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Approved By:

Sarah Hanson, Agricultural Counselor

Prepared By:

Roger Farrell, Agricultural Specialist

Report Highlights:

Post forecasts milk production at 9.1 million MT in 2017. This represents a decrease of 2.7 percent on actual milk production of 9.35 million MT in 2016. This Post revision reflects significant disruption to production, lower farm gate prices, an expected decline in yields and a smaller Australian dairy herd. Lower fluid milk supplies to processors are expected to constrain production and exports of butter, cheese and both whole and skim milk powder. Higher international prices for dairy products should eventually lead to a recovery in milk output, as inputs costs such as water and feed grains are relatively low. But in the short term, dairy farmers appear unlikely to pursue herd rebuilding as farm incomes have declined sharply, culling is above average and confidence is low.

EXECUTIVE SUMMARY:

Australian milk production is forecast by Post to decline to 9.1 million MT in 2017, down 2.7 percent on actual milk production of 9.35 million MT in 2016. Milk production in 2016 was revised down from Post's previous estimate of 9.5 million MT and represents a decline of 4.6 percent on the official figure for 2015. This trend can be attributed to lower farm gate prices, a drop in yields, a smaller dairy herd and industry restructuring and exits. Production of cheese is expected to be stable although butter output will remain depressed, partly because of higher demand for full cream milk. Output of skim milk powder is forecast to be stable but whole milk powder output is expected to fall (Table 1). Stocks of most dairy products are forecast to decline over the year. The decline in milk supply will constrain exports (Table 2).

Table 1: Summary of Australian dairy production, 2015-2017 ('000 MT)

Dairy product	2015	2016	Change (%)	2017	Change (%)
Liquid milk	9,800	9,350	-4.6	9,100	-2.7
Cheese	324	324	0	320	-3.0
Butter	120	86	-28.3	80	-7.0
WMP	95	80	-15.8	70	-12.5
SMP	266	237	-10.9	240	1.3

Note: (a) Post estimates and forecasts reflect author's assessments and are not official data; (b) WMP is whole milk powder and SMP is skim milk powder. (c) Data for fluid milk is reported in 1,000 metric tons and one liter of cows' milk weighs around 1.03 kg. (d) Changes relative to Post estimates. (e) Marketing year is the calendar year.

Source: Post estimates.

Average dairy farms incomes fell significantly in 2016 due to lower milk prices and production and rebuilding of the dairy herd will be gradual. Producer sentiment in the industry is very low and there has been significant turnover between processors, growing exits from the industry and increased culling. These trends have lowered production capacity, especially in northern Victoria. However, demand for major dairy products has been stable, so that the domestic market has provided an offset to low international prices and other disruptions.

Table 2: Summary of Australian dairy exports, 2015-2017 ('000 MT)

Dairy product	2015	2016	Change (%)	2017	Change (%)
Liquid milk	166	225	3.6	250	6.4
Cheese	170	167	-1.8	170	1.8
Butter	35	31	-11.4	30	-3.2
WMP	65	70	7.7	60	-14.3
SMP	201	163	-18.9	170	4.3

Note: (a) Post estimates and forecasts reflect author's assessments and are not official data; (b) WMP is whole milk powder and SMP is skim milk powder. (c) Marketing year is the calendar year.

Source: Post estimates.

Post forecasts Australian dairy exports to be resilient in 2017, despite falling milk supplies (Table 2). Exporters are likely to divert supplies to meet export contracts, especially if returns are higher than in the domestic market – as is the case with cheese exports to the Japanese market. A decline in stocks is expected to supplement available supplies for export.

SEASONAL OUTLOOK

Most dairy production is located in coastal areas where pasture growth generally depends on natural rainfall, as well as in northern Victoria and southern New South Wales (NSW) where there is irrigation water available. Pasture accounts for around two thirds of feed but is supplemented by feed grains, hay and silage, while in drier seasons, the ratio of non-pasture feed increases. There is little barn-type dairy production and seasonal conditions have a direct impact on the condition of the dairy herd and on milk quality and quantity.

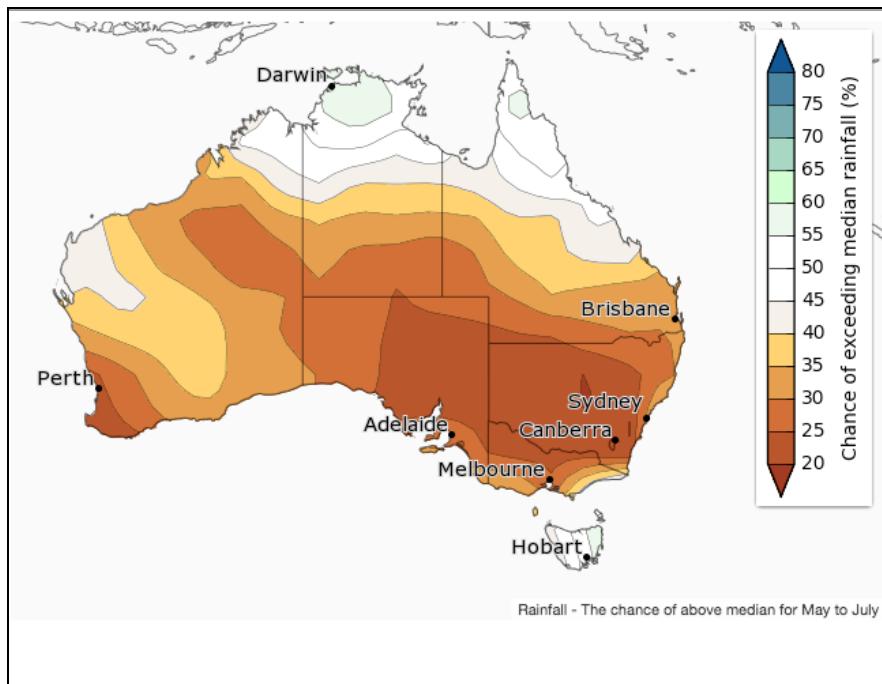
The volume of milk production is significantly affected by seasonal conditions and the reliability of rainfall over major dairying regions. In the second half of 2016, cold and wet conditions in Victoria contributed to lower milk production, although seasonal conditions improved in the first three months of 2017 with high rainfall and good pasture growth conditions. This trend is expected to moderate over the rest of the year, which is forecast to be hotter and drier than average, by the Australian Bureau of Meteorology (BOM).

Rainfall for the three months from May to July 2017 is expected to be below average over the southern two thirds of mainland Australia, according to BOM's latest Seasonal Climate Outlook statement. There is a 75 percent chance that the southeast of Australia, which contains the main dairying regions, will experience below average rainfall over this period. During April 2017 rainfall was extremely high in south-western areas of NSW and the eastern half of Victoria, extending through most of South Australia into the central east of Western Australia and the south-west corner of the Northern Territory.

