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## **Report Name:** Dairy and Products Annual

**Country:** New Zealand

**Post:** Wellington

**Report Category:** Dairy and Products

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### **Report Highlights:**

New Zealand's milk production in 2021 is forecast at 22 million metric tons (MMT), down slightly from the record volume now estimated for 2020 (22.19 MMT). This is a result of marginally lower dairy cow numbers and based on expectations of a return to more typical milk yields during the second half of the year. Recovery from the North Island-wide drought that persisted for most of the first half of 2020 has been exceptional. Dairy processors continue to diversify milk away from the main commodities and towards fresh cheeses, infant milk formula, as well as develop new consumer offerings for staples such as butter and cheese.

## Executive Summary

Weather conditions for the dairy sector have been excellent during the past few months, and if these conditions persist as expected through to the end of 2020 and into 2021, prospects will be very positive for New Zealand's dairy farms for the first half of 2021. Total milk production for 2021 is forecast at 22 million metric tons (MMT), just 0.9 percent less than the revised 2020 production estimate. Slightly fewer cows and a return to more average per-cow milk yields in the second half of the year are the key factors behind this expected reduction. Generally, dairy farmers are working to improve efficiency and productivity every year. Since 2015 gains in productivity per cow have largely offset reduced cow numbers.

The revised estimate for 2020 milk production is now 22.19 million metric tons (MMT). This would be 1.3 percent greater than 2019 production and a record for calendar year production in New Zealand. The advent of the COVID-19 pandemic and the Government's response did not impact on milk supply nor did it hinder milk processing. Despite drought conditions that impacted heavily on the North Island during February through May, milk production for the first half of the year (H1) held up well. South Island production was a record for that period and cushioned the impact nationally from the reduced production in the North Island. Rains then began to fall in the North Island and the recovery from the drought was extremely rapid. Excellent pasture growth through the winter (June to August) has set farms and cows up well for the last one-third of the year, which usually delivers over 50 percent of the annual milk supply.

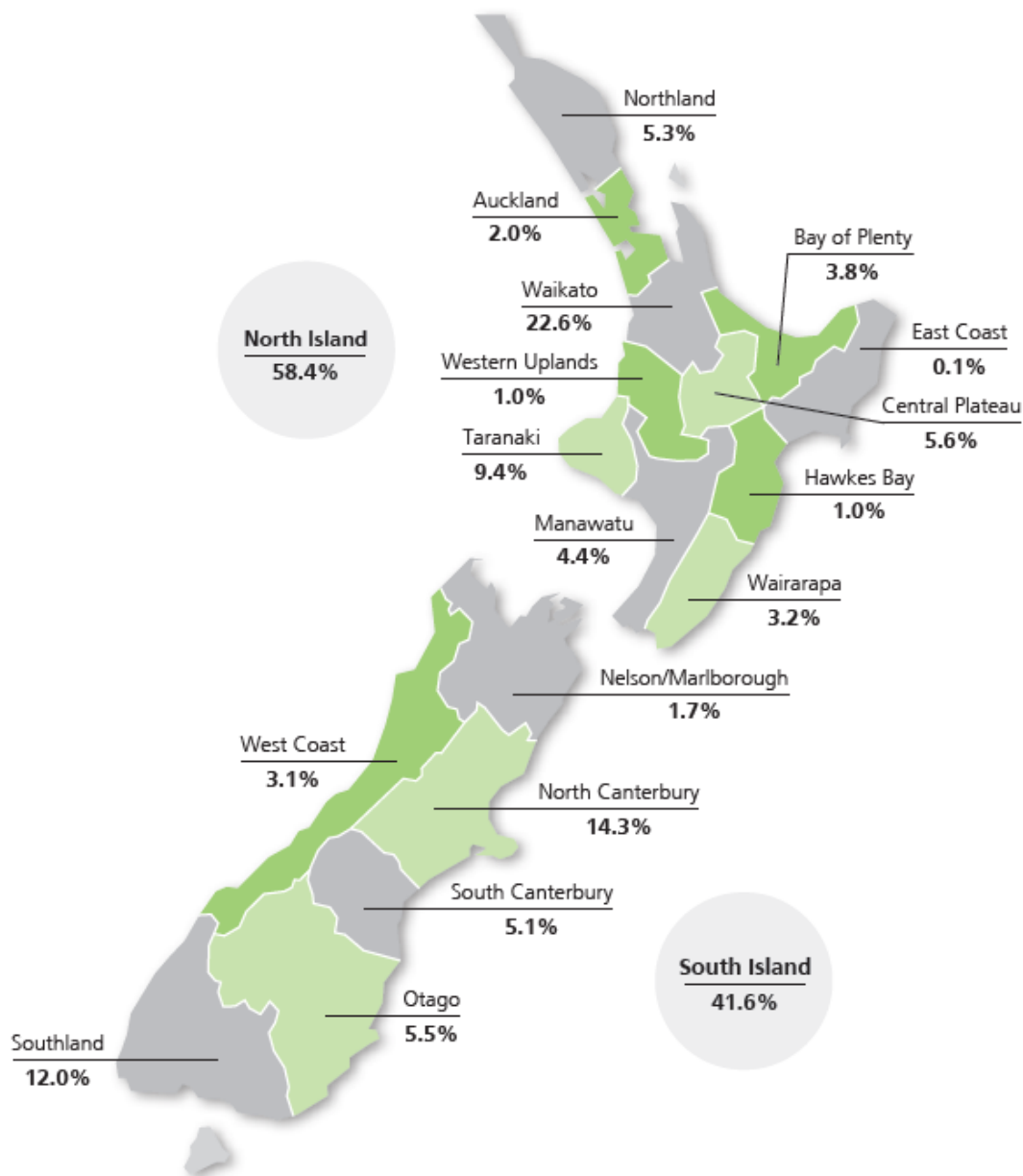
The small reduction in the milk supply forecast for 2021 is forecast to reduce production of whole milk powder (WMP) and skim milk powder (SMP) collectively by two percent compared to 2020, along with butter/AMF (Anhydrous Milk Fat) reduced by one percent. Cheese production is expected to remain firm and is forecasted to increase three percent. Outside of these key four commodities (WMP, SMP, butter and cheese), other product categories are forecast at 690,000 MT, up 2.5 percent. Despite lower milk production, the export total of the four main commodities is forecast at 2.69 MMT, 0.3 percent up on 2020. It is anticipated there will be some inventory reduction to achieve this total.

