Required Report: Required - Public Distribution **Date:** October 12, 2021

Report Number: NZ2021-0017

Report Name: Dairy and Products Annual

Country: New Zealand

Post: Wellington

Report Category: Dairy and Products

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Report Highlights:

Following an exceptional milk production year in 2021 (and especially the first half of the year), FAS/Wellington is forecasting milk production to fall slightly in 2022. New Zealand's milk production is forecast at 22.25 million metric tons (MMT), 0.5 percent less than the record-breaking volume in 2021. If realized this level would be more in line with recent growth trends, and it assumes normal weather patterns. Milk production for 2021 is now estimated at 22.37 MMT, 1.8 percent above 2020. The volume may have even been higher except cooler and overcast weather during the spring (August/September) impacted pasture growth, reducing potential production in the second half of the year. Farm gate milk prices remain strong in New Zealand, and exports have also been robust, especially to China.

Executive Summary

Following an exceptional milk production year in 2021 (especially the first half of the year), FAS/Wellington is forecasting milk production to fall slightly in 2022. New Zealand's milk production is forecast at 22.25 million metric tons (MMT), 0.5 percent less than the record-breaking volume in 2021. If realized this level would be more in line with recent growth trends, and it assumes normal weather patterns.

Propelled by a stellar first half of the year, milk production for 2021 is now estimated at 22.37 MMT, 1.8 percent above 2020. The volume may have even been higher except cooler and overcast weather during the spring (August/September) impacted pasture growth, reducing potential production in the second half of the year. Cow numbers in 2021 are estimated at 4.9 million head, 0.4 percent less than 2020.

Farm gate milk prices have been rising and are up over 30 percent since the beginning of the 2020/2021 production season (June-May). This high milk price (US$ 5.20/kg milk solids) is expected to remain strong or even strengthen for a second year running in 2022.

The COVID-19 pandemic and the Government's response continues to disrupt life in New Zealand, but it has so far not impacted on milk supply or hindered milk processing. However, one of the impacts of the Government effectively closing the borders has been a severe shortage of staffing on dairy farms. Shipping delays and logistical problems, which have come to dominate nearly all international trade over the last 12 months, continue to affect New Zealand exports as well. However, dairy sector exporters report shipping delays have shrunk from previously lasting weeks, to now being only about four to five days during the fourth quarter of 2021.

New Zealand dairy exports to China have experienced staggering growth, up 45 percent in USD terms for the first eight months of 2021, and China continues to dominate trade in dairy products for New Zealand.

In 2022, whole milk powder (WMP) production is likely to ease and is forecast at 1.57 MMT, three percent less than 2021 as milk supply retreats and other product streams become more valuable relative to WMP. Exports are likely to follow suit and are expected to decline by four percent to 1.55 MMT. For 2021, the higher milk supply and the relatively higher value for WMP during much of 2021 saw production and exports push new heights.

Cheese production is expected trend lower in 2022 and is forecast at 375,000 MT, four percent less than 2021, as other production streams are expected to gain value relative to cheese. With lower expected production, cheese exports in 2022 are forecast down four percent at 345,000 MT.

While most products are expected to see a production decline in 2022 due to less milk production, skim milk powder (SMP) production is likely to regain ground in 2022, with production forecast at 365,000 MT (up 11 percent) and exports at 351,000 MT (up six percent). SMP production fell in 2021 as SMP and fat production stream (butter, anhydrous milkfat, and UHT cream) prices were not as attractive compared to WMP. However, in late 2021 this relative price trend has reversed and is expected to continue into 2022, incentivizing the production of SMP.

Butter and anhydrous milk fat (AMF) production and exports are likely to be relatively stable, both forecast up one percent, with exports forecast at 455,000 MT in 2022. Further growth expansion is limited by the rapid growth of UHT cream exports.

Note: The GAIN Dairy Marketing Year (MY) is the same as the calendar year (CY), January 1 to December 31.

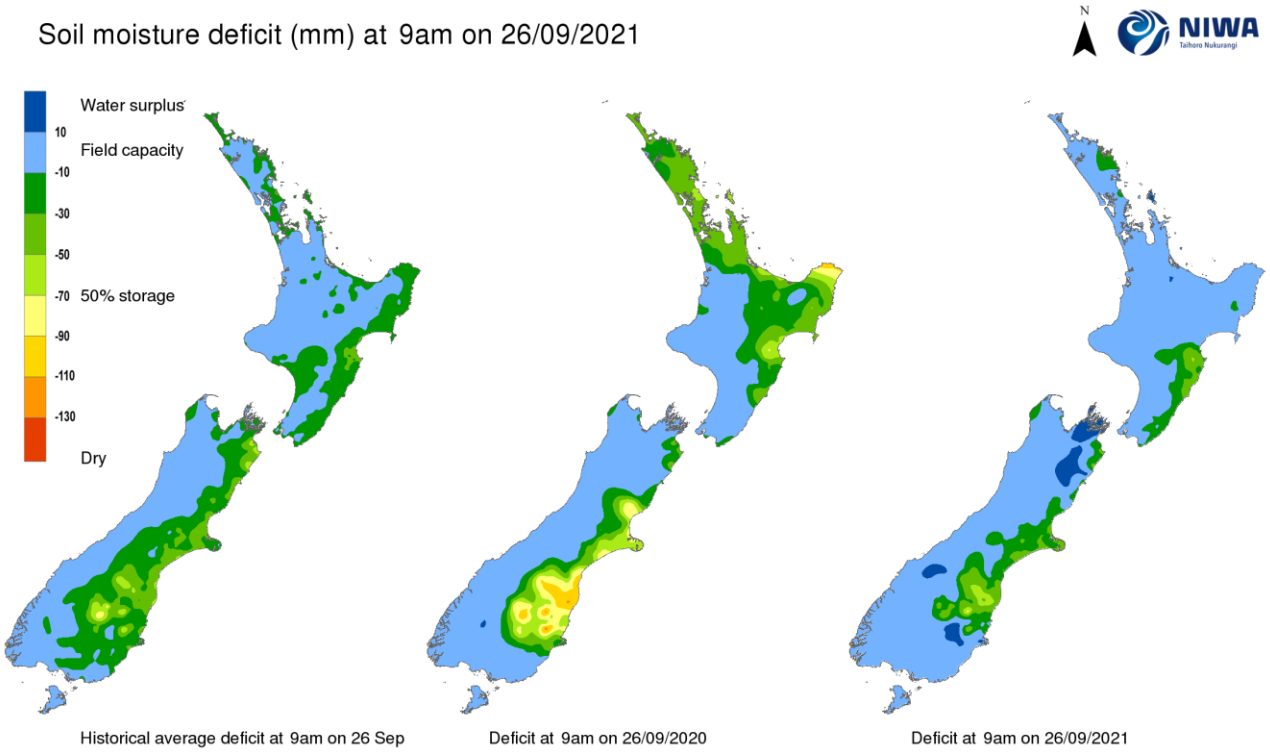
Seasonal Weather and Pasture Production

All the main dairy regions in New Zealand have had periods of excess rain during the latter part of the 2021 winter. The soil moisture deficit map below shows the current soil moisture levels, on average, being greater than normal. While high rainfall periods during July through September will ultimately be beneficial in replenishing soil moisture levels, they have also brought with them periods of cooler and overcast weather during calving and early lactation. This has negatively affected pasture growth for short intervals.

The National Institute for Water and Atmospheric Research (NIWA) only has long range weather forecasts out to November 2021. NIWA is forecasting a greater probability of average to above average temperatures for all dairy areas over the next two months. This will support normal to above normal pasture growth rates through until the end of 2021, given soil moisture levels are unlikely to be a limiting factor during this period. In addition, dairy areas on the traditionally drier east coasts of both islands generally all have irrigation.

Looking out to 2022 there is no guidance as to any abnormalities with the weather apart from NIWA reporting they are watching for a La Nina weather pattern to develop. Historically, the weather effects of La Nina over the dairy areas are variable so it is not clear what impact this may have. 2022 forecasts in this report are based upon normal weather patterns and pasture production for 2022.