In May 2017, soil moisture and water storages across eastern Australia are at more normal levels, while the average price for temporary water for irrigation has halved compared to the same time in the previous year. In April 2017, relative lower layer soil moisture levels were well above average to extremely high in eastern NSW and western Victoria and in northern and south-eastern Queensland. Pasture growth has been sustained in Victoria, which accounts for 60 percent of the national dairy herd. In May 2017, water storage levels in the Murray–Darling Basin (MDB) were 15,331 GL or 68 percent of total capacity. This is 38 percentage points or 8,679 GL more than at the same time last year.

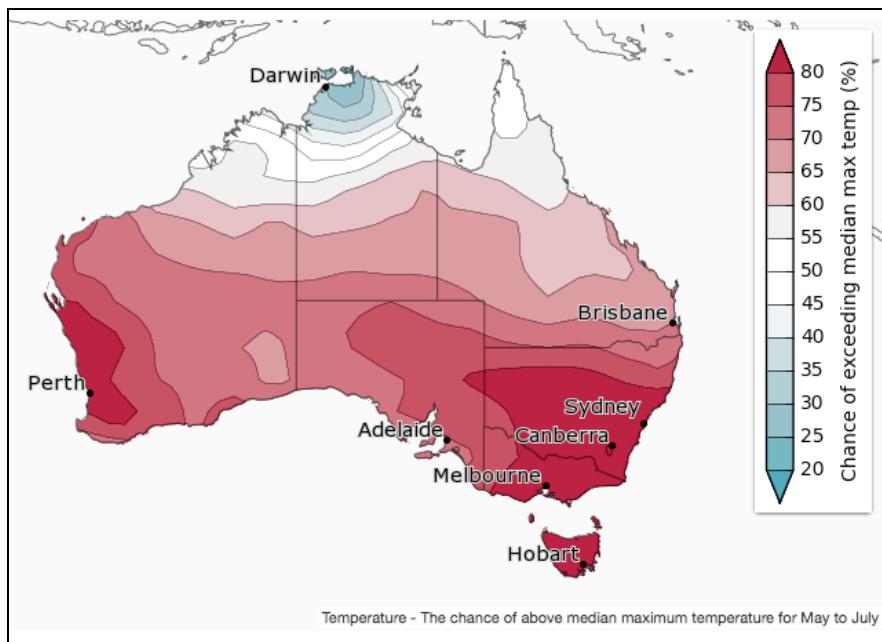
Forecast temperatures for the three months from May to July 2017 are expected to be above average for most of Australia. The outlook is affected by warming in tropical Pacific sea surface temperatures and a cooler eastern Indian Ocean. In early May 2017, maximum and minimum temperatures were below average across the country, with parts of southern Australia recording maximum temperatures between 4°C and 6°C below average for this time of year. Overall, seasonal trends are reasonably positive for milk production, but dry and hot conditions later in the year could constrain dairy production across most categories.

Chart 1: Likelihood of above median rainfall from May to July 2017



Source: Australian Bureau of Meteorology (May, 2017).

Chart 2: Likelihood of above median temperatures from May to July 2017



Source: Australian Bureau of Meteorology (May, 2017).

Commodities:

Dairy, Butter
Dairy, Cheese
Dairy, Dry Whole Milk Powder
Dairy, Milk, Fluid
Dairy, Milk, Nonfat Dry

FLUID MILK**Production**

Australian milk production is forecast by Post to decline to 9.1 million MT in 2017, down 2.7 percent on actual milk production of 9.35 million MT in 2016. Milk production in 2016 was revised down from Post's previous estimate of 9.5 million MT and represents a decline of 4.6 percent on the official figure for milk output in 2015. This trend of lower production can be attributed to lower farm gate prices, a drop in yields, a smaller dairy herd and industry restructuring and exits. These Post revisions reflect lower farm gate prices, as well as significant industry disruption (see below). They also point to a possible decline in production capacity as a number of marginal producers have withdrawn from the industry.

Industry Disruption and Lower Production

In April 2016, Murray Goulburn and Fonterra, the major processors, cut farm gate milk prices from A\$6.00 to A\$5.50 (US\$4.50 to US\$4.13) a kilogram for milk solids and prices then fell below A\$5.00 (US\$3.75). Following these cuts, some of which were retroactive, many farmers became less profitable and milk production was affected. Over 500 dairy farmers subsequently switched between processors in response to lower prices and changing contractual conditions.

By May 2017, the share of milk supply of leading processor Murray Goulburn (MG) had fallen by 20 percent, from 37 percent to less than 30 percent of total milk supplies. The company subsequently announced the closure of 3 of its 10 processing plants and deferred plans to build new dairy beverage and infant formula milk processing facilities. In May 2017, Murray Goulburn also ended efforts to recoup apparent overpayments to producers for higher prices paid over the previous year. New Zealand-based Fonterra now accounts for around one fifth of Australian milk supplies, while some other processors such as Bega Cheese and Warrnambool Cheese and Butter have increased milk supplies.

Table 3: Rate of return on capital for Australian dairy farms, 2011 to 2017 (%)

Business size	Five years ending 2015	2016	2017
Small	0.5	-0.9	-2.5
Medium	2.8	0.3	-2.5
Large	4.8	2.9	1.5
All farms	3.7	1.3	0.3

Note: financial years ending in June.

Source: ABARES and Australian Agricultural and Grazing Industries Survey (2017).

These industry and pricing changes had a major impact on the viability of many dairy farms. Farm cash income for Australian dairy farms is projected by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) to decline by around 20 percent nationally to an average of A\$105,000 per farm in 2016/17, reflecting lower farm gate milk prices and milk production. In addition, dairy cow numbers and farm inputs are expected to fall in response to lower prices, resulting in reduced milk production and milk receipts. Farmers are continuing to adjust to lower prices, higher debt levels and declining capital returns compared to previous years (Table 3) while confidence is generally low.

The need to support farm incomes through culling saw 106,279 head of dairy cull cows sold to slaughter in the 12 months to January 2017, up 16 percent on the number sold in the previous year. Prices over the same period were 13 percent higher, with the weighted average carcass price sitting at 451 cents/kg. Despite easing somewhat from their highs in August 2016, cull cow prices remain elevated, with January carcass prices averaging 464 cents/kg, 25 percent higher than January 2015, partly because of herd rebuilding in the beef industry.

Yields and Production Inputs

Post forecasts that yields will fall from 5.9 MT a cow in 2016 to 5.7 MT in 2017 due to declining use of grain supplements. This is despite comparatively low prices for supplementary feeds and is attributed to the cash-flow problems and increased debt of many producers. Already, demand for fodder has been relatively low. Lower milk price cuts have reduced the ability of producers to purchase large volumes of supplementary feed, while good pasture availability has reduced demand for purchasing fodder. Average milk fat and protein levels in milk are expected to fall slightly in 2017 because of increased reliance on pasture feed.