With the 2020 milk supply being revised upward, milk powder production (WMP and SMP) is estimated up two percent, but butter/AMF production has been revised down to be four percent lower than 2019. In general, New Zealand dairy processors continue to slowly diversify away from the main four commodities with the total for other products to reach 673,000 MT, 1.2 percent above 2019. Total exports for the four main commodities are forecast to reach 2.68 MMT, 2.7 percent below 2019 mainly because of the material sell down of WMP inventory during 2019. Only SMP exports are estimated to be higher in 2020.

The COVID-19 pandemic has caused disruption to export supply chains into destination countries especially for food service products and ingredients. However, the dominant destination, China, has recovered well and reportedly food service channels are just about back to normal.

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

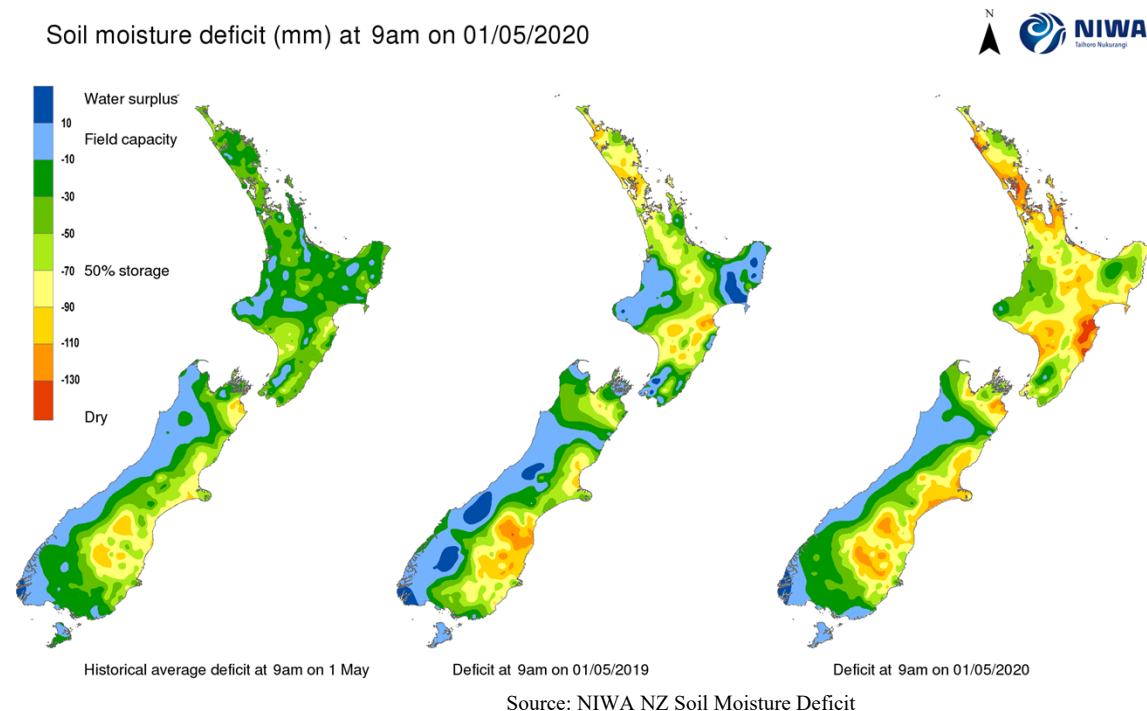
## Regional Distribution Dairy Cows 2018/2019 Season



