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## **New Zealand**

### **Dairy and Products Annual**

#### **New Zealand Annual Dairy and Milk Supply Report 2017**

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**Report Highlights:**

**Wet and cold Spring weather has thwarted the anticipated 3% rebound in 2017 milk production. Now New Zealand 2017 milk supply is forecast to reach 21.5 million metric tons, a modest 1.3% increase over 2016. An even more modest increase of 0.5% in 2018 should mean milk supply reaches 21.6 million metric tons. Exports for 2017 will come off the boil just, to record a 0.7% reduction to 3.26 million metric tons then resume an upward trend in 2018 to be forecast at a total of 3.32 million metric tons.**

## Executive Summary

The big rebound in New Zealand milk production for 2017 forecast six months ago has been thwarted by the weather. Milk supply for 2017 is now estimated to reach 21.5 million metric tons (mMT) a modest 1.3% increase over 2016. The potential for a 3% rebound or better, set up by kind temperatures and ample rainfall during the first six months of 2017, has been reversed by a cold, very wet spring (August and September) over most of New Zealand. This has made it all but impossible to feed and maintain the cows to optimum levels.

Looking ahead to 2018, a small increase in actual cow numbers to 4.95m head and normal weather patterns should mean milk production will reach 21.6mMT, a 0.5% increase.

Financially New Zealand dairy farmers have come out of the two year milk price trough (2014/2015 through 2015/2016) to get paid on average NZ\$6.10/kilogram (kg) milksolids (USD4.31/kg MS), with a forecast of NZ\$6.75/kg milksolids (USD4.77/kg MS) for 2018. Total business breakeven for most farms is put at NZ\$5.00/kg to NZ\$5.50/kg milksolids.

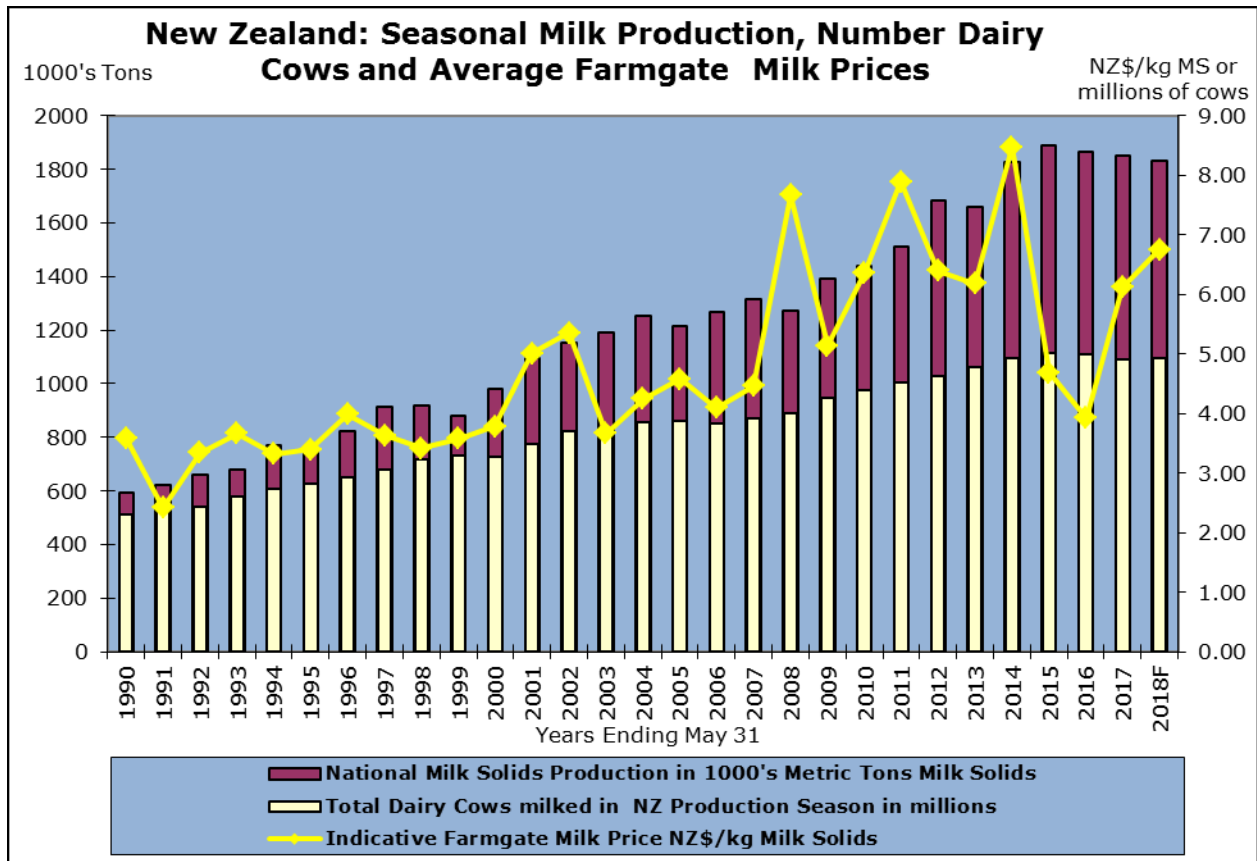
The small increases in milk supply should push dairy production up to an estimated 3.13mMT in 2017 and on to 3.17mMT in 2018, year-on-year increases of 3.6% and 1.2% respectively. Among the main commodities the key movers in 2017 are: whole milk powder (WMP) and cheese up 3.8% and 5.6% respectively to 1.38 mMT and 380,000 MT. On the negative side skim milk powder (SMP) and butter/anhydrous milkfat (AMF) are likely to be down 5.8% and 6.7% respectively at 390,000 MT and 545,000 MT.

The real action is with the specialized and alternative products such as: cream, infant milk formula, specialized protein products, and fresh cheeses. For example the non-PSD production total is likely to grow 4.8% to 436,000MT in 2017 and a further 5.5% to 460,000 MT in 2018.

The trend away from the traditional commodities to higher value/higher profit alternatives is becoming clearer and is reflected in the export mix as well. Total exports at an estimated 3.26 mMT for 2017 will be 0.7% less than 2016. This decline is the result of the run down in stock levels during 2016 that boosted export volumes in 2016 that will not happen again in 2017. However non-PSD products at an estimated 436,000 MT shipped for 2017 will show a 4.8% increase over 2016. This trend is forecast to continue in 2018 with non-PSD exports to increase by a forecast 5.5% to 460,000 MT. Total dairy exports in 2018 are forecast to be up by just 1.6% at 3.32 mMT.