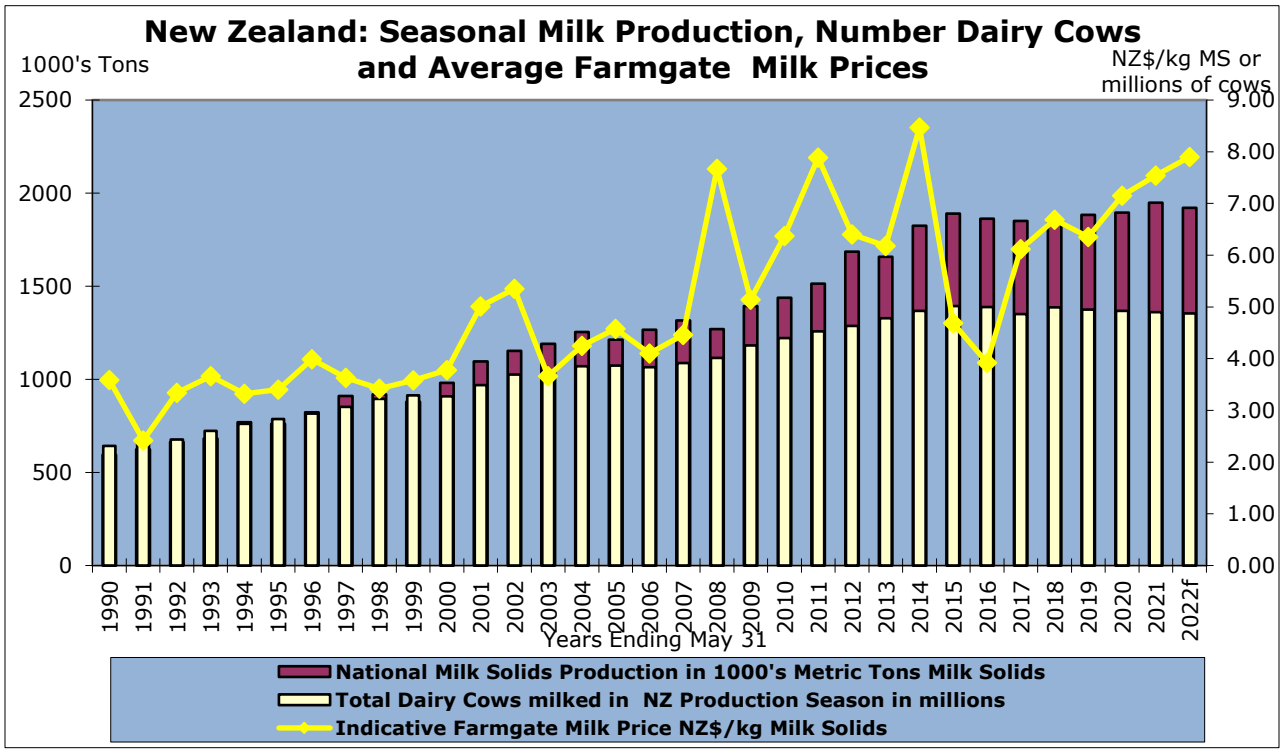
Soil Moisture September 26th – Historical Average, 2020 and 2021



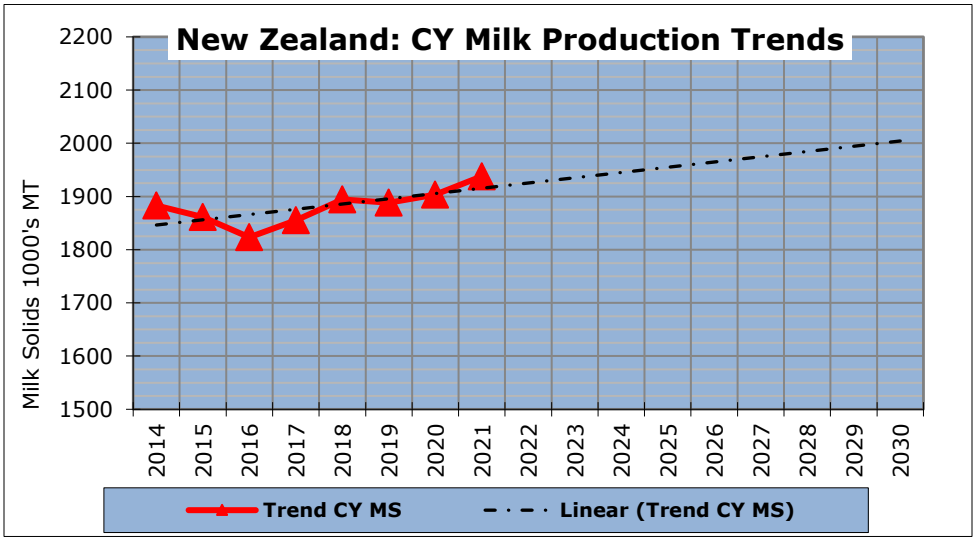
Source: NIWA NZ Soil Moisture Deficit

Liquid Milk

Milk Supply



Sources: MPI, LIC, DairyNZ, FAS/Wellington own estimates, StatsNZ



Source: DCANZ stats

2022

The milk production forecast for 2022 is 22.25 MMT, which would be 0.5 percent less than 2021. If realized this would be a return to more normal production trends after the exceptional production season of 2021. From 2014 there has been a general trend upward for milk production at about 0.4 percent per

year (see chart above). However, 2021 was significantly above trend due to excellent conditions early in the year. Assuming normal weather patterns, it is likely there will be less pasture growth in the first half of 2022 compared to 2021.

One factor which may affect the milk supply in 2022 is the shortage of staffing on dairy farms caused by the Government effectively shutting the borders in response to the COVID-19 pandemic. However, at this stage it is not clear how much influence this will have.

The recent high milk price is expected to remain strong for a second year running in 2022, with the largest processor forecasting prices at US$5.38 to US$5.52/kg milk solids.

New Zealand is a temperate island country so the weather can be highly variable in any season. For example, it only takes two or three weeks of overcast cooler weather in October to reduce the monthly production total by 1-4 percent. These variable periods of inclement weather are difficult to predict so forecasts for milk production in 2022 are based on trends evident over the recent past and take into account other factors such as the expected milk price and cow numbers.

In the longer term, cow numbers are expected to continue their gentle decline, however with the very strong forecast for the milk price for at least the first half of the year, cow numbers in 2022 are forecast to remain stable during the year at 4.88m head.

2021

The estimate for total milk production for 2021 has been revised to 22.37 million metric tons (MMT). This is a 1.8 percent increase on 2020 and would make it a record, breaking the mark set just last year.

This level of performance is the result of a very strong first half of the year, with production at 8.97 MMT, nearly six percent ahead of the same period in 2020, and nearly four percent greater than the previous best first-half production set back in 2016. This remarkable production result was the result of several key factors:

- Dairy farms went into 2021 with good pasture volumes, normal to above normal levels of conserved feed, and cows in good condition.

- Even though it was a non-traditional La Niña weather pattern over the summer, with unexpected dry conditions on the east coast of both islands, there was enough rainfall in the main North Island dairying regions of Waikato and Taranaki to safely ensure they could significantly surpass the previous year's production during the January-June period. Most dairy farms on the east coasts have irrigation so are not unduly affected by extended dry periods

- With new data on cow numbers for the 2019/2020 NZ production season, there has been an upward revision - by an estimated 50,000 cows - on the previous forecast for the number of cows

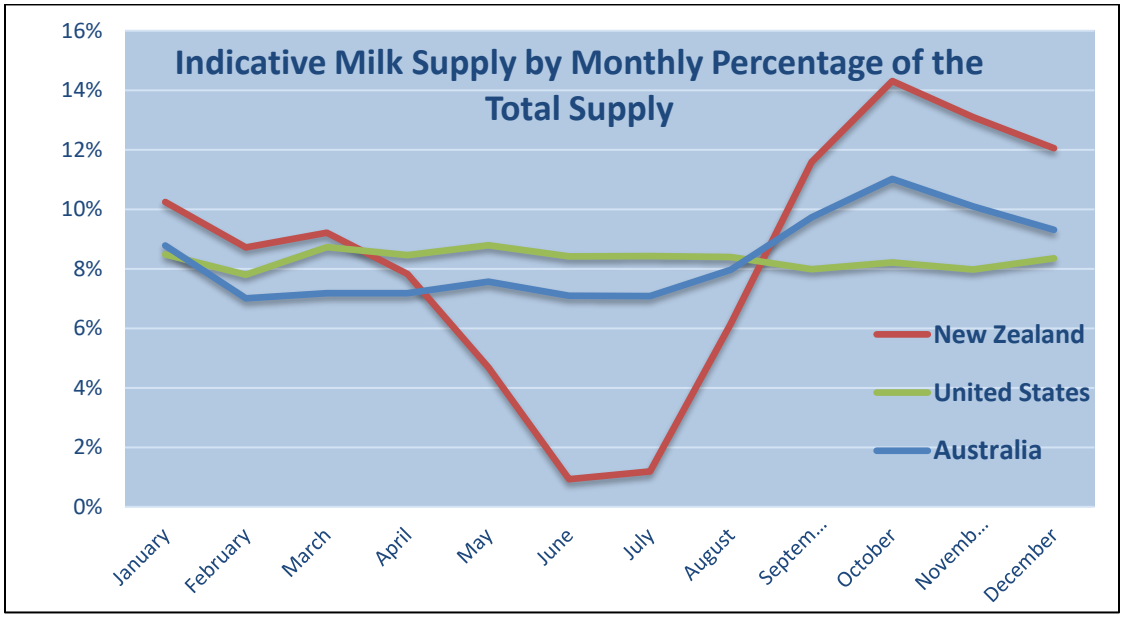
being milked going into 2021. This puts total cow numbers at 4.9m head, which is only an estimated 0.4 percent reduction from the previous year.

- A very strong milk price signal during early 2021, up approximately 30 percent since the beginning of the 2020/2021 production season, also encouraged more confidence among farmers to purchase supplemental feed to support production.

For the second half of 2021, it is forecast that production will underperform slightly compared with 2020 and reach 13.43 MMT, 1.6 percent less that the same period in 2020. The key reason behind this is that intervals of cooler and overcast weather early in the spring are likely to have reduced August and September production, which may set a lower peak for the high tide of monthly production set in October each year.

Cow numbers are also estimated to have reduced slightly by 25,000 head going into the 2021 spring. Cow numbers are continuing to drift downwards as farmers adjust to the new freshwater environmental protection regulations and the looming climate change regulations. However, at this rate of decline farmers can feed their remaining cows better and negate potential production losses. In addition, initial forecasts for the farm-gate milk price for 2021/2022 production season are even higher than where the 2020/21 season finished. This will support farmers in making spending decisions on supplementary feed if the need arises.