Consumption

Australian milk consumption of fresh milk is comparatively stable at around 105 liters per capita. Post forecasts total domestic consumption in 2017 at 2.73 million MT, up almost 2 percent on 2016. The leading consumer dairy products are drinking milk, cheese, butter and butter blends, and yoghurt. Consumption trends vary by product and over time and as the milkfat and solids contained in manufacturing milk can be used to produce a wide variety of dairy products, producers adjust the production mix accordingly. The major supermarkets in Australia account for 80 percent of total retail sales and half of dairy product sales. Their share increased from late 2011, when the retail price of plain brand milk fell to around A\$1 a liter for private supermarket milk labels. Plain branded milk accounts for over half of drinking milk sales (see Table 4).

Table 4: Australian domestic milk consumption, 2011-2016 (billion liters)

Type	2014		2015		2016	
	Branded milk	Private label	Branded milk	Private label	Branded milk	Private label
Regular	182	385	182	413	200	437
Reduced fat	174	243	157	241	146	227
Low fat	46	6	39	6	34	6
Flavored	99	5	104	5	115	6
UHT	112	70	129	65	120	70
Total	613	709	611	730	614	745

Note: Financial years.

Source: Dairy Australia (2017)

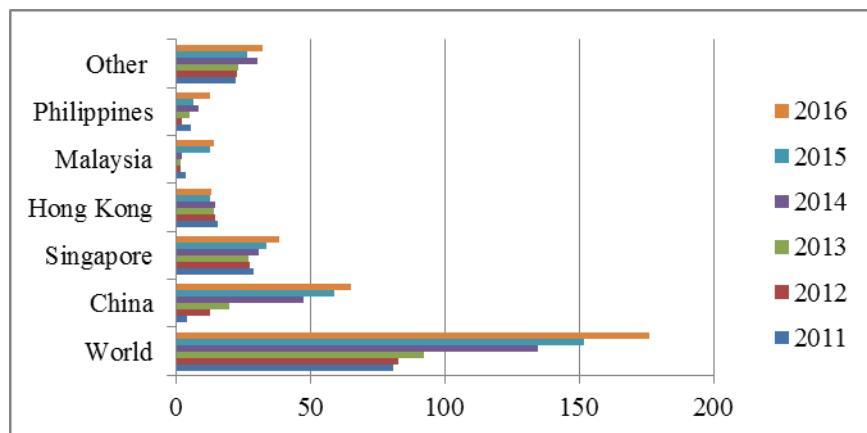
Over 2016, the share of full cream milk increased by almost 10 percent in volume terms, while low fat milks had a decrease in sales volume of 6 percent. Branded milk accounts for over 40 percent of the volume of milk sold by supermarkets, with the remaining share taken by private label milk. The price of private label milk is significantly below that of branded milk products. Most private label milk production is sold in large (2-3 liter) plastic bottles. Overall, plastic bottles represent almost 80 percent of all milk sales in supermarkets, followed by gable-top cartons and UHT cartons. The two liter bottle accounts for half of all domestic milk sales.

Modified, reduced and low-fat milks are standardized to other specifications, with varying milkfat and solids non-fat levels. The cream removed during standardization can be bottled as table cream or manufactured into butter or other dairy products. Post notes that the increasing popularity of full cream milk has reduced available cream supplies for butter production. Sales of flavored milk have continued to increase, providing a higher value product for processors. Iced coffee is the most popular flavor, accounting for about half of all flavored milk sold in supermarkets. Sales volumes of UHT fell slightly in 2016.

Trade

Post forecasts that Australian exports of liquid milk will reach 250,000 MT in 2017. Fresh milk is generally considered unsuitable for export due to its short shelf life and almost all fresh milk is processed to make cheese, or dehydrated to make milk powder. However, a small but growing quantity of liquid milk has been airfreighted mainly to China in recent years. Most liquid milk exports are in the form of UHT products, although air-freight exports of fresh milk to Asia have risen sharply from a low base. Post expects live dairy cow exports in 2017 to be around the same level as in the previous year. In 2016, exports totaled 105,000 head, down 9 percent on 2015 and 15 percent below the 5 year average. The fall in live dairy cow exports can be attributed to lower demand from China.

Chart 4: Australian exports of fluid milk, 2011-2016 (million liters)



Note: financial years ending in June.

Source: Global Trade Atlas (2017).

Table 5: Australian dairy exports by region and value, 2016 (A\$ million)

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

Note: (a) financial year to June (b) Butter category includes AMF.

Source: Dairy Australia (2017).

Table 6: Australian dairy exports by major country and value, 2016 (A\$ million)

Country/ Region	Volume (‘000 MT)	Share of total (percent)	Country/ Region	Value (A\$ million)	Share of total (percent)
Greater China	178	22	Greater China	795	27
Japan	103	13	Japan	464	16
Singapore	83	10	Indonesia	202	7
Indonesia	61	7	Singapore	188	6
Malaysia	58	7	Malaysia	181	6
Philippines	40	5	New Zealand	168	6
New Zealand	37	5	Philippines	107	4
Thailand	27	3	South Korea	99	3
Vietnam	25	3	Taiwan	96	3
UAE	23	3	Thailand	91	3

Note: (a) financial year to June (b) Butter category includes AMF.

Source: Dairy Australia (2017).

Table 7: Australian exports of live dairy cattle, 2011-2016 (number)

	2011	2012	2013	2014	2015	2016
World	73,935	114,558	123,665	115,189	104,079	105,127
China	53,195	55,912	66,530	95,924	81,787	87,248
Vietnam	331	496	0	1,917	5,410	2,459
Pakistan	2,676	5,156	11,059	1,312	3,892	3,391
Other	17,733	52,994	46,076	16,036	12,990	12,029

Source: Global Trade Atlas (2017).

Production, Supply and Demand Data Statistics:

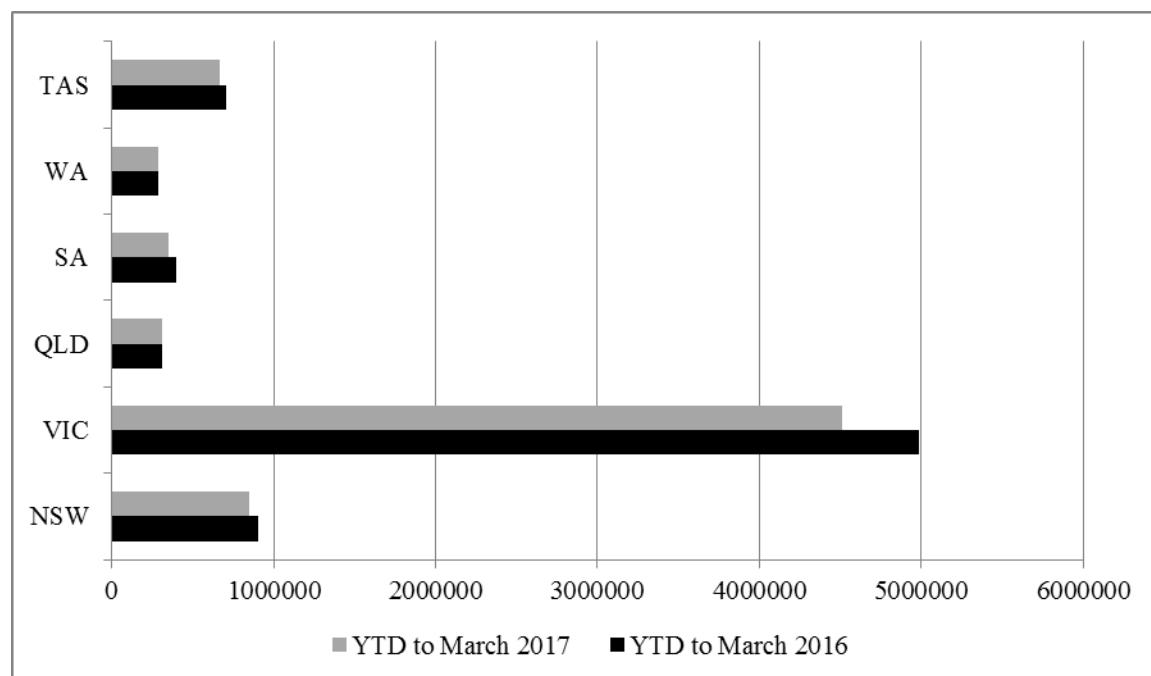
Table 8: Production, supply and distribution of fluid milk ('000 MT)