*1/ Note: The GAIN Dairy Marketing Year (MY) is the same as the calendar year (CY), January 1 to December 31. In the report "2017" is used which means the marketing year (MY2017) and the calendar year (CY2017). The reference to Financial Year (FY) refers to the New Zealand farming financial year which is June 1, to May 31 so FY2017 refers to the period June 1, 2016 to May 31, 2017. In addition if 2017/2018 is used it refers to the New Zealand milk production season of 1 June 2017 to 31 May 2018.*

# Milk Supply



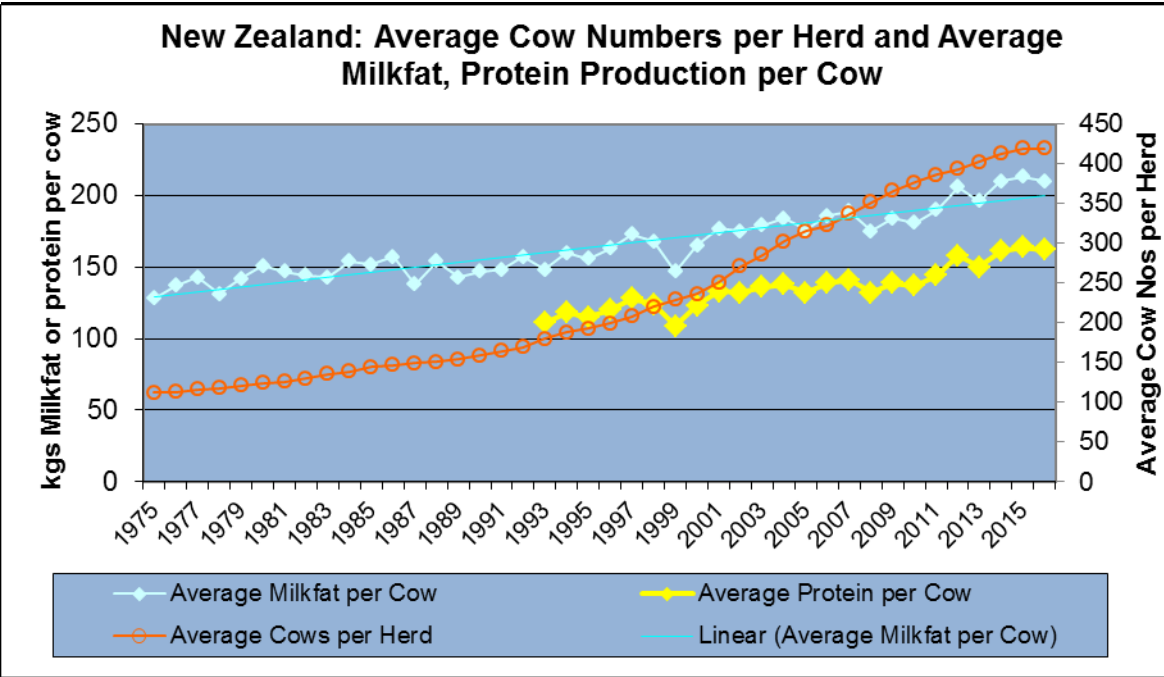
Sources: MPI, LIC, DairyNZ, Posts own estimates, StatsNZ

## 2017

Mother Nature has intervened to upset the best laid plans and forecasts. Rather than a 3% rebound in milk production over 2016 Post now forecasts 2017 milk production to be 21.5 mMT, a 1.3% increase. The key dynamic is a cold, very wet start to the 2017/2018 seasonal lactation in August and September, which has reduced pasture utilization and per cow daily production. Initial 2017 production was strong with the first six months a record and nearly 4% above the comparable period in 2016. However the increased rainfall, which made that possible, has continued all winter and is now making it all but impossible to feed and maintain the cows to optimum levels in many regions. Additional contributing factors include:

- Less cows than originally forecast. There seems to be some confusion over actual cow numbers with differing estimates being issued over the last year, it appears now that approximately 4.9 million (m) cows, rather than close to 5m, were in milk at the beginning of the year and indications are that there will be a small increase by year end to 4.925m head.
- A large increase in the number of calves reared during spring (August, September) 2017 will increase the on-farm use of the milk supply. Additionally some milk powder may be diverted to calf milk replacer.

- Even though feed supplement supplies of grass and corn silage were adequate and have been readily augmented with imported Palm Kernel Extract this hasn't overcome the lack of sunlight and the miserable underfoot conditions for the cows in many regions.
- Lower than ideal pasture utilization in September going into October is quite likely to reduce pasture quality in November and December which may reduce per cow daily milk yields for November through December.



Source: DairyNZ

**2018**

With cow numbers forecast to increase from 4.925m head to 4.95m head by the end of the year and a return to more normal weather patterns milk production is forecast to increase by 0.5% to 21.6 mMT. This forecast is based on the following assumptions:

- A significant proportion of the increased numbers of calves reared in 2017 will be heifers calves retained to bolster the dairy herd in coming years;
- Confidence in the sector is returning with the 2016/2017 raw milk price average of NZ\$6.10/kg milksolids (MS) and an increase forecast for the 2017/2018 season to NZ\$6.75/kg MS. This puts farmers firmly back in profit after two loss making years ended with 2015/2016's payout of NZ\$3.92/kg MS;
- This increase in confidence is likely to mean some farmers will increase cow numbers slightly;
- In addition farmers will have the finance available to fund supplemental feed purchases to maintain production in periods of pasture growth deficits;

- The climate going into summer and autumn 2018 is forecast by the National Institute of Water and Atmospheric Research, a Crown Research Institute to be neutral from an El Nino/La Nina viewpoint so rainfall is expected to be normal. For spring 2018 it is expected there will be a return to normal weather patterns;
- Because cow numbers going into the beginning of 2018 will be similar to the last three years an average of the last three years January to May production has been used;
- Winter milk production is being encouraged, especially by Fonterra, so it is expected that the level of increase that occurred in June and July for 2017 over 2016 will happen again in 2018;
- It is forecast there will be 4.95m cows in milk by October 2018 and they will produce from August to December at the same per cow per day rates as the average achieved over the last five years.

## PSD - Milk

Dairy, Milk, Fluid (1000HD, 1000MT)	2016 Market Year Begin: Jan 2016		2017 Market Year Begin: Jan 2017		2018 Market Year Begin: Jan 2018	
	Official	New Post	Official	New Post	Official	New Post
<b>New Zealand</b>						
Cows In Milk	4995	4995	5000	4900		4925
Cows Milk Production	21224	21224	21900	21505		21621
Other Milk Production	0	0	0	0		0
Total Production	21224	21224	21900	21505		21621
Other Imports	2	2	2	2		2
Total Imports	2	2	2	2		2
Total Supply	21226	21226	21902	21507		21623
Other Exports	242	174	280	210		220
Total Exports	242	174	280	210		220
Fluid Use Dom. Consum.	497	497	500	500		500
Factory Use Consum.	20437	20505	21072	20727		20838
Feed Use Dom. Consum.	50	50	50	70		65
Total Dom. Consumption	20984	21052	21622	21297		21403
Total Distribution	21226	21226	21902	21507		21623
CY Imp. from U.S.	0	0	0	0		0
CY. Exp. to U.S.	0	0	0	0		0
TS=TD	0	0	0	0		0

Not official USDA estimates

## Longer Term Milk Production Outlook

Looking ahead it is anticipated the following factors will constrain milk production to an average annual growth of 1% to 1.5% per annum:

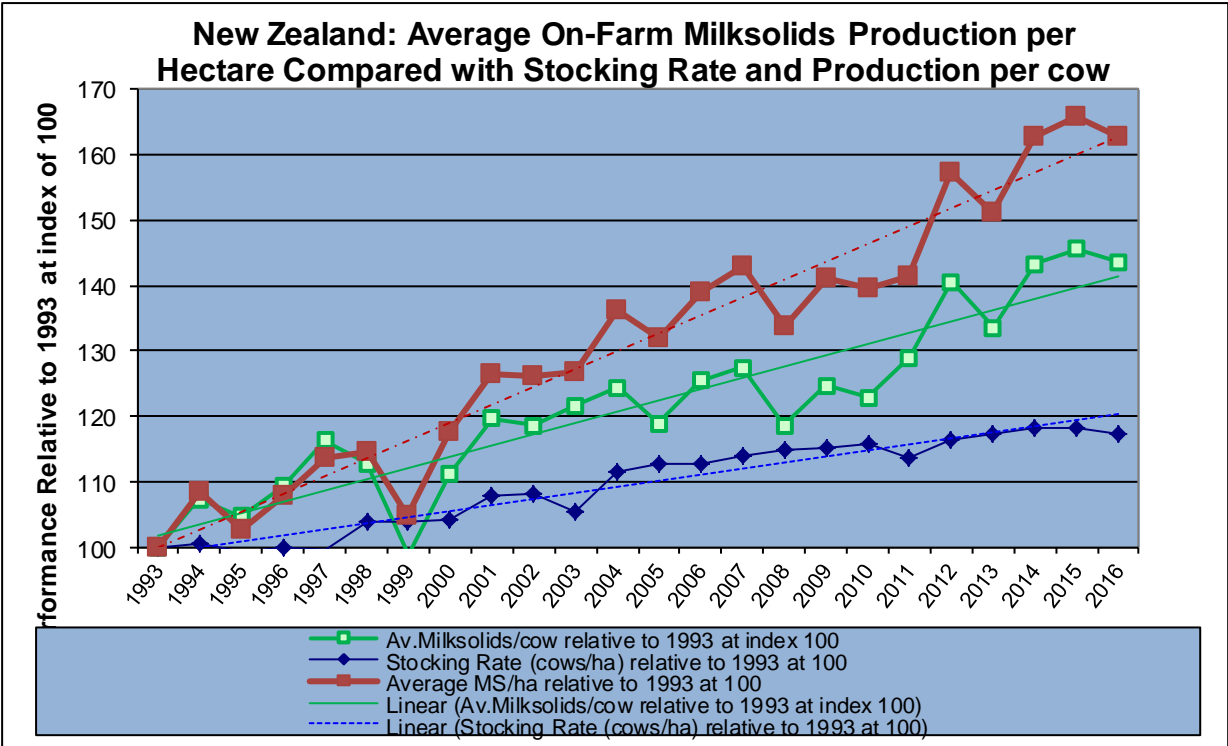
- There are virtually no new conversions of land to dairying occurring;
- Longer term it is expected new conversions will roughly equal land being taken out of dairying for other land uses such as horticulture and urban sprawl;

- Cow numbers will be relatively static oscillating between years around 5 million head;
- Production gains will come from productivity gains such as genetic gains (1% to 1.3% p.a.) and on-farm management improvements;
- Environmental limits on discharges of nutrients, sediment, and pathogens to aquifers and waterways are being put in place by all territorial authorities and will become increasingly stringent over the next five to ten years;
- For the medium term (two to five years), until cost effective mitigations become generally available the increased financial costs that may be needed to comply with the environmental limits now being put in place will reduce the financial attractiveness of investing in new dairy farms.

**Financial Outlook**

Financially for dairy farmers the 2016/2017 year has been successful. The final milksolids (MS) price at the farm gate will average approximately NZ\$ 6.10/kg (USD4.31/kg MS), 55% higher than 2015/2016. This is boosting farmer confidence, which will flow through to extra farm inputs being purchased if necessary. The 2017/2018 season is forecast to be even better. Fonterra has announced a forecast of NZ\$6.75/kg MS (USD4.77/kg MS) and the other companies are arrayed around this forecast.

At between NZ\$5.00 to 5.50/kg MS most farms are achieving an overall financial breakeven level with income high enough to provide for coverage of operating costs; actual funding of depreciation, debt servicing, management wages to the farm owner and tax.



Source: DairyNZ

# Dairy Production

## Dairy Production at a Glance

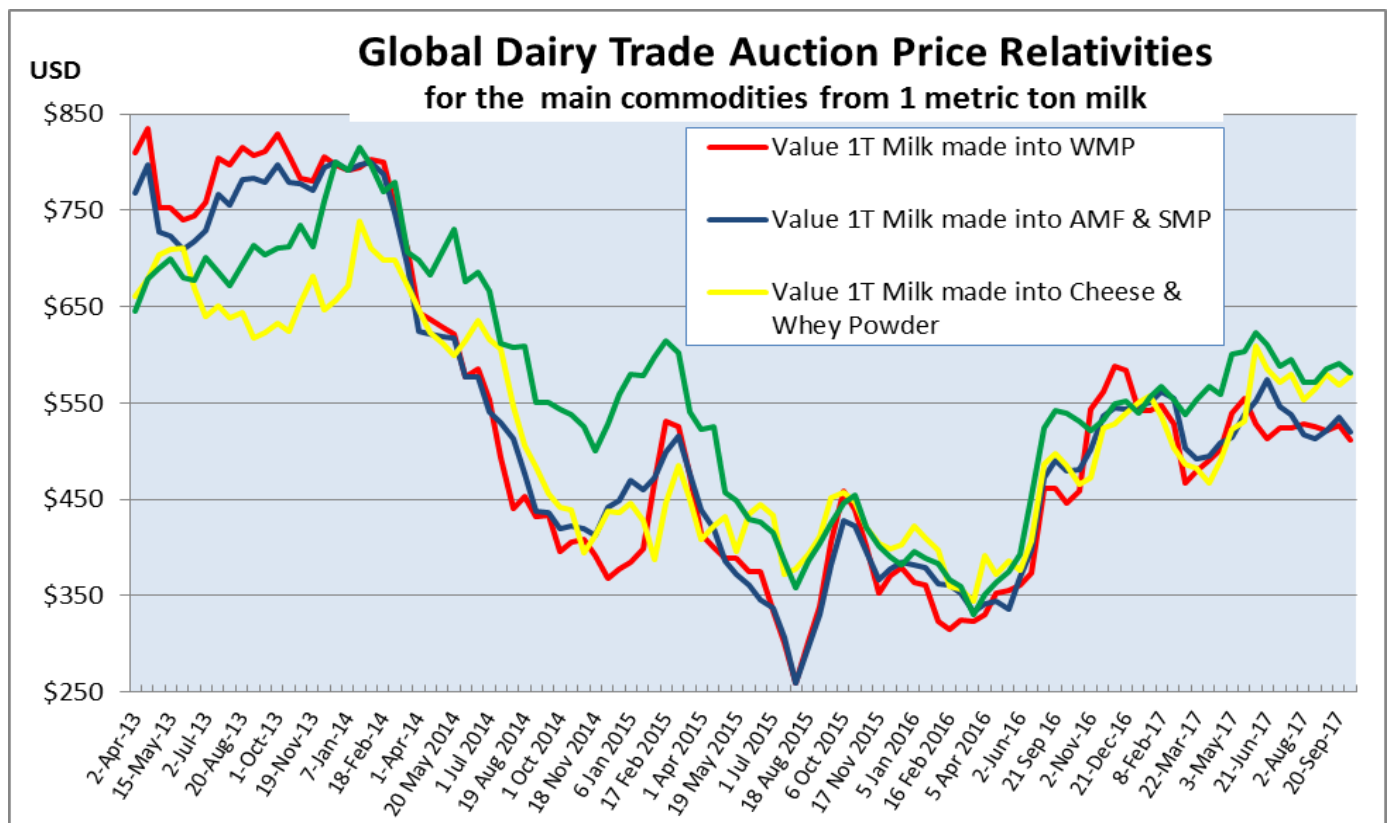
New Zealand Summary Table for Estimated Dairy Production					
Commodity Group (1000s Metric Tons)	2016	2017		2018	
	Firm Estimate	Estimate	% change from prev. year	New Forecast	% change from prev. year
<b>WMP</b>	<b>1,330</b>	<b>1,380</b>	3.8%	<b>1,390</b>	0.7%
<b>SMP</b>	<b>414</b>	<b>390</b>	-5.8%	<b>395</b>	1.3%
<b>Butter/AMF</b>	<b>584</b>	<b>545</b>	-6.7%	<b>545</b>	0.0%
<b>Cheese</b>	<b>360</b>	<b>380</b>	5.6%	<b>380</b>	0.0%
<b>Sub-Total PSD Commodities</b>	<b>2,688</b>	<b>2,695</b>	0.3%	<b>2,710</b>	0.6%
<b>Casein &amp; Caseinates</b>	<b>100</b>	<b>97</b>	-3.0%	<b>97</b>	0.0%
<b>Whey Products</b>	<b>43</b>	<b>46</b>	7.0%	<b>46</b>	0.0%
<b>Milk Protein Concentrates</b>	<b>90</b>	<b>85</b>	-5.6%	<b>90</b>	5.9%
<b>Cream Products</b>	<b>69</b>	<b>90</b>	30.4%	<b>100</b>	11.1%
<b>Other Products</b>	<b>53</b>	<b>55</b>	3.8%	<b>60</b>	9.1%
<b>Infant Milk Formula</b>	<b>61</b>	<b>63</b>	3.3%	<b>67</b>	6.3%
<b>Subtotal Rest of Dairy</b>	<b>416</b>	<b>436</b>	4.8%	<b>460</b>	5.5%
<b>Total Production</b>	<b>3,104</b>	<b>3,131</b>	0.9%	<b>3,170</b>	1.2%