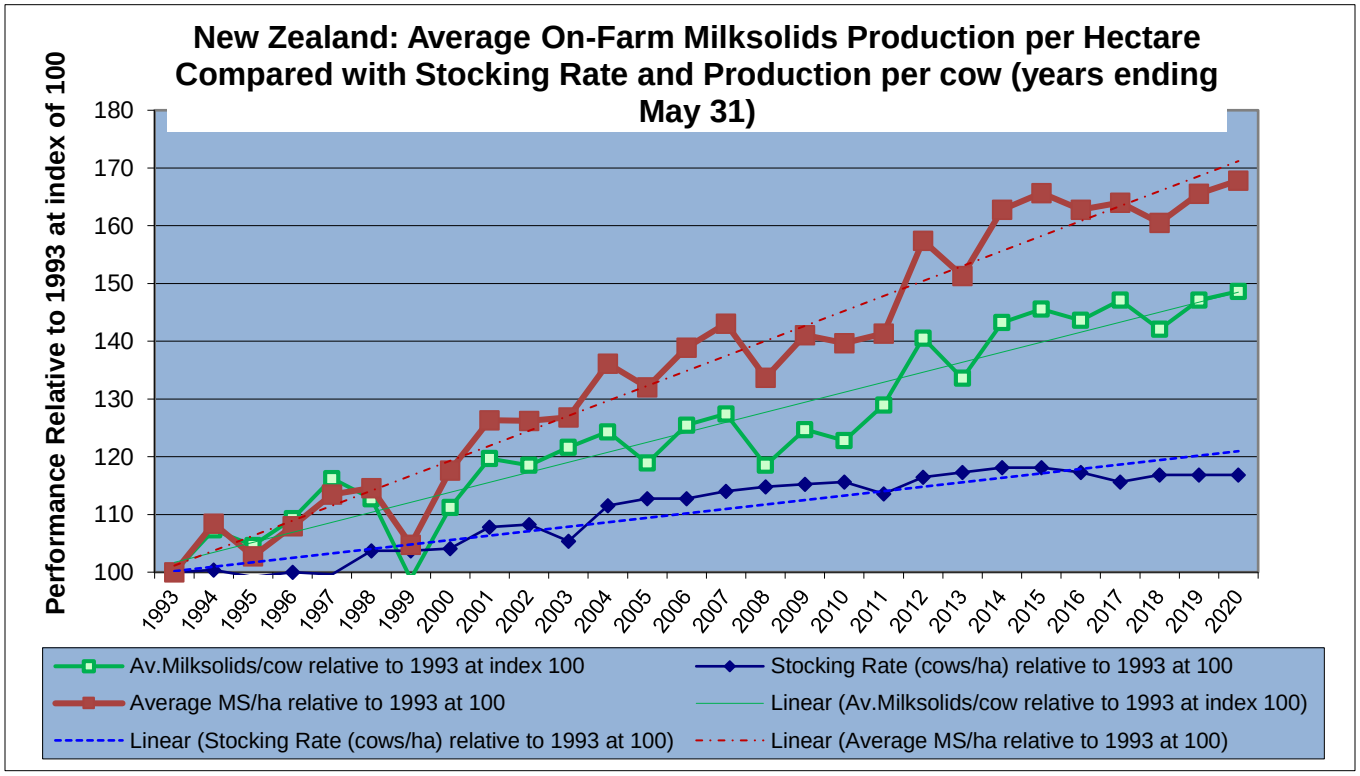
Note: New Zealand milk production is highly seasonal, based essentially around the annual cycle of pasture growth with production spiking during the last four months of the year after the majority of cows are calved in spring (July, August, and into September). Pasture growth peaks in October and November.



Source: DCANZ, Dairy Australia, USDA-NASS

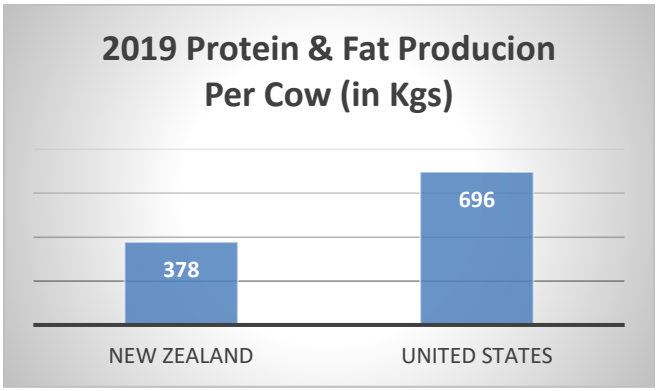
Longer Term – Milk Supply Constrained by Environmental Limits

Over the last seven years, despite two years of very low milk prices and the imposition of new environmental regulations, milk supply growth has still averaged 0.41 percent annually. Given that there is now a lot more focus on per cow performance than there was seven years ago, there are expectations that New Zealand's milk supply will continue to increase over the next decade at around 0.5 percent per annum. This is despite the fact that New Zealand has already reached "peak" cow numbers, and average stocking rates are likely to plateau or reduce and there is likely to be some land use change away from dairy over the next decade. Based on the long-term trend of cumulative increases to per cow milk production (see chart below) and the fact that New Zealand cows with the same genetic merit as their northern hemisphere counterparts still produce a lot less in New Zealand, there continues to be room for growth.



Sources: DairyNZ, FAS/Wellington analysis

There are two main factors that are expected to impact the amount of land used for dairy and stocking rates on that land, which will have a limiting effect on milk production in the medium to longer term. These are limits on contaminant discharges (mainly nitrates) to waterways, and the looming carbon tax on agricultural greenhouse gas emissions.



Source: DCANZ, DNZ, USDA-NASS

New Zealand Strategy and Response to Agricultural Greenhouse Gas Emissions

Agricultural greenhouse gas emissions in New Zealand comprise some 46-48 percent of total emissions and dairy contributes close to half of these emissions. This emissions profile is in contrast to most other developed nations and looks more like a developing nation profile. The "Zero Carbon" Act passed by the Government of New Zealand (GONZ) in 2019 specifically separates the target for biogenic methane from the other gases. Biogenic methane emissions are to be reduced firstly by ten percent below 2017 levels by 2030, then ultimately by a still-to-be-decided 24–47 percent reduction below 2017 levels by 2050. All other greenhouse gases are to reduce net emissions to zero by 2050. This split approach to reductions is an attempt to take into account the science which suggests methane emissions do not need to be reduced to zero to get global warming to zero.

"He Waka Eke Noa" is the Primary Sector Climate Action Partnership between 11 private-sector agricultural groups and two GONZ ministries, -, the Ministry of Primary Industries (MPI) and Ministry for the Environment (MfE). The "He Waka Eke Noa" program has been charged with developing a farm level system to account for, and reduce, agricultural methane and nitrous oxide emissions. Ultimately, this will lead to a methane and nitrous oxide pricing system at farm level by 2025.

New Zealand is believed to be the only country which has decided to directly tax farmers for the methane and nitrous oxide emissions their livestock and operations produce. Most developed nations, in contrast, are working on delivering incentives to their farmers to reduce agricultural emissions and not impair their productive capability. There are concerns in the New Zealand agricultural sector that livestock industries will lose productive capacity, and that this will not be made up with increased productivity. In addition to this is the concern that any fall in exports from the livestock industries may not be offset by higher exports from either the wood processing/forestry sector, horticulture, or any other export sector.

Through all this there looks to be a pathway forward for the dairy sector because it has significant opportunities for cost-efficient productivity improvements which will set the sector up to reduce cow numbers but maintain or increase production. The dairy sector is expected to be able to take advantage

of any technology breakthroughs more quickly and cheaply than the beef cattle and sheep sectors. Technologies include methane and nitrification inhibitors; a methane vaccine; nutrition changes –such as grain feeding; low emission forages; reduced nitrogen fertilizer use; and soil carbon enhancement.

Liquid Milk Exports

It is forecast that liquid milk exports in 2022 will continue to increase and reach 275,000 MT for the year, two percent above 2021. After the COVID-19-impacted export performance in 2020, exports for 2021 are bouncing back to be comparable at least with the volume shipped in 2019 at 270,000 MT. If realized this would be eight percent greater than 2020.

Liquid Milk Domestic Consumption

Domestic consumption of liquid milk is forecast to remain stable on a per capita basis for the next two to three years, having declined on a per capita basis approximately five percent over the last decade. Total liquid milk consumption is estimated at 530,000 MT for 2021 increasing to 535,000 MT in 2022. This amount only accounts for 2.4 percent of the total milk supply.