Dairy, Milk, Fluid	2015		2016		2017	
Market Begin Year	Jan 2015		Jan 2016		Jan 2017	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Cows In Milk	1,705	1,705	1,640	1,690	1,670	1,660
Cows Milk Production	9,800	9,800	9,200	9,350	9,500	9,100
Other Milk Production	0	0	0	0	0	0
Total Production	9,800	9,800	9,200	9,350	9,500	9,100
Other Imports	5	5	5	5	5	5
Total Imports	5	5	5	5	5	5
Total Supply	9,805	9,805	9,205	9,355	9,505	9,105
Other Exports	166	166	225	225	250	250
Total Exports	166	166	225	225	250	250
Fluid Use Domestic Consumption	2,700	2,700	2,675	2,700	2,725	2,725
Factory Use Consumption	6,939	6,939	6,305	6,430	6,530	6,130
Feed Use Domestic Consumption	0	0	0	0	0	0
Total Domestic Consumption	9,639	9,639	8,980	9,130	9,255	8,855
Total Distribution	9,805	9,805	9,205	9,355	9,505	9,105

(1000 HEAD), (1000 MT)

Note: (a) 'New Post' data reflect author's assessments and are not official data; (b) Data for fluid milk is reported in 1,000 metric tons and one liter of cows' milk weighs around 1.03 kg.

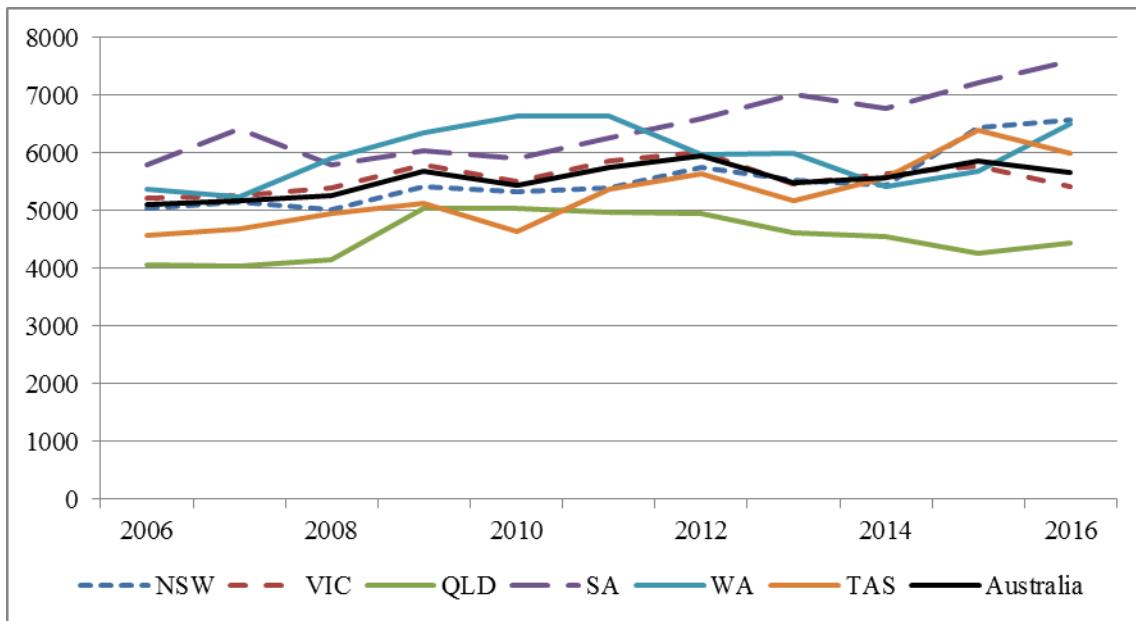
Chart 5: Australian production of fluid milk, 2016 to 2017 (liters)



Notes: YTD is from July to March.

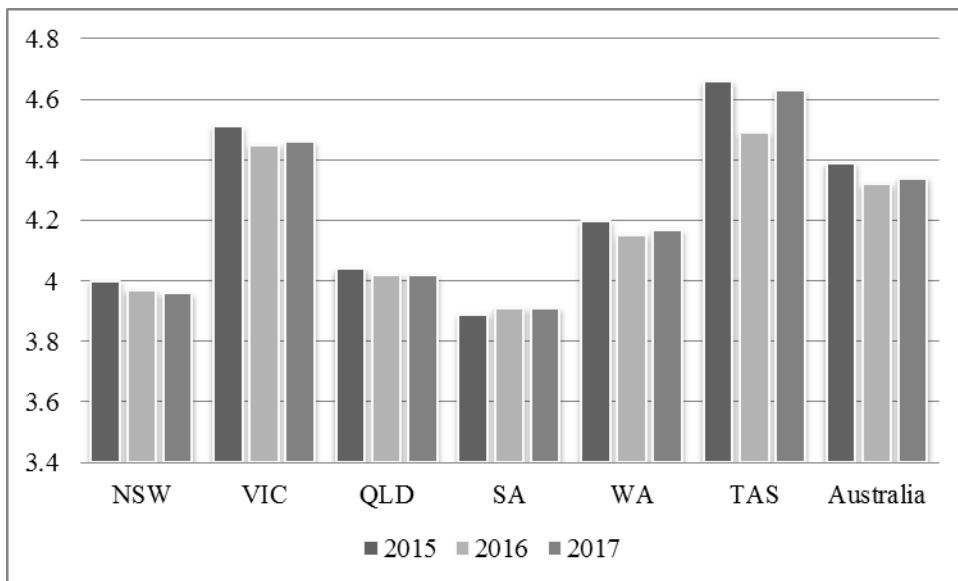
Source: Dairy Australia (2017).

Chart 6: Australian average annual milk production by State and per cow, 2006-2016 (liters)



Source: Australian Bureau of Statistics and Dairy Australia (2017).