Source: Post estimates Note: Butter/AMF line has the AMF adjusted to butter equivalents

Post forecasts 2018 dairy production at 3.17 mMT, a 1.2% increase on Post's revised 2017 production total of 3.13 mMT. The small increase in milk supply is behind the increase in production combined with the changes to the product mix which changes slightly the level of protein and fat to total product volume.

Increasingly, over the last four to six months, the Global Dairy Trade (GDT) Auction prices have favored the production of casein and whey protein products with butter or anhydrous milkfat (AMF) or Cheese (see Global Dairy Trade Auction chart below). However, the markets for further processed protein products are limited and tariff or quota barriers limit the potential expansion of cheddar cheese production for New Zealand dairy exporters. There is still the feeling in the sector that WMP prices will strengthen relative to the SMP/ fat product stream so WMP production will be emphasized at the expense of SMP/ fat once the demand for casein, whey products, cheese, and cream for food service is taken care of.

The increase in processing capacity (mostly driers, nutritional ingredient driers, fresh cheese manufacturing, and UHT packaging especially for food service cream) built over the last five years together with the levelling off in annual milk supply now means the processors have a lot more optionality with product mixes. Even at the peak of the production season October through December.



Source: GDT, GTA, Post estimates

## Dairy Exports at a Glance

<b>New Zealand Summary Table for Dairy Product Export Quantities</b>					
Commodity Group (1000s Metric Tons)	2016	2017		2018	
	Actual	Estimated	% change from prev. year	New Forecast	% change from prev. year
<b>WMP</b>	<b>1,344</b>	<b>1,355</b>	0.8%	<b>1,370</b>	1.1%
<b>SMP</b>	<b>444</b>	<b>390</b>	-12.2%	<b>391</b>	0.3%
<b>Butter/AMF</b>	<b>554</b>	<b>517</b>	-6.7%	<b>519</b>	0.4%
<b>Cheese</b>	<b>355</b>	<b>355</b>	0.0%	<b>355</b>	0.0%
<b>Liquid Milk</b>	<b>174</b>	<b>210</b>	20.7%	<b>220</b>	4.8%
<b>Sub-Total PSD Exports</b>	<b>2,871</b>	<b>2,827</b>	-1.5%	<b>2,855</b>	1.0%
<b>Casein</b>	<b>100</b>	<b>97</b>	-3.0%	<b>97</b>	0.0%
<b>Whey Products</b>	<b>43</b>	<b>46</b>	7.0%	<b>46</b>	0.0%
<b>Milk Protein Concentrates</b>	<b>90</b>	<b>85</b>	-5.6%	<b>90</b>	5.9%
<b>Cream Products-Food Service</b>	<b>69</b>	<b>90</b>	30.4%	<b>100</b>	11.1%
<b>Other Products</b>	<b>53</b>	<b>55</b>	3.8%	<b>60</b>	9.1%
<b>Infant Milk Formula</b>	<b>61</b>	<b>63</b>	3.3%	<b>67</b>	6.3%
<b>Sub-Total Non PSD Exports</b>	<b>416</b>	<b>436</b>	4.8%	<b>460</b>	5.5%
<b>Total Exports</b>	<b>3,287</b>	<b>3,263</b>	<b>-0.7%</b>	<b>3,315</b>	<b>1.6%</b>

Source: GTA, Post estimates. Note: Butter/AMF line has the AMF adjusted to butter equivalents



## Product Specific Production and Trade

### Whole Milk Powder (WMP)

For 2017 WMP production is now forecast to be 4% up on 2016 at 1.38 mMT. This extra production will translate into an additional 11,000 MT going to exports, now forecast at 1.36 mMT, and an extra 6,000 MT being used for animal feed. At the same time closing inventories are forecast to be up slightly (5,000 MT) at 146,000 MT.

The 2018 production of WMP is forecast at 1.39 mMT. Stock levels are forecast to be stable when ending stocks are compared to the beginning. This should then give rise to 1.37 mMT of WMP exports in 2018.

Reportedly sector participants think butter prices have peaked; skim milk powder (SMP) prices are going to languish at their current low levels for some time yet; but WMP demand will increase over the next six months. This will result in an increase for WMP pricing relative to the butter/SMP product stream. For this reason Post is anticipating a marginal increased emphasis on WMP production over and above the rate of increase in milk supply over the next 12 months.

<b>New Zealand Export Statistics for Whole Milk Powder</b>						
<b>Annual Series: 2011 - 2016</b>						
<b>Partner Country</b>	<b>Quantity (metric tons)</b>					
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
China	302,261	423,435	622,133	587,631	354,291	389,079
Algeria	79,602	75,426	32,752	95,030	121,129	166,570
United Arab Emirates	67,700	91,893	76,635	112,579	125,488	96,795
Sri Lanka	64,398	56,927	45,339	47,154	57,764	67,137
Malaysia	38,218	41,703	36,829	59,448	82,358	51,111
Bangladesh	29,115	31,144	22,558	30,465	39,039	42,876
Thailand	30,760	30,132	31,609	38,799	44,921	42,522
Saudi Arabia	37,701	42,512	27,548	45,485	45,073	42,190
Vietnam	24,422	31,146	23,758	33,571	49,340	38,708
Singapore	36,634	30,635	35,123	39,331	40,031	38,438
Rest of World	398,824	406,325	337,176	333,448	420,980	368,231
<b>World</b>	<b>1,109,635</b>	<b>1,261,278</b>	<b>1,291,460</b>	<b>1,422,941</b>	<b>1,380,414</b>	<b>1,343,657</b>
<b>Av. FOB price USD/MT</b>	<b>\$3,780</b>	<b>\$3,404</b>	<b>\$4,290</b>	<b>\$4,255</b>	<b>\$2,551</b>	<b>\$2,361</b>

