265,166
Africa	606	593	487	519	425	95
Pacific	16,115	15,617	16,008	17,931	18,795	14,666
Others	1,002	1,036	334	219	99	298
Total	179,278	188,594	217,295	235,798	244,107	280,225

Source: ABS

Table A21 Australian exports of whey products* (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21 (p)
Asia	35,065	35,288	34,895	38,374	30,755	33,418
Europe	16	20	571	327	198	173
Other	5,740	3,501	2,535	3,123	3,294	2,329
Total	40,821	38,809	38,001	41,824	34,247	35,920

*Includes whey protein concentrate

Source: ABS.

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

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Asia						
China	56,145	59,109	28,412	74,963	77,210	86,228
Indonesia	1,307	1,203	4,118	1,933	1,746	338
Japan	303	437	2,936	2,193	1,657	350
Malaysia	2,132	1,346	2,201	3,002	2,403	3,267
Pakistan	3,507	6,502	5,620	2,428	4,860	0
Taiwan	628	1,793	1,813	1,827	434	0
Vietnam	2,755	1,735	958	231	0	0
Other Asia	1,627	289	531	467	3,136	200
Total Asia	68,404	72,414	46,589	87,044	91,446	90,383
Europe	0	0	0	0	0	0
Middle East	3,503	633	275	5,303	2,837	0
Others	0	4	15	0	0	340
Total	71,907	73,051	46,879	92,347	94,283	90,723

Source: ABS

Table A23 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	242	69,486	0	230	1,949	0	71,907
2016/17	647	70,395	240	0	1,769	0	73,051
2017/18	1,612	43,258	345	48	1,616	0	46,879
2018/19	719	90,869	459	24	276	0	92,347
2019/20 (r)	0	86,007	2,660	0	5,616	0	94,283
2020/21 (p)	92	89,612	340	0	679	0	90,723

Source: ABS

Appendix 9 Australian imports

Table A24 Australian imports of dairy products from New Zealand and other countries (tonnes)

	New Zealand	Other	Total 2019/20 (r)	New Zealand	Other	Total 2020/21 (p)
Skim milk powder	11,896	4,395	16,291	10,154	4,444	14,598
Buttermilk powder	294	1,966	2,260	169	1,927	2,096
Whole milk powder*	73,114	11,982	85,096	45,438	12,493	57,931
Whey powder and concentrates	740	14,552	15,292	676	11,793	12,469
Condensed milk	124	4,483	4,607	350	9,646	9,996
Milk	2,252	235	2,487	1,371	198	1,569
Cream	2,852	97	2,949	3,242	283	3,525
Yogurt	640	1,132	1,772	417	919	1,336
Butter**	28,578	5,671	34,249	26,798	4,469	31,267
Butter oil	6,955	1,058	8,013	4,313	1,451	5,764
Cheese	44,131	53,468	97,599	42,110	54,255	96,365
Casein	92	484	576	348	439	787
Caseinates	1159	259	1,418	1,135	572	1,707
Lactose	1,736	14,164	15,900	1,199	12,589	13,788
Ice cream ('000 lts)	1,831	20,704	22,535	1,534	22,412	23,946
Total Imports	176,394	134,650	311,044	139,254	137,889	277,143

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

Source: ABS

Table A25 Australian cheese imports by country (tonnes)

	2015/16	2016/17	2017/18	2018/19	2019/20 (r)	2020/21 (p)
Austria	678	600	640	893	540	537
Bulgaria	1,293	1,276	1,241	809	1,031	987
Denmark	2,042	1,990	2,275	2,241	2,351	2,893
France	1,911	2,047	2,482	2,427	2,520	2,499
Germany	2,271	2,481	2,359	2,430	2,812	2,791
Greece	2,104	2,068	2,027	2,117	2,199	2,632
Italy	4,150	4,834	4,829	4,920	5,120	5,348
Netherlands	2,601	2,979	2,880	3,410	3,219	3,893
Poland	795	840	1,126	1,070	1,128	1,122
United Kingdom	1,129	1,438	1,026	1,316	1,288	1,708
Other	2,112	3,294	3,920	3,493	4,074	3,954
Total EU	21,086	23,847	24,805	25,126	26,282	28,363
New Zealand	55,030	65,723	56,571	42,734	44,131	42,110
United States	11,658	20,987	28,147	24,504	25,488	24,782
Norway	1,134	1,090	916	1,264	1,085	588
Switzerland	208	210	232	244	207	248
Other	210	272	287	313	406	275
Total Cheese Imports	89,326	112,129	110,958	94,185	97,599	96,366

Source: ABS (excludes goats cheese)

ACRONYMS

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ADC	Australian Dairy Corporation
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 = 0.805kg AMF)
CER	The Closer Economic Relations Agreement between NZ and Australia
DA	Dairy Australia
DFMP	Dairy Farm Monitor Project
(e)	Estimated data
EU	European Union
ML	Million litres
NZ	New Zealand
(p)	Provisional data
QDAS	Queensland Dairy Accounting Scheme
(r)	Revised data
SMP	Skim milk powder
SNF	Solids non fat
UHT	Milk subjected to ultra-high temperature treatment to extend shelf life
US	United States
USD	US dollar
WMP	Whole milk powder
WPC	Whey protein concentrate

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