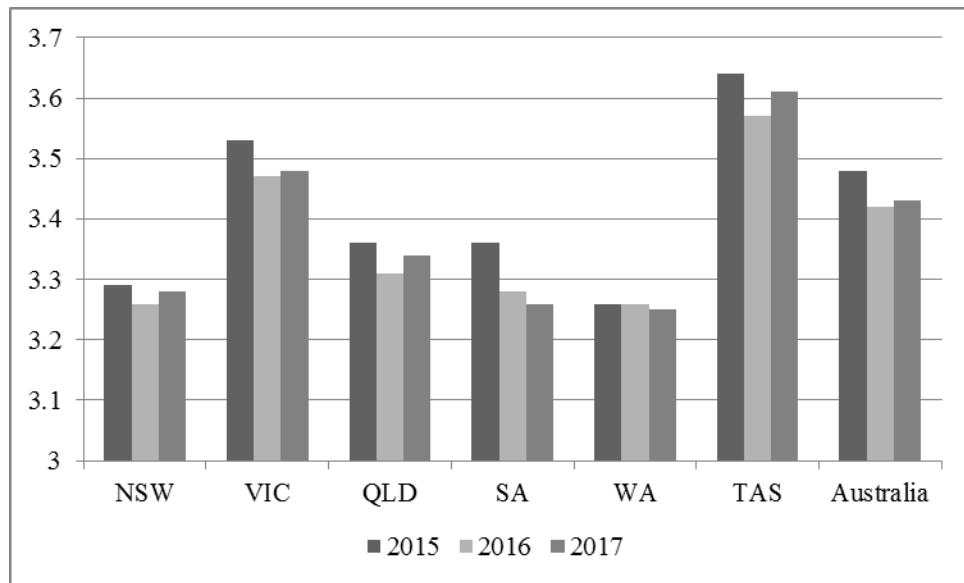
Chart 7: Average milkfat in Australian milk production, 2015-2017 (percent)



Note: Year to March.

Source: Dairy Australia (2017).

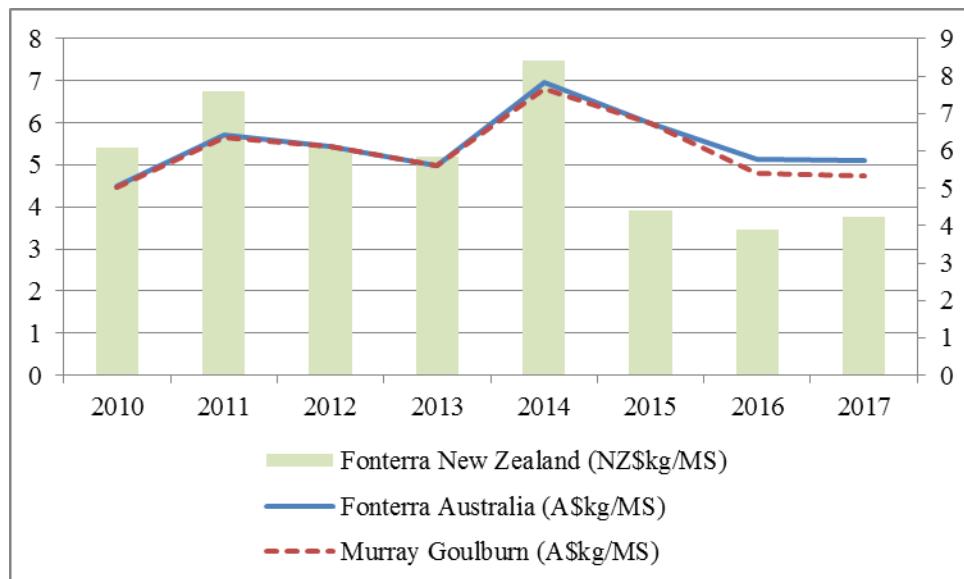
Chart 8: Average protein levels in Australian milk production, 2015-2017 (percent)



Note: Year to March.

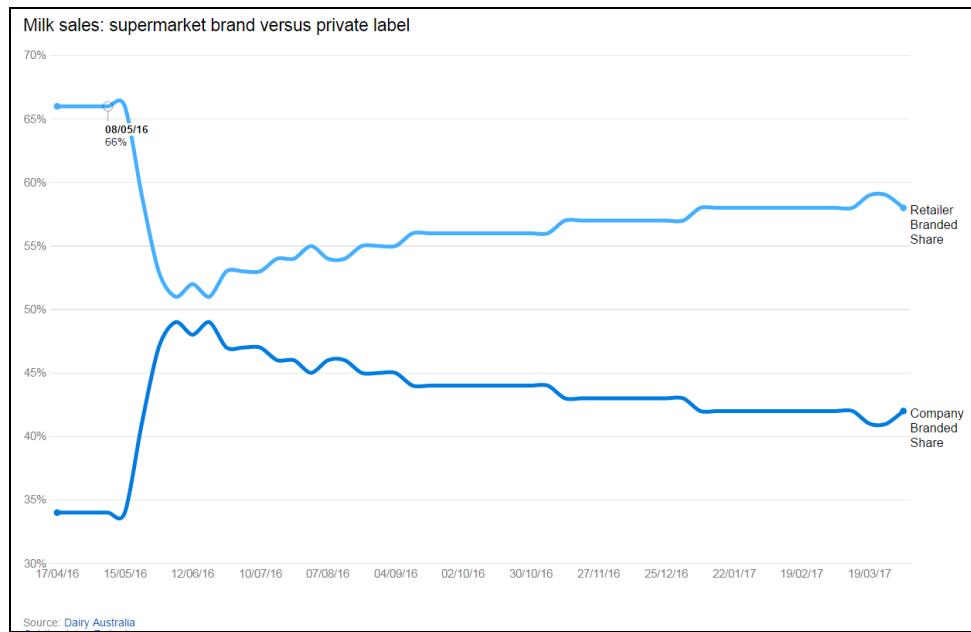
Source: Dairy Australia (2017).