## Seasonal Weather and Pasture Production

Normal seasonal dryness over the North Island during January 2020 deepened into a drought, and these conditions persisted until mid-May, affecting around 50 percent of the dairying areas in the North Island. In contrast to the same point in 2019, in early May pasture levels for the North Island were low and the volume of bulk supplementary feed such as conserved pasture or forage crops on hand was also low. Fortunately for producers, in late 2019 much greater quantities than normal of pasture silage and baleage were conserved and this was nearly all used by the end of May 2020 to keep cows milking.

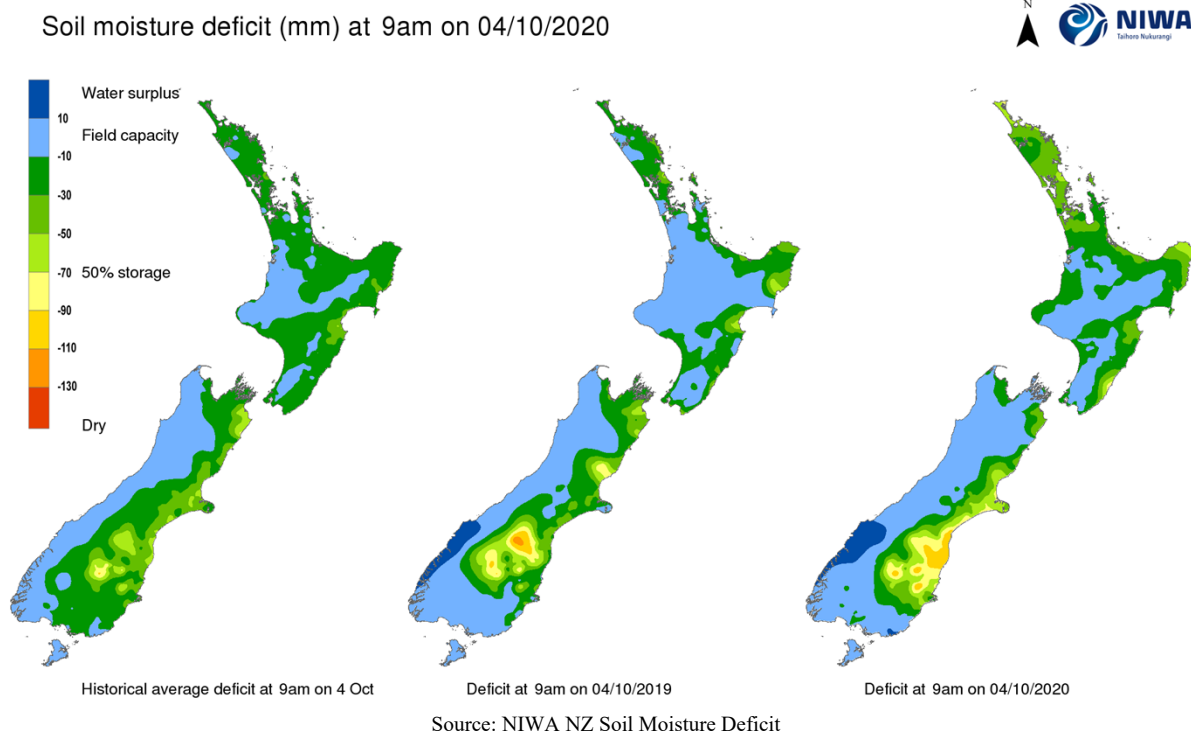
### Soil Moisture on May 1<sup>st</sup> – Historical Average, 2019 and 2020