Production Supply, and Demand – Liquid Milk

Dairy, Milk, Fluid	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Cows In Milk (1000 HEAD)	4922	4922	4850	4900	0	4875
Cows Milk Production (1000 MT)	21980	21980	22400	22367	0	22250
Other Milk Production (1000 MT)	0	0	0	0	0	0
Total Production (1000 MT)	21980	21980	22400	22367	0	22250
Other Imports (1000 MT)	5	5	5	3	0	5
Total Imports (1000 MT)	5	5	5	3	0	5
Total Supply (1000 MT)	21985	21985	22405	22370	0	22255
Other Exports (1000 MT)	250	250	260	270	0	275
Total Exports (1000 MT)	250	250	260	270	0	275
Fluid Use Dom. Consum. (1000 MT)	525	525	525	530	0	535
Factory Use Consum. (1000 MT)	21101	21101	21509	21460	0	21335
Feed Use Dom. Consum. (1000 MT)	109	109	111	110	0	110
Total Dom. Consumption (1000 MT)	21735	21735	22145	22100	0	21980
Total Distribution (1000 MT)	21985	21985	22405	22370	0	22255
(1000 HEAD) ,(1000 MT)						

Not official USDA estimates

Dairy Product Production and Trade Overview

FAS/Wellington expects total production of dairy products in 2022 to reduce slightly (0.1 percent), after being up 1.7 percent in 2021. Exports for the year-to-date 2021 (January-August) have been very strong and are running at seven percent above 2020 on a volume basis, with total value at twelve percent ahead of 2020. This is illustrating the beneficial market conditions New Zealand exporters have been

operating in so far in 2021. Whole milk powder (WMP) and the more specialized protein products (for example casein, whey protein isolates, and concentrates), along with UHT liquid cream have led the charge with significant price increases during the year. FAS/Wellington expects total product exports for 2021 to be up three percent, then fall by one percent in 2022 as the milk supply wanes.

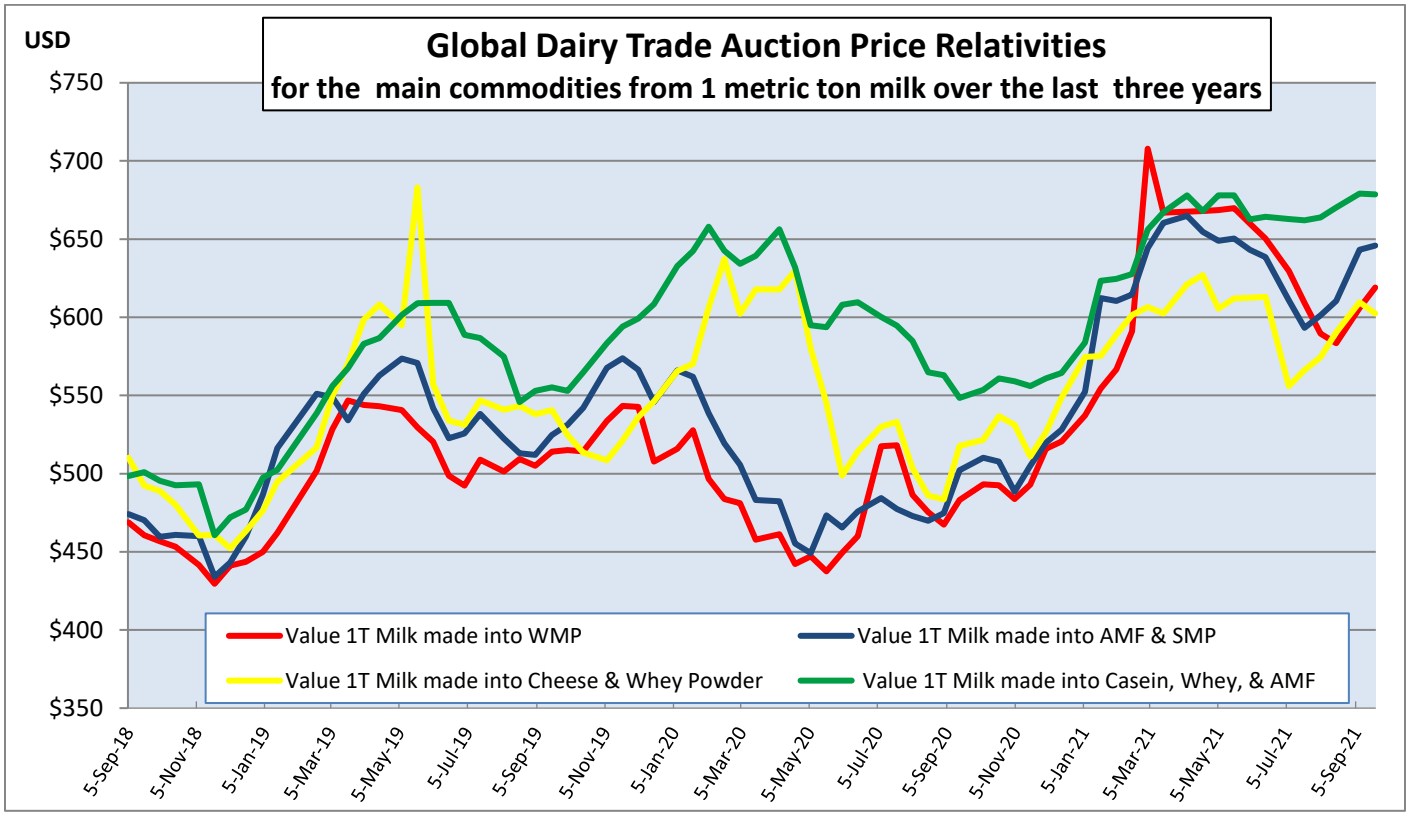
The logistical disruptions and shipping delays set in motion by COVID-19 have not abated. However, for dairy exporters while there are ongoing significant freight cost escalations, shipping delays have reportedly shrunk from previously lasting weeks to presently only being four to five days. One reason New Zealand is not even more impacted by logistical shipping delays is the fact that the vast majority of products go to nearby Asian markets. In 2020, 68 percent of the total exports by value went to Asian nations and for the year-to-date 2021 this proportion is up to 71 percent.

There is some concern in New Zealand that the country has become too reliant on exports to China, especially dairy. In 2020, 36 percent of total export receipts came from shipments to China. For the first 8 months of 2021 this has risen to 39 percent. Industry insiders, though, think for the markets available to New Zealand and the global population spread this level of exports is relatively balanced.

Dairy Production at a Glance

New Zealand Summary Table for Estimated Total Dairy Product Production					
Commodity Group	2020	2021		2022	
(1000s Metric Tons)	Firm Estimate	Estimate	% change from prev. year	New Forecast	% change from prev. year
WMP	1,570	1,615	2.9%	1,565	-3.1%
SMP	362	330	-8.8%	365	10.6%
Butter/AMF	500	480	-4.0%	485	1.0%
Cheese	350	390	11.4%	375	-3.8%
Sub-Total PSD Commodities	2,782	2,815	1.2%	2,790	-0.9%
Casein & Caseinates	86	92	7.0%	90	-2.2%
Whey Products	36	40	11.1%	40	0.0%
Milk Protein Concentrates	72	74	2.8%	70	-5.4%
Cream Products	135	165	22.2%	185	12.1%
Other Products	226	227	0.4%	235	3.5%
Infant Milk Formula	101	83	-18.3%	83	0.0%
Sub-Total Rest of Dairy	656	681	3.7%	703	3.2%
Total Production	3,438	3,496	1.7%	3,493	-0.1%