Chart 9: Trends in milk prices in Australia and New Zealand, 2010 to 2017



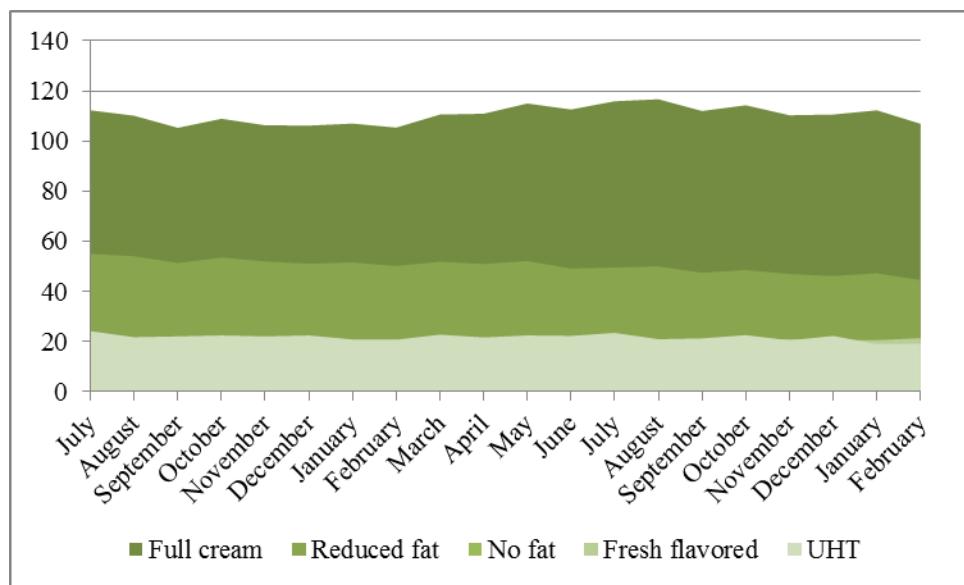
Source: Company evidence to the Senate Inquiry on the Australian Dairy Industry (2017).

Chart 10: Private label and branded milk sold in supermarkets, 2016-17, share (%)



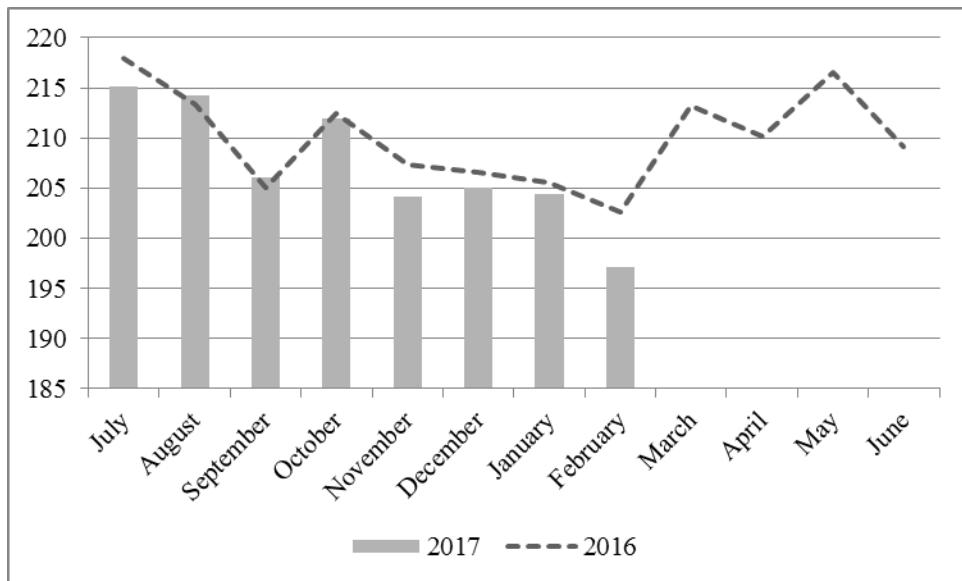
Source: Dairy Australia (2017).

Chart 11: Packaged milk sales volumes by category, 2016-2017 (million liters)



Source: Dairy Australia (2017).

Chart 12: Packaged milk sales volumes by month, 2016-17 (million liters)



Source: Dairy Australia (2017).

CHEESE

Production

Post forecasts that production of cheese will decline to 320,000 MT in 2017, down 3 percent on Post's previous forecast of 330,000 MT. Actual cheese production in 2016 was 324,000 MT, the same as in the previous year. Post's revision reflects lower supplies of liquid milk production for processors. Demand for cheese in Australia is comparatively mature and exports account for about half of production. The major product is cheddar cheese, but there has been a long-term trend towards non-cheddar cheeses.

Table 9: Australian cheese production by variety, 2013 to 2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
Cheddar	155	161	158	152	179	172
Semi-hard	68	67	57	45	44	50
Hard grating	14	14	15	14	10	5
Fresh	95	99	102	96	105	111
Mould ripened	7	6	6	6	6	7
Total	339	347	338	311	344	344

Source: Dairy Australia (2017).

Consumption:

Post forecasts cheese consumption at 254,000 MT in 2017, an increase of 4 percent on Post's previous forecast. Average consumption per capita is estimated at 14 kilograms. Cheddar cheese remains the most popular variety with around half of the market, followed by a wide range of non-cheddar cheese varieties. Cheddar's share has fallen slightly with rising demand for specialty cheeses and fresh cheese varieties such as feta. Almost half of Australian cheese sales are made by major supermarket chains, with specialty cheeses mainly sold by independent specialty stores. There has been a consistent trend towards sliced cheese in preference to block cheese for reasons of consumer convenience. Major domestic buyers of dairy products include retailers, cafes, restaurants, fast food companies and food manufacturers.

Trade:

Post forecasts that exports of cheese will be 170,000 MT in 2017, in line with the previous Post forecast. Over half of Australian cheese exports go to Japan and are comprised mainly of fresh and cream cheese varieties for processing. Other major markets include Greater China, Malaysia, South Korea and Singapore. The non-cheddar share of total export sales has grown from 60 percent in the 1990s to over three quarters in 2016. Given lower supplies of liquid milk, processors are expected to give priority to cheese production and to supplying overseas markets. The Japanese market, for example, offers a significant price premium and will likely be supplied even at the expense of some domestic customers such as the food service sector. Post understands that some major supermarkets are increasing imports of cheese because of the shortfall in domestic supplies.

Table 10: Australian cheese exports, 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	168	163	163	151	171	167
Japan	91	99	88	77	94	83
China	6	9	12	17	16	20
South Korea	7	7	6	5	8	8
Malaysia	8	6	7	8	8	8
United States	1	2	2	2	6	6
Other	55	40	48	62	39	42

Source: Global Trade Atlas (2017)

Table 5: Australian cheese imports, 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	72	74	69	79	89	88
New Zealand	47	45	38	42	54	51
United States	9	11	11	18	15	13
Italy	3	3	4	4	5	4
Other	13	15	16	15	15	20

Source: Global Trade Atlas (2017)

Imports of cheese into Australia are forecast by Post at 100,000 MT in 2017, the same as Post's earlier forecast. Actual imports of cheese in 2016 were 88 million MT, 12 percent less than Post's earlier estimate. Imports from the European Union are typically specialty cheeses including parmesan and feta, while those from New Zealand and the United States are mainly cheddar cheese. Imports of mozzarella cheese from the United States have also been increasing for use in the Australian pizza industry, but exchange rate changes and competition from New Zealand have led to a decline in this segment of imports.