Some reporting in May 2020 suggested cows in the North Island were perhaps in lower body condition than optimum. However, the situation quickly changed and the rains came later in May for all of the North Island and temperatures stayed relatively warm. Pasture growth during the winter months of June and July and on into August was exceptional. This had three main effects: cow conditions improved, winter use of feed supplements was minimized, and farms became well set up from a pasture perspective for the onset of spring and calving. Pasture conservation into silage has been happening since late August, four to six weeks earlier than is normal for the North Island.

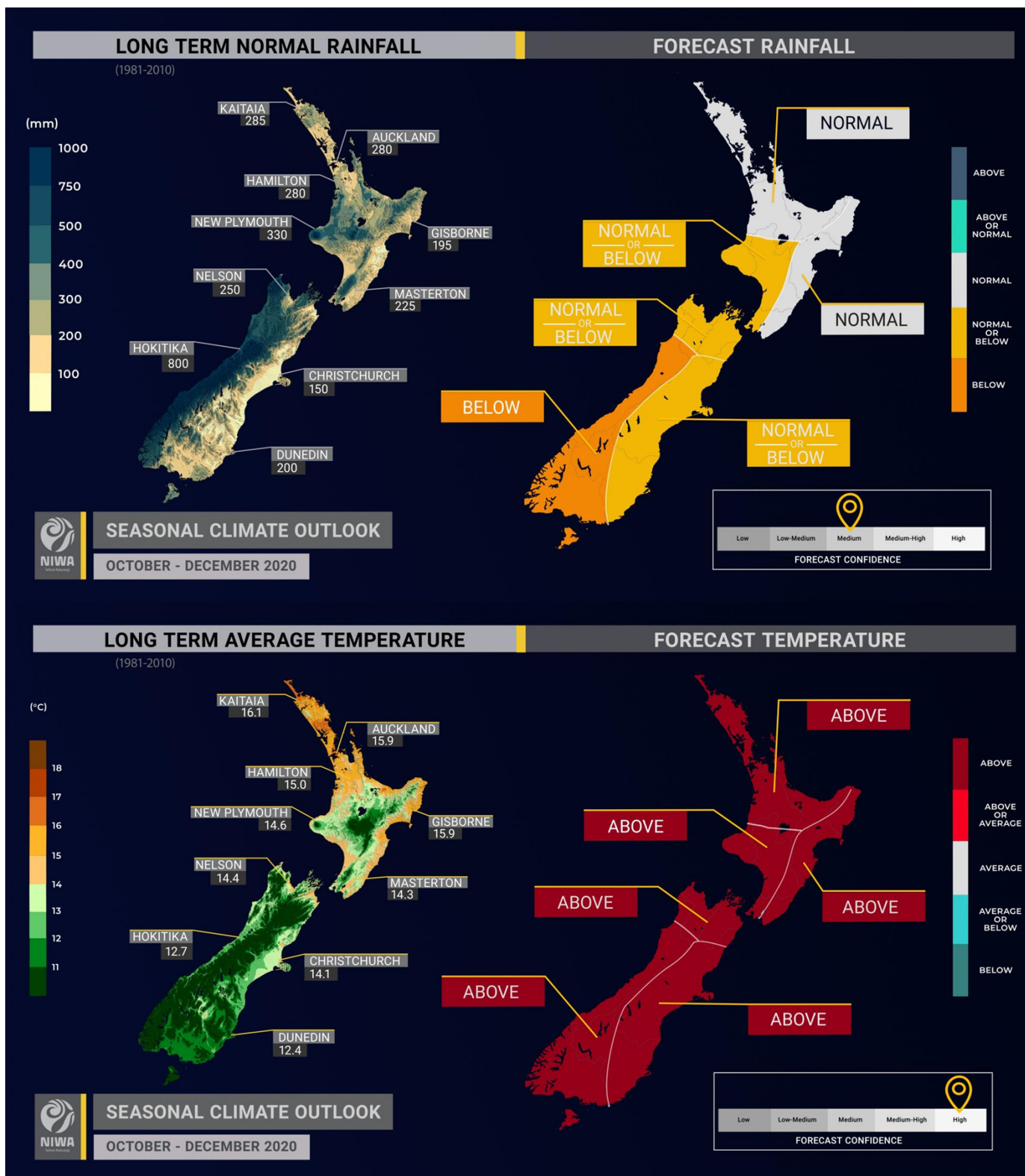
From the soil moisture maps it can be seen that soil moisture is at slightly lower levels than 2019 for the North Island but on a par with historical average levels, if not slightly better. In the South Island there is a severe moisture deficiency in the South Canterbury/Otago regions. However, nearly all the dairy farms in this region are irrigated so should not be too affected by this level of dryness.