Source: GTA

## New Zealand Export Statistics for Whole Milk Powder

Year To Date: January - August

Destination Country	2015		2016		2017	
	Quantity (MT)	Average Price USD/MT	Quantity (MT)	Average Price USD/MT	Quantity (MT)	Average Price USD/MT
China	168,332	\$2,554	198,778	\$2,316	245,356	\$3,241
Algeria	91,739	\$2,648	77,754	\$2,052	76,467	\$2,994
United Arab Emirates	83,424	\$2,744	64,552	\$2,137	69,656	\$3,047
Sri Lanka	35,749	\$2,545	44,930	\$2,218	51,326	\$2,975
Malaysia	56,412	\$2,639	32,141	\$2,209	38,722	\$3,193
Bangladesh	24,447	\$2,586	29,852	\$2,195	36,402	\$3,128
Thailand	30,093	\$2,705	31,789	\$2,153	33,569	\$2,980
Nigeria	30,659	\$2,699	27,369	\$2,356	27,595	\$2,955
Singapore	25,279	\$1,991	27,200	\$1,786	29,001	\$2,697
Vietnam	31,832	\$2,688	26,101	\$2,003	27,308	\$2,712
Rest of World	280,323	\$3,033	254,043	\$2,382	190,595	\$3,168
<b>World Total</b>	<b>858,289</b>	<b>\$2,744</b>	<b>814,509</b>	<b>\$2,251</b>	<b>825,997</b>	<b>\$3,104</b>

Source: GTA

## PSD - WMP

Dairy, Dry Whole Milk Powder New Zealand (1000MT)	2016		2017		2018	
	Market Year Begin: Jan 2016		Market Year Begin: Jan 2017		Market Year Begin: Jan 2018	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	169	169	141	141		146
Production	1,330	1,330	1,370	1,380		1,390
Other Imports	4	4	4	4		4
Total Imports	4	4	4	4		4
Total Supply	1,503	1,503	1,515	1,525		1,540
Other Exports	1,344	1,344	1,356	1,355		1,370
Total Exports	1,344	1,344	1,356	1,355		1,370
Human Dom. Cons.	4	4	4	4		4
Other Use, Losses	14	14	14	20		20
Total Dom. Cons.	18	18	18	24		24
Total Use	1,362	1,362	1,374	1,379		1,394
Ending Stocks	141	141	141	146		146
Total Distribution	1,503	1,503	1,515	1,525		1,540
CY Imp. from U.S.	0	0	0	0		0
CY. Exp. to U.S.	0	2	0	2		2
TS=TD	0	0	0	0		0

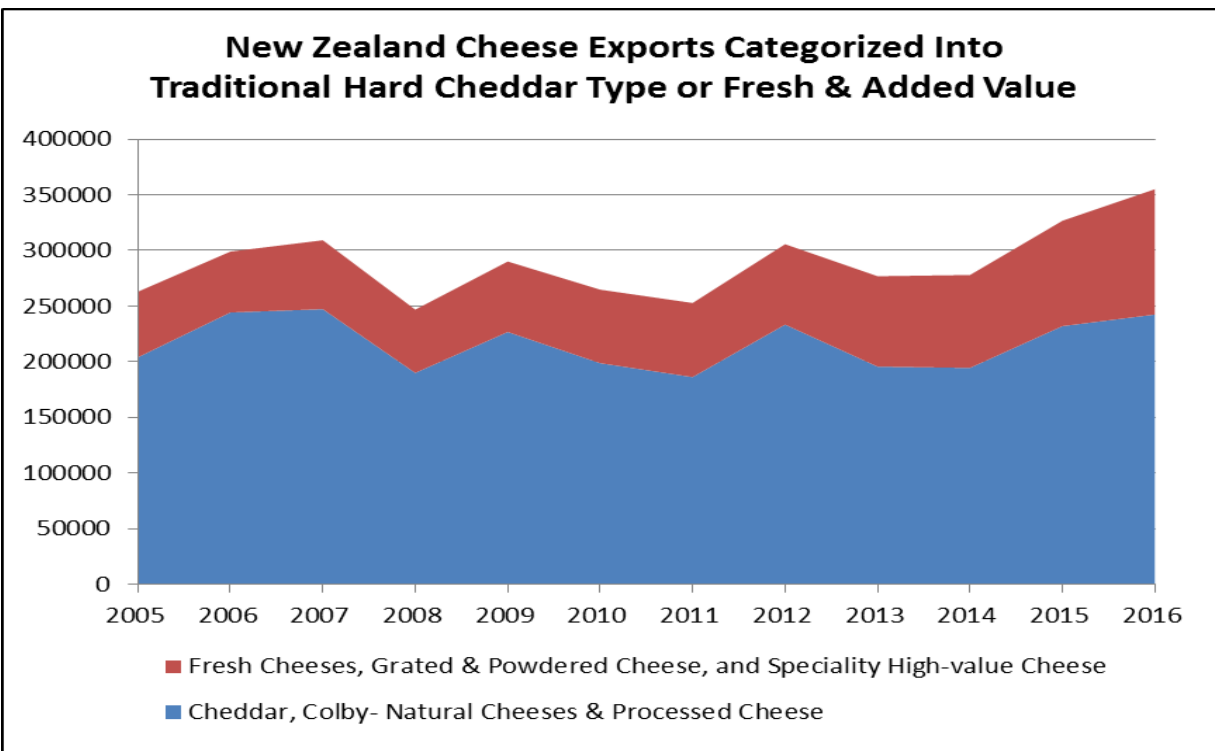
Not official USDA estimates

## Cheese

Post forecasts 2017 cheese production at 380,000 MT, representing a 5.6% increase over the estimate for 2016 production of 360,000 MT.

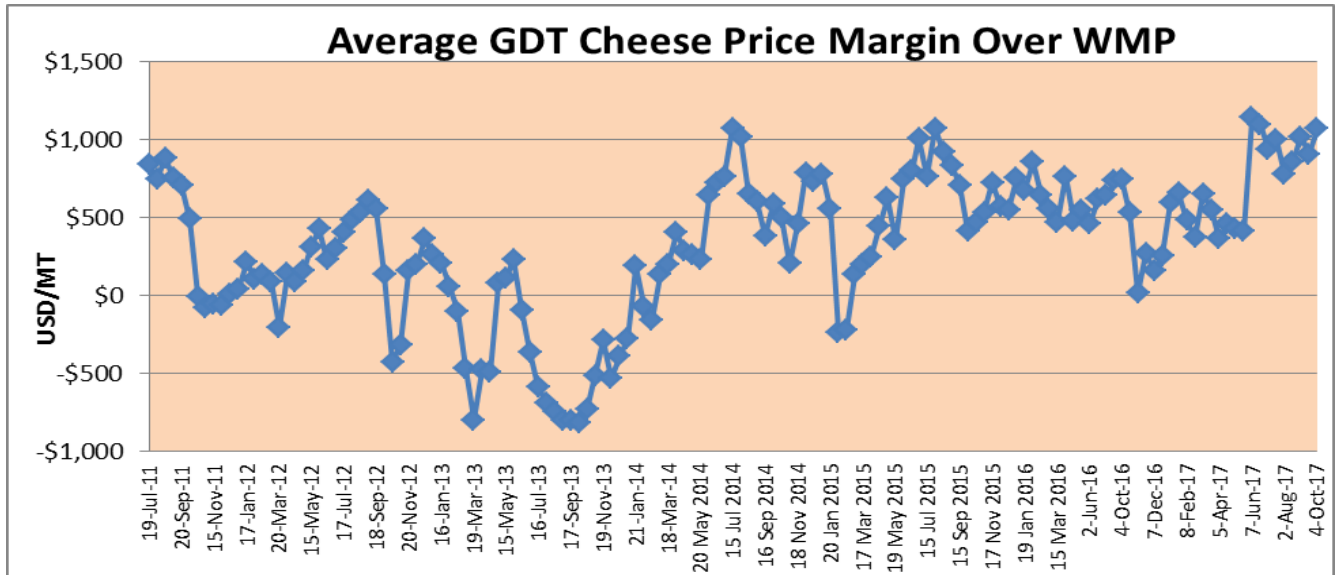
Exports in 2017 for the year to date (August) are only 1,000 MT behind 2016 the same comparable period. This combined with the relatively high profitability of cheese manufacture based on GDT Auction prices over the last four to five months suggests exports in 2017 will be equal to 2016 at 355,000 MT, with a good chance of surpassing that level. Cheddar cheese exports have reduced during 2017 but are being more than made for by fresh cheese (mozzarella, cream, and cottage) volume increases.