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



Source: GDT, TDM LLB, FAS/Wellington estimates

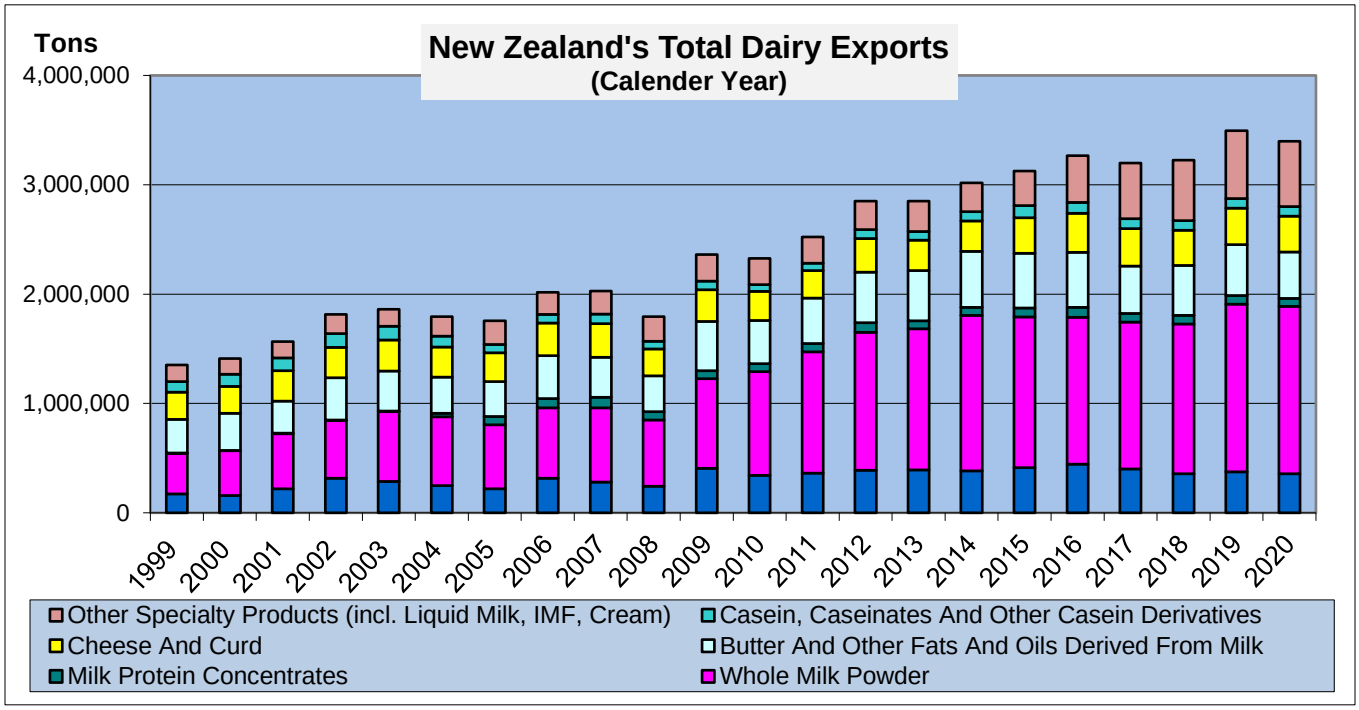
Dairy Exports at a Glance

New Zealand Summary Table for Total Dairy Product Exports					
Commodity Group	**2020**	**2021**		**2022**	
(1000s Metric Tons)	**Actual**	**Estimated**	**% change from prev. year**	**New Forecast**	**% change from prev. year**
WMP	**1,533**	**1,620**	5.7%	**1,550**	-4.3%
SMP	**356**	**330**	-7.3%	**350**	6.1%
Butter/AMF	**471**	**450**	-4.5%	**455**	1.1%
Cheese	**327**	**360**	10.1%	**345**	-4.2%
Sub-Total PSD Exports	**2,687**	**2,760**	2.7%	**2,700**	-2.2%
Casein	**86**	**92**	7.0%	**90**	-2.2%
Whey Products	**36**	**40**	11.1%	**40**	0.0%
Milk Protein Concentrates	**72**	**74**	2.8%	**70**	-5.4%
Cream Products-Food Service	**135**	**165**	22.2%	**185**	12.1%
Other Products	**51**	**51**	0.0%	**56**	9.8%
Infant Milk Formula	**101**	**83**	-18.3%	**83**	0.0%
Sub-Total Non-PSD Exports	**481**	**505**	4.9%	**524**	3.8%
Total Exports	**3,168**	**3,265**	**3.0%**	**3,224**	**-1.3%**

Source: TDM LLB, FAS/Wellington estimates. Note: Butter/AMF line has the AMF adjusted to butter equivalents

New Zealand Dairy Product Export Destinations by Value (USD)							
Destination Country	Annual Total Value (1000's USD) for Calendar Year					Year-To-Date January-August	
	2016	2017	2018	2019	2020	2020	2021
China	2,108,384	3,312,051	3,451,463	4,096,292	4,511,845	2,438,106	3,537,206
Australia	571,573	740,883	841,585	832,348	760,083	553,213	436,112
United States	663,642	583,773	485,885	568,208	560,016	401,784	355,943
Japan	399,512	497,608	521,294	517,014	510,465	359,483	340,677
Indonesia	300,251	374,890	357,663	379,777	419,602	276,363	345,220
Malaysia	310,469	452,835	422,381	424,818	415,542	286,658	301,244
Philippines	316,811	377,226	393,330	420,355	361,355	269,258	245,310
Saudi Arabia	251,298	284,254	281,289	309,499	346,512	238,839	197,802
Thailand	242,971	311,810	321,797	331,159	333,919	246,108	270,338
UAE	287,003	474,237	403,179	359,559	322,502	243,917	256,591
Taiwan	219,937	306,125	292,278	301,199	314,862	212,303	242,527
Sri Lanka	159,979	268,758	277,062	267,403	279,262	182,218	207,575
Vietnam	177,341	274,849	261,563	294,174	269,154	191,071	207,226
Hong Kong	168,240	233,493	281,280	355,992	266,689	177,740	155,531
Singapore	180,574	260,320	256,896	257,144	256,494	173,474	199,692
Algeria	483,342	373,287	345,613	300,398	253,934	199,604	141,233
South Korea	142,297	157,328	182,392	192,737	203,793	151,897	163,268
Bangladesh	103,895	195,389	209,828	229,190	201,042	153,037	169,020
Mexico	276,005	213,953	194,611	192,996	160,792	117,937	114,745
Egypt	267,887	165,349	200,018	177,981	138,374	99,164	122,182
Rest of World	1,567,964	1,710,029	1,655,696	1,593,155	1,562,672	1,064,079	1,012,897
World Total	**9,199,375**	**11,568,446**	**11,637,102**	**12,401,397**	**12,448,908**	**8,036,255**	**9,022,337**
Total Qty (MT)	**3,264,073**	**3,197,703**	**3,223,646**	**3,492,943**	**3,396,012**	**2,172,087**	**2,329,637**

Source: TDM LLB



Source: TDM LLB

Product Specific Production and Trade

Production, Supply, and Demand –Whole Milk Powder (WMP)

2022

WMP production in 2022 is forecast at 1.57 MMT, three percent less than 2021. The major reasons for this are an expected reduced milk supply, higher value products starting to take precedence over WMP, and the Butter/AMF/SMP product stream achieving relatively better pricing. With this production decline, exports are forecast to reach 1.55 MMT, four percent less than 2021.

2021

Elevated WMP prices from March through July 2021, and the strong underlying demand supporting these prices, have really pushed WMP production and exports to new heights. Production for the year is now estimated at 1.62 MMT, up three percent on 2020. Because of the better profitability of WMP, the increased milk supply has found its way into WMP. In addition, less milk is being processed into Infant Formula, which has also boosted WMP.

Exports are benefiting from an estimated reduction to inventories built up in 2020 as well as the increased 2021 production, and are now estimated at 1.62 MMT, nearly six percent ahead of 2020. Exports to China have been inordinately strong for the first eight months of 2021 (January-August) at 54 percent above the prior comparable period in 2020. Chinese importers have absorbed all the increased

production and more. However, there is some analysts that believe WMP inventories in China are high and will at some point be trimmed back, which could cause a significant price reduction. The WMP price is a significant contributor to how the raw milk price is calculated, so any protracted WMP price reduction will adversely affect the farm gate raw milk price. However, other analysts believe the correction may be some way off yet as reportedly exporters are making sales for shipping in the first quarter 2022 at current price levels.

New Zealand WMP Export Destinations by Value, & Quantity for Year-To-Date									
Destination Country	January - August 2019			January - August 2020			January - August 2021		
	Value (USD)	Quantity (MT)	Unit Value	Value (USD)	Quantity (MT)	Unit Value	Value (USD)	Quantity (MT)	Unit Value
China	894,562,467	298,790	$2,994	962,000,107	307,428	$3,129	1,642,575,443	473,517	$3,469
UAE	160,465,871	55,370	$2,898	201,888,581	64,580	$3,126	216,483,698	62,474	$3,465
Sri Lanka	154,773,230	52,573	$2,944	173,584,178	54,782	$3,169	198,946,441	56,416	$3,526
Bangladesh	163,235,981	57,253	$2,851	143,719,685	45,455	$3,162	162,560,598	47,212	$3,443
Indonesia	105,247,774	36,113	$2,914	88,431,088	29,100	$3,039	148,694,664	43,367	$3,429
Algeria	217,802,839	76,601	$2,843	189,794,337	58,962	$3,219	125,653,886	37,008	$3,395
Thailand	110,651,736	40,997	$2,699	114,511,414	36,643	$3,125	122,135,206	35,629	$3,428
Malaysia	125,250,359	37,849	$3,309	117,964,356	33,346	$3,538	107,559,869	27,538	$3,906
Nigeria	61,611,823	20,588	$2,993	75,691,527	23,331	$3,244	95,851,685	28,241	$3,394
Taiwan	72,770,893	22,827	$3,188	83,642,496	26,533	$3,152	91,464,978	25,193	$3,631
Rest of World	726,998,395	238,123	$3,053	811,178,425	245,232	$3,308	714,729,187	202,392	$3,531
World Total	**2,793,371,368**	**937,084**	**$2,981**	**2,962,406,194**	**925,392**	**$3,201**	**3,626,655,655**	**1,038,987**	**$3,491**

Source: TDM LLB

New Zealand Whole Milk Powder Export Destinations by Quantity (MT)						
Destination Country	Annual Total Quantity (MT) for Calendar Year					
	2015	2016	2017	2018	2019	2020
China	354,291	389,079	467,620	506,707	632,131	652,914
United Arab Emirates	125,488	96,769	108,503	91,979	84,624	87,339
Sri Lanka	57,764	67,137	85,027	83,893	84,831	84,760
Algeria	121,129	166,570	96,403	96,595	91,419	73,405
Bangladesh	39,039	42,876	59,599	66,506	76,153	60,031
Thailand	44,921	42,522	43,082	49,874	52,526	48,250
Indonesia	32,242	36,392	35,768	42,856	52,526	47,122
Malaysia	82,358	51,111	57,798	49,748	50,383	46,968
Australia	8,215	10,341	24,468	24,907	36,928	43,669
Saudi Arabia	45,073	42,190	32,997	30,473	35,598	42,531
Rest of World	469,894	398,670	330,842	325,503	338,590	345,787
Total for World	**1,380,414**	**1,343,657**	**1,342,107**	**1,369,041**	**1,535,709**	**1,532,776**
Av. FOB price US$/T	$2,551	$2,361	$3,143	$3,096	$3,081	$3,157

Source: TDM LLB

Around two-thirds of WMP is used for direct recombining for the drinking milk sector, cultured and blended products, or for the bakery trade. The balance remains as powder and is repacked into low-volume sachets for consumer use. Predominantly, WMP is exported to countries who are domestically in deficit of milk supplies.