Production, Supply and Demand Data Statistics:

Table 11: Production, supply and distribution of cheese ('000 metric tons)

Dairy, Cheese	2015		2016		2017	
Market Begin Year	Jan 2015		Jan 2016		Jan 2017	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	34	34	33	33	43	34
Production	324	324	320	324	330	320
Other Imports	89	89	100	88	110	100
Total Imports	89	89	100	88	110	100
Total Supply	447	447	453	445	483	454
Other Exports	170	170	166	167	170	170
Total Exports	170	170	166	167	170	170
Human Domestic Consumption	244	244	244	244	254	254
Other Use, Losses	0	0	0	0	0	0
Total Domestic Consumption	244	244	244	244	254	254
Total Use	414	414	410	411	424	424
Ending Stocks	33	33	43	34	59	30
Total Distribution	447	447	453	445	483	454
(1000 MT)						

Note: 'New Post' data reflect author's assessments and are not official data.

BUTTER

Production

Post has forecast a decline in production of butter (and butter oil/anhydrous milk fat) in Australia to 80,000 MT in 2017. This is 20 percent below Post's previous forecast and is attributed to significantly lower fluid milk supplies to butter processors, in part because of the upsurge in consumption of full cream milk. Actual butter production for 2016 was 86,000 MT, 14 percent below Post's earlier estimate and reflects the fall in milk production in that year, as well as stoppages at a number of processing facilities. According to industry sources, processors have lowered production of butter by switching butterfat into other product streams, such as cream cheese and other cheeses that provide a better return.

Butter production in 2016 was comprised of 73,000 MT of butter and almost 13,000 MT of anhydrous milkfat (AMF) or butteroil. AMF is butter with water removed and is produced mainly for export and domestic food processing applications, such as bakery and confectionary. Most domestic butter sales are made by retail and foodservice outlets. The first step in making butter is to separate whole milk into cream and skim milk. The liquid skim milk is evaporated and spray dried to produce skim milk powder (SMP). The cream is churned until the fat globules form into solid butter, and leaving a liquid byproduct, buttermilk. This liquid can be dried to make buttermilk powder (BMP).

Table 12: Australian consumption of dairy products per capita, 2012-2016

	Milk (liters)	Cheese (kg)	Butter and blends (kg)	Yoghurt (kg)
2012	106.0	13.4	3.9	7.4
2013	106.7	13.5	3.7	7.4
2014	105.8	13.5	3.9	7.4
2015	105.3	13.6	4.0	7.2
2016	105.0	13.9	3.9	7.1

Note: Financial year ending in June. Source: Dairy Australia (2017).

Consumption

Post forecasts butter consumption to increase by 4 percent in 2017 to 104,000 MT, 4 percent above Post's earlier forecast and the estimate for 2016. Annual per capita consumption of butter in Australia is around 4 kilograms. Consumers are attracted by the 'naturalness' of butter, as well as its taste and cooking functionality. A switch in consumer tastes in Australia towards full cream milk products has contributed to the increased domestic demand for butter. However, lower milk production has led to a shortage of butter for food processors while lower demand for skim milk meant butter production could not be as easily supplemented by dairy fat taken from full fat milk.

The shares of overall butter sales of company branded and private label products are around 50 percent. Company branded butter retails for almost twice the price of private label butter, with average prices of A\$11.25/kg (US\$8.44) compared to A\$5.60 (US\$4.20) a kilogram, according to Dairy Australia. Sales volumes of low salt butter fell by 20 percent over 2016, while salted and unsalted butter sales volumes both grew by around 6 percent. There was reportedly strong growth in sales of 500g butter blocks which are used in cooking.

Trade

Post forecasts butter exports at 30,000 MT in 2017, the same as Post's earlier forecast. Actual exports in 2016 were 31,000 MT, 3 percent above Post's earlier estimate. Falling stocks are expected to support butter exports in 2017. Increasing domestic demand is expected to be partly met by butter imports, mainly from New Zealand. In 2017, Post forecasts that imports will increase to 35,000 MT, 40 percent above Post's previous estimate. The revision reflects a greater than expected shortfall in butter production, as well as increased domestic demand.

Table 13: Australian exports of butter, 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	41	53	49	43	34	31
Singapore	5	4	5	6	5	3
Malaysia	3	3	2	3	4	3
Thailand	3	2	3	3	3	4
China	1	2	2	1	2	2
Taiwan	1	2	2	2	2	2
Hong Kong	1	2	2	2	2	2
Other	37	38	33	26	16	15

Source: Global Trade Atlas (2017).

Table 14: Australian imports of butter, 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	18	21	21	23	21	29
New Zealand	17	19	19	20	19	26
Other	1	2	2	3	2	3

Source: Global Trade Atlas (2017).

Production, Supply and Demand Data Statistics:

Table 15: Production, supply and distribution of butter ('000 metric tons)

Dairy, Butter	2015		2016		2017	
Market Begin Year	Jan 2015		Jan 2016		Jan 2017	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	64	64	77	77	74	61
Production	120	120	110	86	112	80
Other Imports	23	23	22	29	25	35
Total Imports	23	23	22	29	25	35
Total Supply	207	207	209	192	211	176
Other Exports	35	35	35	31	45	30
Total Exports	35	35	35	31	45	30
Domestic Consumption	95	95	100	100	104	104
Total Use	130	130	135	131	149	134
Ending Stocks	77	77	74	61	62	42
Total Distribution	207	207	209	192	211	176
(1000 MT)						

Note: 'New Post' data reflect author's assessments and are not official data.

SKIM MILK POWDER

Production

Post forecasts production of skim milk powder (SMP) in 2017 at 240,000 MT, a decline of 7.7 percent on Post's previous forecast. Actual SMP production in 2016 was 237,000 MT, 8.8 percent below Post's previous estimate for this year. Milk powder is categorized as either of SMP or WMP depending on the fat content. Skim milk powder is made by removing cream from whole milk and then evaporating and drying the skim milk. As a result, SMP has a lower level of fat than whole milk powder (WMP). Post notes that SMP is a by-product of cheese production.

Consumption

Post forecasts domestic consumption of skim milk powder at 85,000 MT in 2017, 6.3 percent above Post's previous forecast. Actual consumption of SMP in 2016 was 82,000 MT, 2.5 percent above Post's previous estimate for this year. Skim milk powder is mainly used as a food ingredient and to manufacture infant formula for infants and children above the age of two, which is increasingly exported in response to rising demand in China and the region. Lower fat milk powder is preferred for this age category since it is considered healthier than whole milk powder. Skim milk powder accounts for over 70 percent of local production of milk powder and only 35 percent is consumed on the domestic market.

Trade

Post forecasts exports of skim milk powder in 2017 at 170,000 MT, 10.5 percent below Post's previous forecast. The revision reflects lower overall milk availability for processors. Actual exports of SMP in 2016 were 163,000 MT, 14 percent below Post's previous estimate for this year. There are no apparent imports of SMP into Australia.

Table 16: Australian exports of skim milk powder, 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	140	168	119	164	201	163
Indonesia	24	23	21	33	43	38
China	13	12	15	16	20	17
Singapore	17	20	13	14	16	14
Other	86	113	70	101	122	94

Source: Global Trade Atlas (2017).