Looking forward to 2018 Cheese production is again pegged at 380,000 MT, with exports the same at 355,000 MT. The same underlying trends mentioned above are expected to hold throughout 2018.



Source: GTA

New capacity for manufacture of fresh cheeses is being built during 2017 to be commissioned in 2018. By the first quarter in 2018 there will be over 100,000 MT annual production capacity for mozzarella. Fonterra is building two cream cheese plants, which will ultimately increase capacity by 48,000 MT in 2020. This capacity increase suggests a real boom in fresh cheese exports is about to happen. However while the underlying trend in NZ cheese manufacture is definitely away from cheddar type production and into fresh cheeses this category has been only growing by 7,000 MT to 15,000 MT (forecast 2017) annually over the last three years.



Source: GDT Auction data

Note the usual rule of thumb is once the cheese price is greater than US\$500 above WMP it is more profitable to produce cheese over WMP.

### PSD - Cheese

Dairy, Cheese New Zealand	2016		2017		2018	
	Market Year Begin: Jan 2016		Market Year Begin: Jan 2017		Market Year Begin: Jan 2018	
(1000 MT)	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	65	65	45	45		45
Production	360	360	370	380		380
Other Imports	10	10	9	9		9
Total Imports	10	10	9	9		9
Total Supply	435	435	424	434		434
Other Exports	355	355	350	355		355
Total Exports	355	355	350	355		355
Human Dom. Cons.	35	35	35	35		35
Other Use, Losses	0	0	0	0		0
Total Dom. Cons.	35	35	35	34		34
Total Use	390	390	385	389		389
Ending Stocks	45	45	39	45		45
Total Distribution	435	435	424	434		434
CY Imp. from U.S.	0	1	0	2		2
CY. Exp. to U.S.	0	17	0	17		16
TS=TD	0	0	0	0		0

Not official USDA estimates

<b>New Zealand Cheese and Curd Export Statistics</b>			
<b>Year To Date: January - August</b>			
<b>Partner Country</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
	<b>Quantity</b>	<b>Quantity</b>	<b>Quantity</b>
Australia	33,495	40,347	46,022
Japan	35,404	41,911	41,253
China	23,073	30,050	36,842
Korea South	8,668	11,748	13,343
Indonesia	9,648	10,911	11,452
Philippines	10,766	11,364	8,713
Malaysia	6,033	5,042	8,217
Saudi Arabia	9,187	7,500	6,901
Taiwan	5,806	6,032	6,313
Chile	6,651	3,376	6,018
Rest of the World	60,875	62,233	44,470
<b>World Total</b>	<b>209,606</b>	<b>230,514</b>	<b>229,544</b>

Source: GTA

<b>New Zealand Export Statistics for Cheese by Type</b>							
<b>Year To Date: January - August</b>							
<b>Commodity HS code</b>	<b>Description</b>	<b>2015</b>		<b>2016</b>		<b>2017</b>	
		<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>	<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>	<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>
040690	Cheese, Nesoi, Including Cheddar And Colby	135,641	\$3,502	145,393	\$3,051	131,478	\$3,827
040610	Cheese Fresh Incl. Whey Cheese Curd	35,702	\$3,658	41,215	\$3,460	49,370	\$3,962
040620	Cheese Of All Kinds, Grated Or Powdered	22,988	\$4,326	27,725	\$4,053	31,120	\$4,022
040630	Cheese, Processed, Not Grated Or Powdered	15,199	\$4,103	16,113	\$3,854	17,503	\$4,577
040640	Cheese, Blue-Veined, Nesoi	76	\$11,702	68	\$10,315	74	\$12,189
<b>0406</b>	<b>Cheese And Curd Total</b>	<b>209,606</b>	<b>\$3,665</b>	<b>230,514</b>	<b>\$3,303</b>	<b>229,544</b>	<b>\$3,943</b>

Source: GTA

<b>New Zealand Cheese and Curd Export Statistics</b>						
<b>Annual Series: 2011 - 2016</b>						
<b>Partner Country</b>	<b>Quantity (MT)</b>					
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Australia	46,471	45,619	37,661	43,174	51,294	61,959
Japan	61,175	64,754	64,296	57,515	55,045	61,345
China	13,536	17,852	21,367	28,923	39,550	51,668

Korea South	20,085	25,457	21,728	12,110	14,929	19,730
United States	1,876	12,588	945	6,926	16,915	16,715
Indonesia	8,800	13,352	11,036	10,959	14,122	15,935
Philippines	10,186	12,545	11,729	12,335	15,654	15,805
Saudi Arabia	6,940	18,862	11,775	12,749	12,122	11,190
Taiwan	6,865	5,936	7,464	8,069	8,883	9,208
Malaysia	4,712	6,031	6,098	6,750	9,044	8,607
Rest of the World	72,212	82,651	82,787	78,462	89,212	82,943
<b>World Total</b>	<b>252,858</b>	<b>305,647</b>	<b>276,886</b>	<b>277,972</b>	<b>326,770</b>	<b>355,105</b>
<b>Av. FOB price USD/MT</b>	<b>\$4,271</b>	<b>\$3,855</b>	<b>\$4,179</b>	<b>\$4,591</b>	<b>\$3,563</b>	<b>\$3,381</b>

Source: GTA

## Skim Milk Powder (SMP)

Post forecasts 2017 SMP production at 390,000 MT, 5.8% less than the 2016 total. Post forecasts 2017 SMP exports at 390,000 MT, 12% less than 2016. This is in line with year-to-date actual volumes and the poor outlook for international pricing for SMP in the next 12 months.

The world continues to be oversupplied with SMP and international prices are languishing at the bottom of the price cycle with no end in sight for the near term. However SMP is the initial co-product of the butter/AMF production process, so it will continue to be produced in New Zealand at levels comparable to recent years in order to maintain fat production, which is in high demand.

Looking ahead to 2018 there may be a small 5,000MT (1.3%) production increase to 395,000MT to use up the protein generated from UHT cream and butter/AMF manufacture. Exports will be essentially the same as 2017 and closing stocks may creep up by 3,000MT.