Dairy, Dry Whole Milk Powder	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	150	150	150	171	0	150
Production (1000 MT)	1549	1570	1625	1615	0	1565
Other Imports (1000 MT)	2	2	2	2	0	3
Total Imports (1000 MT)	2	2	2	2	0	3
Total Supply (1000 MT)	1701	1722	1777	1788	0	1718
Other Exports (1000 MT)	1533	1533	1650	1620	0	1550
Total Exports (1000 MT)	1533	1533	1650	1620	0	1550
Human Dom. Consumption (1000 MT)	2	2	2	2	0	2
Other Use, Losses (1000 MT)	16	16	20	16	0	16
Total Dom. Consumption (1000 MT)	18	18	22	18	0	18
Total Use (1000 MT)	1551	1551	1672	1638	0	1568
Ending Stocks (1000 MT)	150	171	105	150	0	150
Total Distribution (1000 MT)	1701	1722	1777	1788	0	1718
(1000 MT)						

Not official USDA PSD estimates

Production, Supply, and Demand – Cheese

2022

Cheese production in 2022 is forecast at 375,000 MT, down an estimated four percent on 2021. Exports are likely to mirror this reduction and also be down four percent to a forecast 345,000 MT. Cheddar production is expected to suffer because the relative value of milk being made into powders and fat products will outweigh the value of milk being processed to cheddar outside of the peak milk production months. Mozzarella production, however, is likely to continue to increase as its profitability competes well with the powders and fat production. In addition, market demand continues to grow in Asia for New Zealand's mozzarella products. The demand for soft cheeses, such as cream cheese, in Asia continues to grow but there are constraints to supply from New Zealand as the manufacturing plants are already nearing full capacity.

2021

Total production of cheese for 2021 is now estimated at 390,000 MT, 11 percent up on 2020. Markets for all categories of cheeses have been good, and the increased milk supply has enabled the increase. Exports for the first eight months of 2021 are up 17 percent. Even with some expected slowdown, exports are estimated at 360,000 MT, a ten percent lift on 2020.

The food service trade for fresh cheeses such as mozzarella and cream cheese into Asia has recovered, especially into China. Fresh cheese production is expected to continue its trend of increasing production offsetting gradually declining hard natural cheese production. One processor has set up a mozzarella plant which will increase New Zealand's capacity by approximately 20,000 MT per annum, which would put total manufacturing capacity up to approximately 130,000 MT. Additionally, increased whey pricing (whey being a by-product from cheese manufacturing) since September 2020 is supporting the profitability of cheese production. Innovative cheese products such as cheese sticks and lollypop cheeses, that are slightly sweeter, are being developed in China to attract consumers and increase demand.

New Zealand's market access advantage in China will be enhanced on January 1, 2022, when tariffs for all categories of cheese will be reduced to zero under the NZ/China Free Trade Agreement. This is likely to not only maintain New Zealand exporters' market share in China, but possibly increase it in the medium term until other countries, such as Australia, also have tariffs eliminated as part of their FTAs.

Both domestic cheese demand and ending stocks are forecast to be up marginally.

New Zealand Year-To-Date Cheese Export Destinations

Destination Country	January - August 2019			January - August 2020			January - August 2021		
	Value (USD	Quantity (MT)	Unit Value	Value (USD	Quantity (MT)	Unit Value	Value (USD	Quantity (MT)	Unit Value
China	168,165,930	41,695	$4,033	178,793,966	42,542	$4,203	261,017,758	63,513	$4,110
Japan	180,901,056	46,765	$3,868	174,619,240	43,667	$3,999	155,672,340	39,626	$3,929
Australia	127,948,676	32,491	$3,938	116,511,067	28,412	$4,101	119,402,960	28,067	$4,254
South Korea	62,677,036	16,535	$3,791	81,186,538	21,207	$3,828	72,305,384	18,285	$3,954
Philippines	35,642,141	9,377	$3,801	37,469,657	9,428	$3,974	44,665,987	11,158	$4,003
Indonesia	35,438,726	9,544	$3,713	33,831,939	8,623	$3,924	37,598,468	9,593	$3,920
Saudi Arabia	33,219,992	8,998	$3,692	30,954,697	7,701	$4,020	32,553,349	8,481	$3,838
Taiwan	20,514,834	5,581	$3,676	24,856,046	6,468	$3,843	30,705,362	7,721	$3,977
Chile	11,839,776	3,566	$3,320	21,156,214	5,468	$3,869	29,988,743	8,136	$3,686
Malaysia	19,889,954	5,313	$3,743	24,936,693	6,299	$3,959	29,733,447	7,376	$4,031
Rest of the World	176,639,049	43,942	$4,020	135,775,014	31,336	$4,333	191,818,450	45,593	$4,207
World Total	872,877,170	223,807	$3,900	860,091,071	211,151	$4,073	1,005,462,248	247,549	$4,062

Source: TDM LLB

New Zealand Cheese Export Destinations by Quantity (MT)						
Destination Country	Annual Total Quantity (MT) for Calendar Year					
	2015	2016	2017	2018	2019	2020
China	39,550	51,668	56,409	54,572	71,702	75,129
Japan	55,045	61,345	63,552	64,630	66,087	62,384
Australia	51,294	61,959	61,618	47,983	47,805	42,786
South Korea	14,929	19,730	18,957	19,402	22,871	27,451
Philippines	15,654	15,805	13,807	13,410	13,834	13,249
Indonesia	14,122	15,935	17,738	15,572	13,368	13,029
Saudi Arabia	12,122	11,190	12,754	12,189	14,741	11,887
Taiwan	8,883	9,208	9,551	7,950	8,719	9,679
Malaysia	9,044	8,607	12,389	8,745	7,949	9,526
Chile	6,778	7,439	6,795	8,773	3,865	7,564
Rest of World	99,349	92,219	69,140	68,672	63,957	54,283
World Total	**326,770**	**355,105**	**342,710**	**321,898**	**334,898**	**326,967**
Av. FOB price US$/T	$3,563	$3,381	$4,027	$4,090	$3,961	$4,038

Source: TDM LLB

Dairy, Cheese	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	73	73	68	68	0	70
Production (1000 MT)	350	350	380	390	0	375
Other Imports (1000 MT)	10	10	12	12	0	12
Total Imports (1000 MT)	10	10	12	12	0	12
Total Supply (1000 MT)	433	433	460	470	0	457
Other Exports (1000 MT)	327	327	375	360	0	345
Total Exports (1000 MT)	327	327	375	360	0	345
Human Dom. Consumption (1000 MT)	38	38	40	40	0	42
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT)	38	38	40	40	0	42
Total Use (1000 MT)	365	365	415	400	0	387
Ending Stocks (1000 MT)	68	68	45	70	0	70
Total Distribution (1000 MT)	433	433	460	470	0	457
(1000 MT)						

Not official USDA PSD estimates

Production, Supply, and Demand – Skim Milk Powder (SMP)

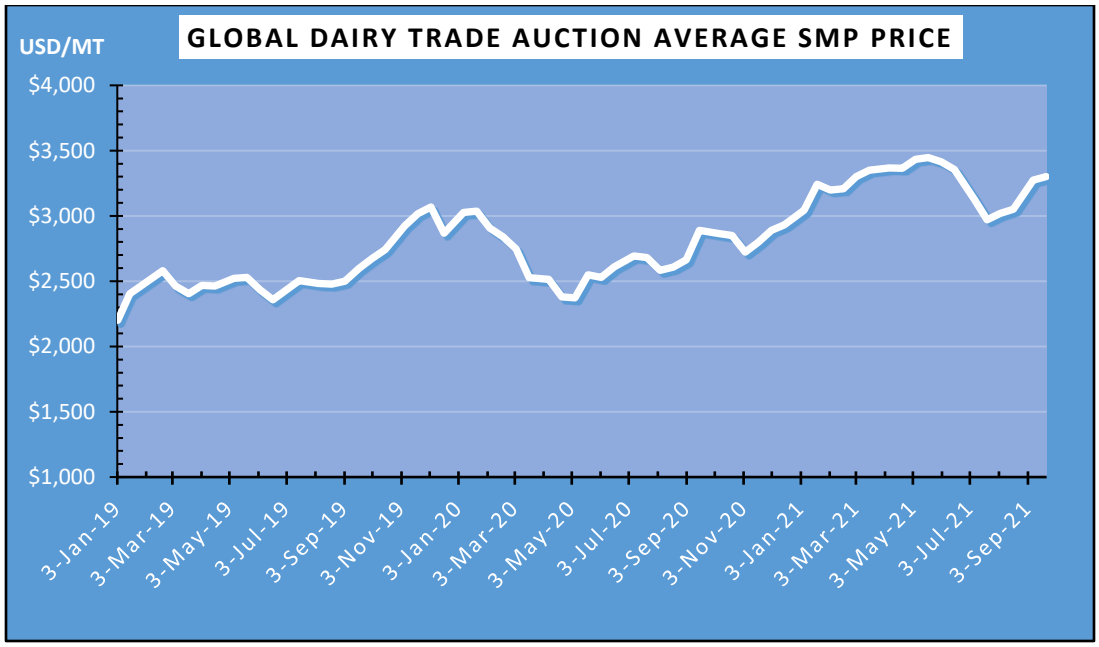
2022

While production of WMP and cheese are expected to fall in 2022 with the reduced milk supply, SMP production is forecast to rebound and reach 365,000 MT, up 11 percent on 2021. This is due to expected better price relativity for the butter/AMF/SMP production stream. While in 2021 there was a significant shift to WMP due to strong prices, this is expected to reverse in 2022. Exports are forecast at 350,000 MT, up six percent on 2021.