Indonesia is the major export market for SMP, followed by Greater China, Malaysia, Singapore, and the Philippines. Exported skim milk powder is typically used in overseas markets where fresh milk supplies are not readily available, due to either limited local production, or restricted access to cold storage facilities. Major markets for milk powder and infant formula are China, Indonesia, Singapore and Malaysia.

Production, Supply and Demand Data Statistics:

Table 17: Production, supply and distribution of skim milk powder ('000 MT)

Dairy, Milk, Nonfat Dry	2015		2016		2017	
Market Begin Year	Jan 2015		Jan 2016		Jan 2017	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	62	62	55	55	46	55
Production	266	266	235	237	240	240
Other Imports	10	10	8	8	0	5
Total Imports	10	10	8	8	0	5
Total Supply	338	338	298	300	286	300
Other Exports	201	201	170	163	180	170
Total Exports	201	201	170	163	180	170
Human Domestic Consumption	82	82	82	82	85	85
Other Use, Losses	0	0	0	0	0	0
Total Domestic Consumption	82	82	82	82	85	85
Total Use	283	283	252	245	265	255
Ending Stocks	55	55	46	55	21	45
Total Distribution	338	338	298	300	286	300
(1000 MT)						

Note: 'New Post' data reflect author's assessments and are not official data.

WHOLE MILK POWDER

Production

Post forecasts production of whole milk powder (WMP) in 2017 to decline to 70,000 MT, 26 percent below Post's earlier forecast. Actual production of WMP in 2016 was 80,000 MT, 15.8 percent below Post's earlier estimate. The trend downturn in WMP production is attributed to the fall in world prices and a switch by processors to higher value products. Whole milk powder (WMP) is manufactured by evaporating milk with some of the cream removed. The evaporated milk is then concentrated and dried either by roller or spray process to form a powder.

Consumption:

Post forecasts consumption of whole milk powder in 2017 at 40,000 MT, 33 percent above Post's earlier forecast. Post estimates that consumption of WMP in 2016 was 40,000, 9 percent below Post's earlier estimate for this year. Whole milk powder is mainly used in food manufacturing, such as for ice cream, ready-to-cook meals and confectionary; as well as infant formula for infants less than two years old. Whole milk powder is preferred in this segment of infant formula because the nutrients and fats in WMP are better for infant development. Demand for exports of infant formula, which incorporates WMP, has increased significantly in recent years, but production and consumption statistics for infant formula are not readily available.

Trade:

Post forecasts exports of whole milk powder (WMP) in 2017 to fall to 60,000 MT in response to low international prices and a switch to other products by dairy processors. This is 25 percent below Post's earlier forecast for 2017. Actual exports of WMP in 2016 were 70,000 MT, the same as the Post estimate for that year. Post forecasts imports of WMP in 2017 to reach 30,000 MT in response to lower domestic production, 50 percent above the previous Post estimate. In recent years, Australian exports of WMP (in the form of powder and infant formula) have been larger than domestic production. The shortfall has been made up from imports of both WMP and infant formula, mainly from New Zealand.

Table 18: Australian exports of whole milk powder (WMP), 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	116	109	96	81	65	70
Sri Lanka	12	11	12	13	14	12
Singapore	17	16	14	15	11	8
Bangladesh	4	4	7	8	8	6
China	7	8	24	13	6	13
Other	76	70	39	47	26	31

Source: Global Trade Atlas (2017).

Table 19: Australian imports of whole milk powder (WMP), 2011-2016 ('000 MT)

	2011	2012	2013	2014	2015	2016
World	13	9	8	9	11	16
New Zealand	13	7	7	7	9	11
Other	0	2	1	2	2	5

Source: Global Trade Atlas (2017).

Production, Supply and Demand Data Statistics:

Table 20: Production, supply and distribution of whole milk powder ('000 MT)

Dairy, Dry Whole Milk Powder	2015		2016		2017	
	Market Begin Year	Jan 2015	Jan 2016	Jan 2017	USDA Official	New Post
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	19	19	15	15	3	1
Production	95	95	80	80	90	70
Other Imports	11	11	15	16	20	30
Total Imports	11	11	15	16	20	30
Total Supply	125	125	110	111	113	101
Other Exports	65	65	65	70	70	60
Total Exports	65	65	65	70	70	60
Human Domestic Consumption	45	45	42	40	40	40
Other Use, Losses	0	0	0	0	0	0
Total Domestic Consumption	45	45	42	40	40	40
Total Use	110	110	107	110	110	100
Ending Stocks	15	15	3	1	3	1
Total Distribution	125	125	110	111	113	101
(1000 MT)						

Note: 'New Post' data reflect author's assessments and are not official data.

OTHER DAIRY PRODUCTS

Infant Formula

Production of infant formula in Australia is difficult to track, partly due to the significant role of imports and re-exports. Australian production of whole milk powder, skim milk powder and whey powder are a guide to production, since they are used in the manufacture of formula, but imports of these powders and infant formula itself are also significant. Major producers Bega Cheese, Fonterra Australia and Murray Goulburn have all announced partnerships with established nutritional companies to develop their infant formula businesses for export markets, particularly to China.

Post notes that official export statistics do not include exports by private buyers known as Daigou who have created an informal sales channel to China by buying formula in Australian retail outlets and then shipping or posting it to China. Australian production has been supplemented by imports of infant formula from New Zealand in the form of packaged, retail-ready tins for sale to Australian consumers and unofficial re-exporters.

There was a significant decline in infant formula sales in Australia in the second half of 2016, which occurred at the same time as increased restrictions on private exports of infant formula to China. A new development is that Australian retailers such as Woolworths have listed products such as infant formula on Chinese e-commerce platforms in order to sell directly to Chinese customers. Under the April 2014 revision to Chinese food standard laws, all infant formula imports need to be registered with the China Food and Drug Administration from 2018.

Yoghurt and dairy snacks

Australian per capita consumption of yoghurt is estimated at around 7 kilograms per year per person. The product is often considered a healthy food which does not require extensive preparation. Within the yoghurt category, there is a trend for consumers to purchase traditional unsweetened varieties of yoghurt in preference to sweetened yoghurt. Sales of traditional dairy yoghurt grew by around 10 percent over 2016, whilst sales of sweetened yoghurt fell by 5 percent. Sales of unflavored, traditional varieties now account for over half of the market. Sales of dairy snacks (including custards, probiotics and dairy desserts) have been stable over the last year.

Whey products

In 2016, Australia production of whey powder was 49,140 MT, compared to 45,000 MT, up around 15 percent on the previous year. Whey is a by-product of the cheese making process. Food-grade whey powder is used in the manufacture of ice-cream, bakery products (cakes, biscuits), chocolate flavoring, infant formula, yoghurt, beverages and as a carrier for herbicides.

Whey protein concentrates are used in snack foods, juices, confectionary, ice-cream, biscuits, processed meats, (milk) protein drinks, desserts, infant foods and dietetic products. Around 30 percent of Australia's whey production is used domestically in the manufacture of infant formula, biscuits and ice-cream. Singapore, Greater China, Japan, Indonesia, and Malaysia have been the largest export markets for Australian whey powders in recent years.