<b>New Zealand Skim Milk Powder Export Statistics</b>						
<b>Annual Series: 2011 - 2016</b>						
Partner Country	Quantity (MT)					
	2011	2012	2013	2014	2015	2016
China	77,474	100,851	132,527	114,949	122,926	107,627
Philippines	33,712	30,738	34,958	30,591	32,668	41,247
Malaysia	33,871	34,593	36,106	33,376	31,272	39,439
Indonesia	23,524	37,413	33,780	26,918	24,021	32,470
Thailand	29,899	22,545	15,816	20,580	25,838	27,078
Singapore	18,678	21,269	23,575	29,049	35,266	24,038
Algeria	18	8,717	6,606	3,400	5,233	22,375
Vietnam	5,876	13,648	10,496	7,901	18,483	19,373
Taiwan	11,962	12,055	14,841	18,674	20,655	18,476
Saudi Arabia	26,781	23,761	10,112	17,768	14,738	12,885
Rest of the World	99,830	84,034	73,152	79,764	80,214	99,049
<b>World Total</b>	<b>361,625</b>	<b>389,624</b>	<b>391,969</b>	<b>382,970</b>	<b>411,314</b>	<b>444,057</b>
<b>Av. FOB price USD/MT</b>	<b>\$3,510</b>	<b>\$3,244</b>	<b>\$4,149</b>	<b>\$4,110</b>	<b>\$2,337</b>	<b>\$1,967</b>

Source: GTA

## PSD - SMP

Dairy, Milk, Nonfat Dry New Zealand	2016		2017		2018	
	Market Year Begin: Jan 2016		Market Year Begin: Jan 2017		Market Year Begin: Jan 2018	
(1000 MT)	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	110	110	78	78		77
Production	414	414	420	390		395
Other Imports	3	3	4	4		4
Total Imports	3	3	4	4		4
Total Supply	527	527	502	472		476
Other Exports	444	444	410	390		391
Total Exports	444	444	410	390		391
Human Dom. Cons.	5	5	6	5		5
Other Use, Losses	0	0	0	0		0
Total Dom. Cons.	5	5	6	5		5
Total Use	449	449	416	395		396
Ending Stocks	78	78	86	77		80
Total Distribution	527	527	502	472		476
CY Imp. from U.S.	0	0	0	0		0
CY. Exp. to U.S.	0	0	0	0		0
TS=TD	0	0	0	0		0

Not official USDA estimates

## Butter and Anhydrous Milk Fat (AMF)

Note: All the tonnages below are expressed in butter equivalents

Post estimates 2017 butter and AMF production at 545,000 MT. This is nearly 7% below 2016, which is a complete reversal from Post's previous 4.5% increase estimated for 2017 over 2016 production. Even though demand for butter and AMF is very strong, GDT Auction pricing for butter and AMF is at record highs, milkfat is being diverted to liquid cream production. UHT liquid cream (40% or greater fat content) is a high value product tailored by New Zealand processors for food service businesses in Asia especially China. From 2012 to 2016 exports of liquid cream are estimated to have risen from approximately 30,000 MT per annum to 68,000 MT per annum. Based on exports for the year to date it is forecast cream exports will reach 90,000 MT and may be even higher. In a year where milk supply

growth is relatively constrained then higher value cream production has the first call on milkfat over and above butter and AMF.

Based on export results for the year to date (August) and factoring in the increased cream exports it is projected for 2017 total exports of butter and AMF will be 517,000 MT, a 6.7% year-on-year decrease on 2016. Post expects ending stocks to remain relatively constant.

Looking ahead to 2018, Post forecasts butter and AMF production will be unchanged to any great degree at 545,000 MT. The milkfat contained in the marginal increase in milk supply for 2018 is likely to go firstly to cream or WMP production. Cream production and exports is likely to be 100,000 MT or greater. Butter and AMF exports are forecast to be stable at 519,000 MT. Ending stocks are also forecast to be stable.

<b>New Zealand Export Statistics For Butter, Anhydrous MilkFat, &amp; Dairy Spreads</b>						
<b>Year To Date: January - August</b>						
<b>Partner Country</b>	<b>2015</b>		<b>2016</b>		<b>2017</b>	
	<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>	<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>	<b>Quantity (MT)</b>	<b>FOB Price USD/MT</b>
China	34,604	\$3,596	41,265	\$3,475	51,001	\$5,163
Philippines	17,543	\$3,821	17,644	\$3,490	20,647	\$5,528
Mexico	12,366	\$3,780	23,988	\$3,469	15,722	\$5,427
Australia	12,661	\$3,225	17,351	\$3,168	18,231	\$4,632
Saudi Arabia	12,618	\$3,592	17,936	\$3,262	14,532	\$5,004
Vietnam	8,254	\$3,573	8,297	\$3,304	10,501	\$5,479
United Arab Emirates	20,396	\$3,298	5,828	\$3,272	11,698	\$4,713
Russia	3,920	\$3,950	5,255	\$3,267	10,673	\$4,776
Taiwan	10,530	\$3,456	8,895	\$3,222	9,870	\$5,029
Indonesia	10,164	\$3,504	11,896	\$3,269	9,294	\$5,217
Rest of world	162,148	\$3,407	158,070	\$3,083	108,994	\$4,939
<b>World Total</b>	<b>305,204</b>	<b>\$3,477</b>	<b>316,425</b>	<b>\$3,224</b>	<b>281,163</b>	<b>\$5,050</b>

Source: GTA

<b>New Zealand Export Statistics For Butter, Anhydrous MilkFat, &amp; Dairy Spreads</b>						
<b>Annual Series: 2011 - 2016</b>						
<b>Partner Country</b>	<b>Quantity (MT)</b>					
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
China	34,451	43,349	52,508	67,905	67,831	67,750
Mexico	13,537	15,443	15,508	12,541	29,237	47,718
Egypt	24,736	37,746	32,111	34,556	39,314	36,830
Australia	16,946	18,957	18,675	19,696	19,328	28,076
Iran	32,556	40,791	30,378	26,680	12,609	26,476
Philippines	11,303	15,482	14,521	21,449	24,800	25,949



Saudi Arabia	19,607	21,720	17,394	27,153	21,052	24,322
Russia	24,577	23,672	22,270	16,479	7,733	20,621
Indonesia	9,147	10,060	14,993	16,212	16,388	18,902
Taiwan	12,028	12,105	11,987	14,480	15,474	14,139
Rest of world	214,797	223,753	230,801	252,728	246,618	192,292
<b>World Total</b>	<b>413,685</b>	<b>463,078</b>	<b>461,146</b>	<b>509,879</b>	<b>500,384</b>	<b>503,075</b>
<b>Av. FOB price USD/MT</b>	<b>\$4,739</b>	<b>\$3,486</b>	<b>\$3,960</b>	<b>\$4,214</b>	<b>\$3,272</b>	<b>\$3,404</b>

Source: GTA

## PSD - Butter

Dairy, Butter New Zealand  (1000 MT)	2016 Market Year Begin: Jan 2016		2017 Market Year Begin: Jan 2017		2017 Market Year Begin: Jan 2017	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks	82	82	86	86		88
Production	584	584	610	545		545
Other Imports	2	2	2	2		2
Total Imports	2	2	2	2		2
Total Supply	668	668	698	633		635
Other Exports	554	554	582	517		519
Total Exports	554	554	582	517		519
Domestic Cons.	28	28	30	28		28
Total Use	582	582	612	545		547
Ending Stocks	86	86	86	88		88
Total Distribution	668	668	698	633		635
CY Imp. from U.S.	0	0	0	0		0
CY. Exp. to U.S.	0	12	0	6		8
TS=TD	0	0	0	0		0

Note AMF product weight tonnages are multiplied by 1.25 to get butter equivalents; not official USDA estimates

## Other Products

### Liquid Milk & Cream

The export of UHT liquid milk and creams has become a significant diversification for many of the New Zealand dairy processors. Total exports in 2016 reached 243,000 MT, which was a 42% increase on 2015. If the 40% fat cream export estimate is removed then total liquid milk exports were 174,000MT, still a 44% increase on 2015. In 2017 for the year-to-date liquid milk (fat content less than 10%) exports at 131,000 MT are up 21% compared to 2016. This puts liquid milk exports at a projected level of 210,000 MT for the full year. Note that in the Fluid Milk PSD table for 2017 and onwards the volume of cream exported has been taken out of the Fluid Milk exports line and is now accounted for in the Factory Use Consumption line. Liquid milk has to be further processed to separate the skim milk (protein fraction) from the cream (fat fraction) to make the liquid cream product.