2021

SMP production for 2021 has been revised down to 330,000 MT, which would put it at nine percent less than 2020. January-August exports are running ten percent behind 2020. During this period, the relative value for milk processed to WMP has been better than for SMP/butter/AMF stream manufacture. Because of the emphasis on WMP and the reduced export performance through August, the estimate for 2021 exports is revised down to 330,000 MT, seven percent below 2020.

Previously, it was thought that with reduced Infant Milk Formula production, protein formerly used for manufacturing this product would instead be sold as SMP. However, higher value protein products such as specialized casein, whey protein isolates, and concentrates have enjoyed increased demand during the year and have used up spare protein.



Source: GDTA

At times during 2021 New Zealand SMP has commanded a US$300-400 per MT premium over U.S. or EU products, up from the traditional US$100-200/MT premium. This is a result, in part, of the supply chain from New Zealand to Asian markets being quicker due to the shorter distance.

Dairy, Milk, Non-fat Dry	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	116	116	124	116	0	111
Production (1000 MT)	370	362	390	330	0	365
Other Imports (1000 MT)	8	8	10	10	0	10
Total Imports (1000 MT)	8	8	10	10	0	10
Total Supply (1000 MT)	494	486	524	456	0	486
Other Exports (1000 MT)	356	356	400	330	0	350
Total Exports (1000 MT)	356	356	400	330	0	350
Human Dom. Consumption (1000 MT)	14	14	10	15	0	15
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT)	14	14	10	15	0	15
Total Use (1000 MT)	370	370	410	345	0	365
Ending Stocks (1000 MT)	124	116	114	111	0	121
Total Distribution (1000 MT)	494	486	524	456	0	486
(1000 MT)						

Not official USDA PSD estimates

New Zealand Skim Milk Powder Export Destinations									
Destination Country	January - August 2019			January - August 2020			January - August 2021		
	Value (USD)	Qty (MT)	Unit Value	Value (USD)	Qty (MT)	Unit Value	Value (USD)	Qty (MT)	Unit Value
China	163,907,620	70,888	$2,312	177,608,586	62,053	$2,862	240,828,872	75,744	$3,180
Indonesia	30,582,011	13,255	$2,307	65,421,831	22,582	$2,897	63,826,217	20,528	$3,109
Malaysia	52,887,253	20,381	$2,595	56,554,857	16,745	$3,377	60,727,338	15,393	$3,945
Thailand	36,765,568	16,728	$2,198	45,684,034	15,893	$2,874	49,569,267	15,812	$3,135
Taiwan	34,397,531	14,619	$2,353	36,092,781	12,595	$2,866	43,410,729	13,113	$3,311
Vietnam	26,740,286	12,722	$2,102	32,105,164	11,260	$2,851	41,011,953	13,926	$2,945
Singapore	31,562,870	15,431	$2,045	35,030,743	13,403	$2,614	35,984,625	12,313	$2,923
Philippines	46,322,320	21,101	$2,195	54,165,087	19,760	$2,741	29,613,662	9,247	$3,203
Australia	14,146,393	5,220	$2,710	14,621,866	4,609	$3,172	18,394,736	5,959	$3,087
UAE	15,752,824	6,918	$2,277	13,410,626	4,798	$2,795	9,211,126	3,185	$2,892
Rest of World	100,311,116	44,149	$2,272	128,800,519	44,033	$2,925	62,106,605	19,594	$3,170
World Total	**553,375,792**	**241,412**	**$2,292**	**659,496,094**	**227,731**	**$2,896**	**654,685,130**	**204,814**	**$3,196**

Source: TDM LLB

New Zealand Skim Milk Powder Export Destinations						
Destination Country	Annual Total Quantity (MT) for Calendar Year					
	2015	2016	2017	2018	2019	2020
China	122,926	107,627	129,535	126,229	131,410	127,765
Indonesia	24,021	32,470	19,815	20,600	19,977	33,896
Malaysia	31,272	39,439	34,168	31,727	29,547	23,974
Thailand	25,838	27,078	23,952	23,525	24,009	23,178
Philippines	32,668	41,247	26,208	25,590	28,516	22,464
Taiwan	20,655	18,476	18,658	17,612	20,755	20,121
Singapore	35,266	24,038	23,975	19,405	22,256	19,630
Vietnam	18,483	19,373	22,582	12,520	14,864	15,688
Saudi Arabia	14,738	12,885	3,315	2,491	7,309	10,095
Kuwait	3,879	2,324	6,798	1,579	4,123	8,379
Rest of World	81,568	119,100	91,996	76,934	70,143	51,146
World Total	411,314	444,057	401,002	358,212	372,909	356,336
Av. FOB price US$/MT	$2,337	$1,967	$2,234	$2,020	$2,427	$2,875

Source: TDM LLB

(Note: FAS/Wellington bases its forecasting on the SMP produced being the final step and sold at that point. SMP is also the intermediary product in processes that produce many other protein products. SMP that is intermediate to other protein products made in New Zealand is not included in the SMP total here.)

Production, Supply, and Demand – Butter and Anhydrous Milk Fat (AMF)

Note: All the tonnages in the PSD table and the narrative below are expressed in butter equivalents.

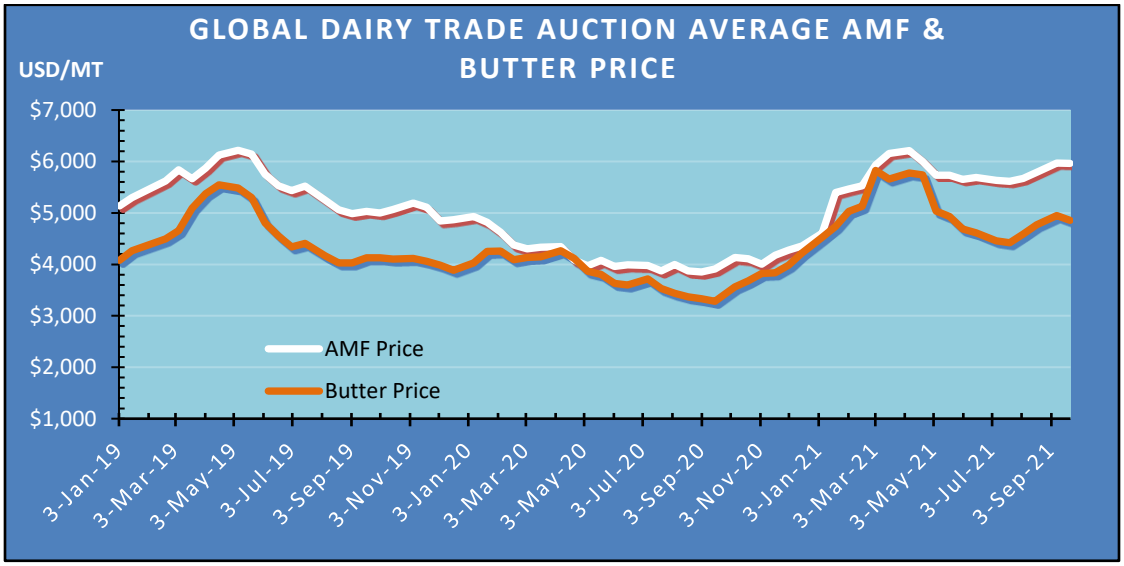
2022

Butter and AMF production for 2022 is forecast to be up marginally to 485,000MT (up one percent on 2021), with exports up a similar amount at 455,000 MT. The value of the SMP/butter/AMF stream appears to be relatively better than the value for cheddar cheese production for at least the first quarter of 2022. However, most of the fat available from lower forecast cheddar production is likely to go to increased UHT Cream exports, which are forecast at 185,000 MT. If realized, these exports would be 12 percent up on 2021 and equate to approximately 90,000 MT of butter.

2021

The revised estimate for 2021 butter and AMF production is now 480,000 MT, four percent less than 2020. Butter and AMF prices strengthened going into 2021, which was thought to support increasing butter and AMF production. However, since May prices have fallen away reducing the SMP/butter/AMF stream manufacture value. In addition, the burgeoning production and export of UHT cream for food service applications is now limiting butter and AMF production. Total exports for 2021

have been revised down to 450,000 MT, four percent below 2020, but in line with the year-to-date performance.



Source: GDTA

Westland Milk Products (formerly a farmer-owned cooperative now owned by Chinese group Yili) has increased its butter capacity by 21,000 MT, which is being commissioned around September 2021. This production will be aimed at consumer-ready packs.

UHT cream exports are now estimated to reach 165,000 MT in 2021, which would amount to a 22-percent increase over 2020. This would equate to approximately 79,000 MT of butter. The current rate of shipping is running at 28 percent ahead of 2020. For 2020 and so far in 2021, three-quarters of New Zealand's total UHT cream exports has gone to China. Malaysia a very distant second at only three percent of the total.