## Soil Moisture on October 4<sup>th</sup> – Historical Average, 2019 and 2020



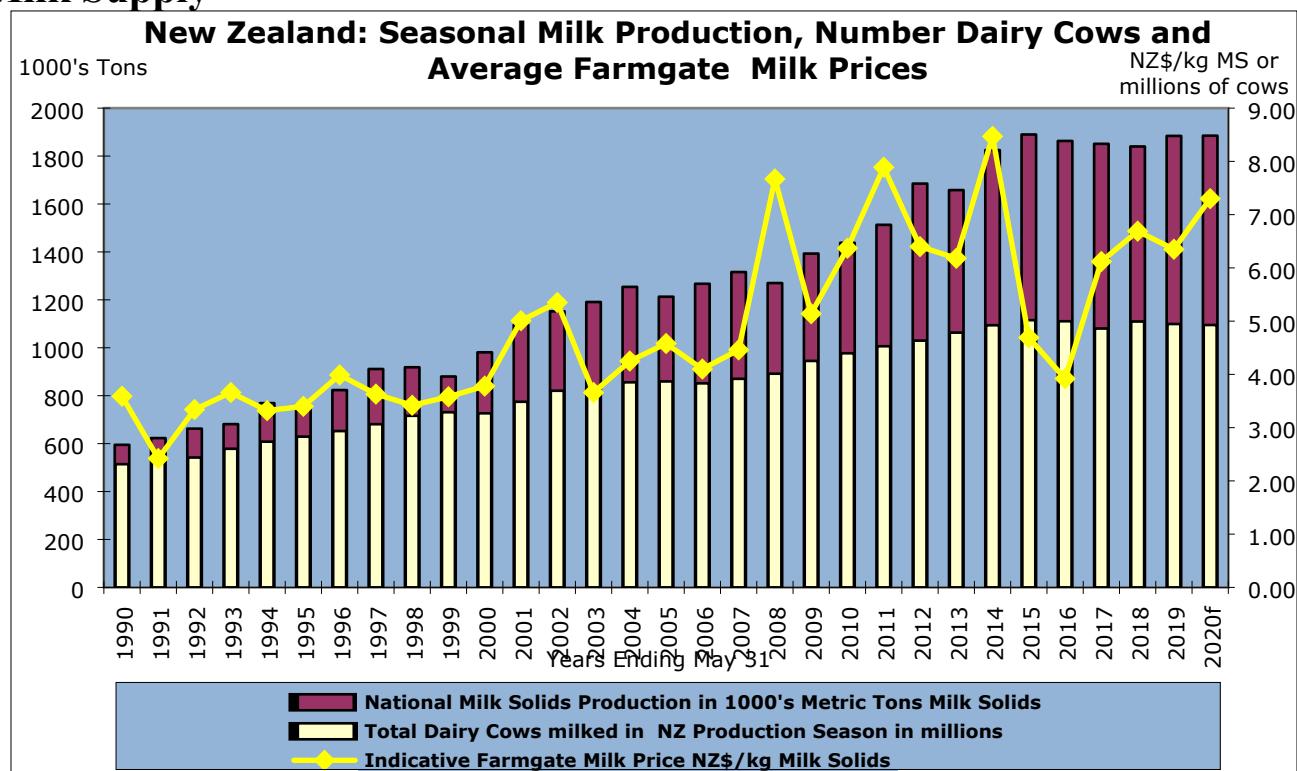
Looking ahead to the rest of 2020, the National Institute of Water and Atmosphere (NIWA) reports that it has a “La Niña Pacific weather system alert”, and it is likely that NIWA will confirm La Niña conditions during October. International guidance suggests the current probability for oceanic La Niña conditions is 77 percent. NIWA goes on to say in its October-December 2020 outlook that past La Niña events have featured a gradual trend toward wetter conditions in northern New Zealand during late spring and early summer. Because of this there is a greater probability of sufficient rainfall during the rest of 2020 in the North of New Zealand, where over 50 percent of the cows are grazed and pasture growth is reliant on natural rainfall. This is likely to mean that pasture volumes will be normal to high going into 2021 and conserved pasture as silage or baleage will be at normal to above-normal volumes.