The dynamics of liquid milk sales are changing quickly in Asian marketplaces. For example in China the market place for UHT drinking milk in 250 milliliter packets has become very competitive with increased quantities from exporters in all the main dairy export origins all striving for market share, which has driven prices down.

### Infant Milk Formula (IMF)

For the year-to-date, August 2017 total IMF exports are 45,139 MT just 1,266 MT ahead of the prior comparable period in 2016. Pricing is definitely better: for the 2017 year-to-date the average FOB price is US\$9,701/MT compared with US\$8,780/MT for the whole of 2016. Given the current rate of shipping, exports for the whole of 2017 are expected to just surpass 2016 by 2,000-2,500 MT.

<b>New Zealand Dairy Product Export Statistics</b>			
<b>Commodity: IMF Group, Infant Milk Formula exports</b>			
<b>Calendar Year: 2014 - 2016</b>			
<b>Partner Country</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
	<b>Quantity (MT)</b>	<b>Quantity (MT)</b>	<b>Quantity (MT)</b>
Australia	7,991	9,825	26,522
China	8,821	9,275	13,875
Hong Kong	3,571	4,276	7,972
Taiwan	2,377	3,050	2,811
Korea South	1,020	1,023	1,422
Malaysia	1,692	1,794	1,570
Thailand	788	835	829
Russia	1,174	470	815
Algeria	462	1,904	3,424
Syria	1,016	719	1,607
Rest of World	3,443	2,268	1,966
<b>World Total</b>	<b>32,355</b>	<b>35,439</b>	<b>62,813</b>
Average FOB Price USD/MT	\$9,955	\$9,409	\$8,780

Source: GTA; Note: This table incorporates all HS codes that cover complete IMF and IMF ingredient exports. A small proportion approximately 3% of the total tonnage is under WMP HS codes. In the PSD calculations this amount is not separated away from WMP commodity totals.

New Zealand now has IMF manufacturing capacity that is most likely in excess of 200,000 MT per annum, which does not look like being exploited fully in the near future. It seems that quite a proportion of the capacity was decided on prior to the advent of new regulations implemented by the Chinese Government to control the IMF market in China. The new rules have removed free access to this market and only a limited number of domestic and international IMF suppliers have been registered. Fonterra and Synlait are among a few of the companies that are now achieving registration.

In addition there have been problems with a NZ, US joint venture to get an IMF, based on grass fed milk, registered with the FDA. These food safety or bureaucratic hold-ups are delaying potentially

significant growth in IMF exports. Based on current shipping volumes it is forecast that for 2018 total IMF exports are likely to reach 65,000 to 70,000 MT. However if product registrations are successful early on in 2018 export volumes could be significantly higher.

## Imports

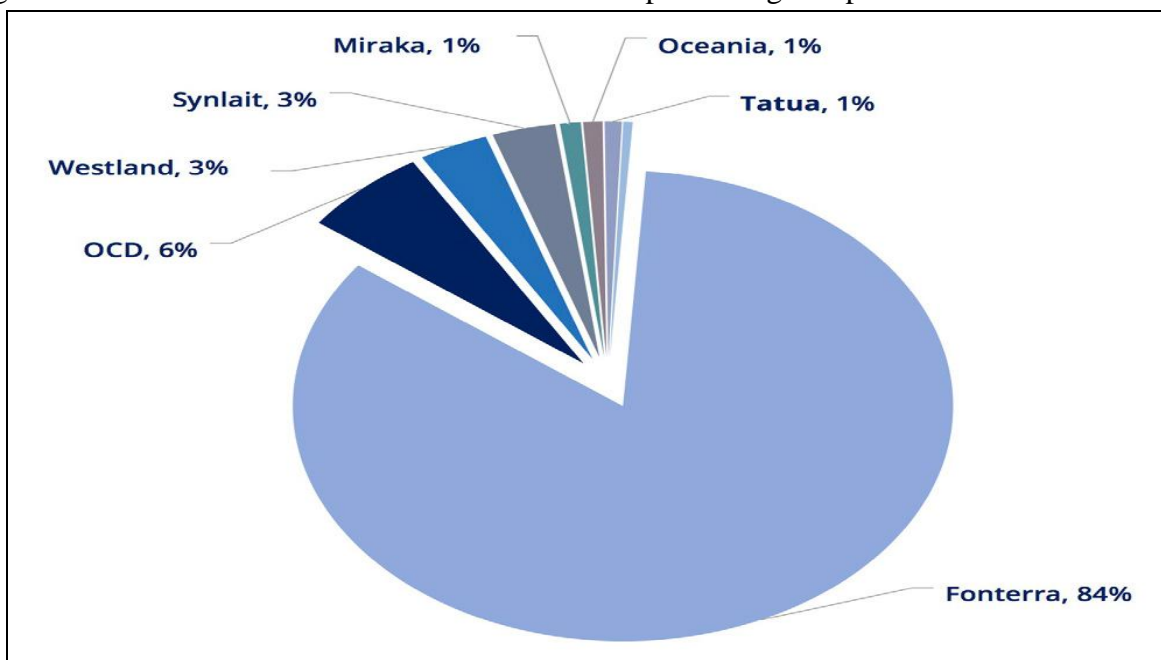
### Lactose

Imported lactose is used as an ingredient in WMP production in order to standardize the protein content. As WMP production has been reduced, the need for as much lactose has also reduced. In 2016, Post estimates 80,000 MT was imported, which was 10% below 2015. The United States supplied 83% of this total. For the eight months to 2017, imports at 65,000 MT are trending back up at 32% ahead of the prior comparable period in 2016. For the full year imports are anticipated to be over 100,000 MT. The United States share of these imports has dropped to 59% with Germany now contributing 28% of the volume total.

## New Zealand Milk Processors – the Current Landscape

Over the 15 years up to 2017, Fonterra’s market share of the milk supply has fallen steadily from 96% to its current 84%. Westland and Tatua’s market share remains much the same at 4% while new processors have grown to a combined 12% share.

During 2016 current market shares of the main NZ milk-processing companies were:



Source: TDB Advisory Ltd

Fonterra, Tatua, and Westland remain as cooperatives owned by their farmer suppliers. The others are corporates with a range of off-shore and domestic ownership. All the new players have begun by building milk powder driers except OCD which purchased an existing cheese plant but all its new developments have been powder driers. Once up and running the new players along with the three Co-

ops have diversified into: Infant Formula ingredients or full manufacture; UHT liquid milk products; and have re-tooled driers to be able to produce SMP/ butter or AMF and WMP. Apart from Westland's foray into consumer yoghurt ingredient products only Tatua and Fonterra have diversified into a wide range of commodity ingredients, specialized ingredients, and consumer products.

A new processor Mataura Valley Milk, situated in Southland, plans to begin commercial operations in August 2018. The company will manufacture infant milk formula mainly for export from its NZ\$240 million factory that will employ 65 full-time employees. Reportedly it will manufacture 30,000 MT of infant formula annually. China Animal Husbandry Group, a subsidiary of a Chinese state-owned enterprise will have a 71.8 percent ownership share with 20 percent held by Southland milk suppliers and the remainder of the ownership is held by the promoters and the directors.