Dairy, Butter	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	93	93	93	93	0	94
Production (1000 MT)	500	500	490	480	0	485
Other Imports (1000 MT)	1	1	1	1	0	1
Total Imports (1000 MT)	1	1	1	1	0	1
Total Supply (1000 MT)	594	594	584	574	0	580
Other Exports (1000 MT)	471	471	435	450	0	455
Total Exports (1000 MT)	471	471	435	450	0	455
Domestic Consumption (1000 MT)	30	30	32	30	0	31
Total Use (1000 MT)	501	501	467	480	0	486
Ending Stocks (1000 MT)	93	93	117	94	0	94
Total Distribution (1000 MT)	594	594	584	574	0	580
(1000 MT)						

Not official USDA PSD estimate

New Zealand Butter & AMF Export Destinations by Quantity (MT Butter Equivalents)						
Destination Country	January - August 2019		January - August 2020		January - August 2021	
	Value (USD	Quantity (MT)	Value (USD	Quantity (MT)	Value (USD	Quantity (MT)
China	212,496,521	44,641	231,950,526	54,845	345,933,939	76,140
Australia	102,510,876	22,487	97,137,673	22,532	95,624,119	21,520
Philippines	111,059,530	24,724	89,968,732	22,978	93,062,571	22,428
Saudi Arabia	63,703,376	14,385	78,387,626	19,019	71,937,977	16,845
Vietnam	65,250,835	14,660	47,101,931	12,465	62,367,606	15,515
Malaysia	54,408,418	12,001	46,320,341	11,481	55,661,696	12,726
Mexico	83,030,503	18,876	61,890,654	16,112	49,104,247	11,669
Indonesia	46,005,543	9,346	37,656,320	8,818	47,662,787	9,772
Egypt	46,025,098	11,004	57,553,878	14,741	46,769,678	11,410
Taiwan	45,931,909	9,568	39,143,535	9,237	45,560,713	9,993
Rest of World	681,033,929	153,561	493,079,670	118,323	394,786,019	88,666
World Total	**1,511,456,538**	**335,253**	**1,280,190,886**	**310,551**	**1,308,471,352**	**296,684**

Source: TDM LLB

New Zealand Butter & AMF Export Destinations by Quantity (MT Butter Equivalents)						
Destination Country	Annual Total Quantity (MT Butter Eq.) for Calendar Year					
	2015	2016	2017	2018	2019	2020
China	71,886	72,056	87,849	104,584	89,671	97,635
Australia	20,370	29,443	30,017	36,940	36,050	36,110
Philippines	30,334	31,589	33,031	33,529	36,314	32,851
Russia	8,766	22,971	15,018	8,926	26,171	28,880
Saudi Arabia	23,760	26,837	23,058	22,766	22,568	27,104
United States	20,122	12,111	7,287	14,324	32,668	23,596
Mexico	36,271	59,482	25,757	23,191	26,214	21,779
Egypt	42,853	40,050	16,254	19,642	19,095	19,552
Malaysia	16,079	16,509	16,581	16,352	17,500	17,662
Vietnam	16,570	14,803	18,039	16,515	20,587	16,623
Rest of World	264,862	228,586	203,026	204,118	182,005	148,916
World Total	**551,873**	**554,437**	**475,917**	**500,887**	**508,843**	**470,708**
Av. FOB price US$/T BEQ	**$2,953**	**$3,078**	**$4,953**	**$5,175**	**$4,510**	**$3,993**

Source: TDM LLB

Other Products

Protein Products – Whey and Casein

Casein and caseinates have had greater demand during 2021. From January to August the total volume shipped is eight percent ahead of 2020 at 63,780 MT, and exports by value are ten percent up on 2020. New Zealand has limited production capacity and there are no reports of any new investments in plants. Reportedly the upper limit to production is around 100,000 MT and that may be met in 2021.

Whey protein concentrates (WPC) and whey protein isolates (WPI) are in high demand at present, mainly because of production reductions during the COVID-19 lockdowns in the northern hemisphere. In addition, demand is being boosted as consumers head back to normal exercise regimes and are looking for nutritional products to go with the exercise. New Zealand exports of WPC and WPI, at 16,997 MT for the eight months to August 2021, are 19 percent above 2020. Reportedly, sales being made now are at prices up to 50 percent above those of a year ago. However, whey proteins are a by-product of the cheese making process and only contribute approximately five percent of the value to the milk used in cheese manufacturing. Generally, the volume of whey protein manufacture is driven by how much cheese is produced not by the price of the whey proteins. It is forecast whey protein exports will be stable at approximately 40,000 MT for 2021 and 2022

Infant Milk Formula (IMF)

There are no public indications yet that the IMF market is improving, so expectations for 2022 are for exports of IMF at 80,000 to 85,000 MT, essentially the same as 2021, which would be approximately 18 percent below 2020.

The future for IMF exports is not as rosy as pre COVID-19. Reportedly, the market in China for imported IMF has not recovered after the Chinese COVID-19 lockdown as quickly as expected. A feature of exports over the last four years has been the big growth of shipments to Australia. Some of the IMF product shipped is further processed in Australia to a final formulation and packaging. A significant volume was re-exported from Australia through informal channels (daigou pathway) to China. Since the onset of the pandemic the daigou channel has completely shut down. In addition, there are reports that the high cost of some imported IMF has encouraged a proportion of purchasers in China to shift back to domestic IMF. This factor, combined with a lower number of infants to feed, is changing perceptions of the Chinese markets from a growth market to a more mature market for IMF.

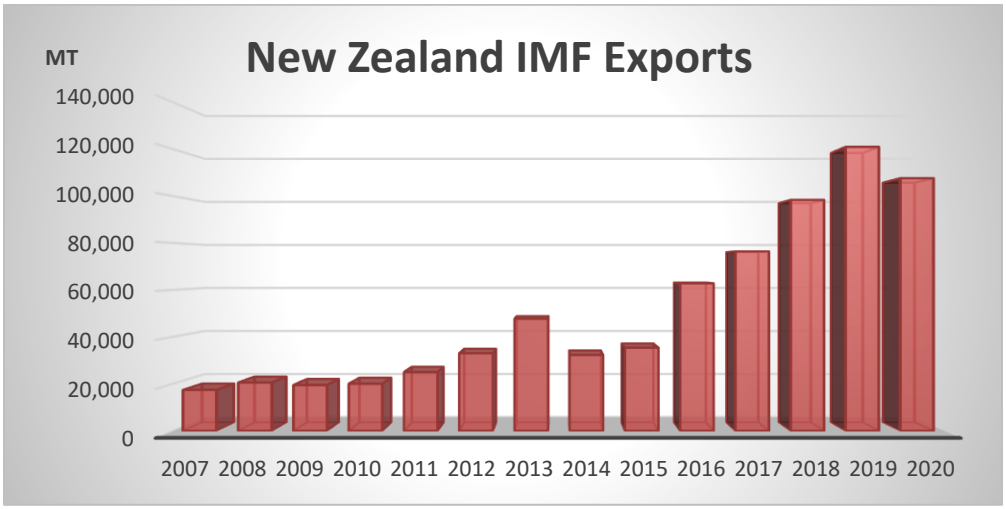
IMF exports had been a real success story for New Zealand dairy processors. In 2019, although IMF volume was only approximately three percent of total dairy production, over nine percent of total dairy export receipts were attributable to IMF sales. For 2020, the export volume was reduced to 107,525 MT, 11 percent less than 2019. However, the price per MT was 19 percent up on 2019 which meant total export value was nearly six percent up on 2019 in U.S. Dollar terms. IMF maintained its place, supplying just over three percent of exports by volume but nearly ten percent of exports by value.

There are now eight processors involved in manufacturing IMF and exporting it. Only manufacturers with complete supply chain control and ingredient traceability can be approved for IMF manufacture and export into China. New Zealand processors now have a large capacity for IMF production, well in excess of current levels of production.

New Zealand IMF producers have built up extensive knowledge and capability with IMF manufacture and one producer has been developing alternative products aimed at sports and aged care nutrition.

New Zealand Export Statistics for Infant Milk Formula Products						
Destination Country	January - August 2019		January - August 2020		January - August 2021	
	Quantity (MT)	Price USD/MT	Quantity (MT)	Price USD/MT	Quantity (MT)	Price USD/MT
China	27,618	$11,932	32,135	$12,941	31,754	$12,918
Hong Kong	17,444	$10,663	7,326	$17,876	7,358	$14,122
Australia	30,941	$6,500	27,994	$6,838	13,706	$6,346
South Korea	566	$15,981	634	$16,241	1,259	$15,788
Thailand	2,982	$4,183	3,294	$4,441	2,340	$5,240
Taiwan	1,117	$10,404	910	$9,885	489	$12,088
Malaysia	887	$11,599	658	$11,338	489	$10,194
Russia	494	$11,878	366	$12,552	387	$12,390
Iraq	33	$6,404	0	$0	492	$6,660
Vietnam	166	$9,724	109	$7,555	468	$6,699
Rest of World	3,688	$5,291	3,124	$7,488	2,184	$7,618
World Total	**85,936**	**$9,161**	**76,550**	**$10,561**	**60,926**	**$11,029**

Source: TDM LLB. Note that the charts & table include all HS codes which relate to IMF



Source: TDM LLB. Note that the charts & table include all HS codes which relate to IMF

Imports

New Zealand imported a total of US$408 million worth of dairy products in 2020, approximately one percent less than 2019. The leading import was again lactose used in the manufacture of WMP. The lactose volume imported reached 121,750 MT, up three percent from 2019.

For January-August 2021 the volume of imports are down 18-percent compared with 2020 but total value of imports is only one percent below 2020. The leading import remains lactose but while the price per ton was up 45-percent the volume imported was down 22-percent compared with 2020.

Attachments:

No Attachments