This should set the sector up well, whatever the weather patterns predominate in the first half of 2021. If La Niña conditions are prevalent, as anticipated, it is less likely there will be widespread drought conditions. In the South Island, warmer conditions should benefit pasture production in the Southland region which is historically cooler and wetter. For the Canterbury region, the other main South Island dairying area, the level of rainfall is not much of an issue as most farms have irrigation. Being warmer for the last three months of 2020 should boost pasture production unless temperatures get too high, which could depress pasture growth and cow appetites.



Source: NIWA Seasonal climate outlook October - December 2020

## Milk Supply



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

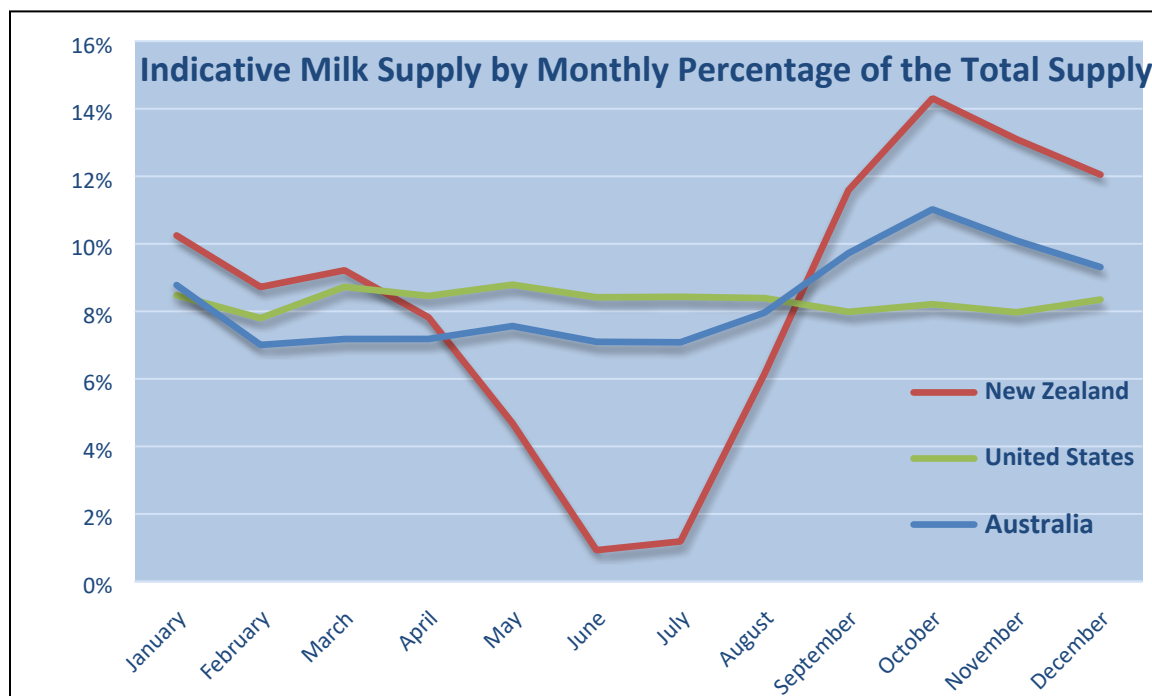
## 2021

Total milk production for 2021 is forecast at 22 million metric tons (MMT), just 0.9 percent less than the record production estimated in 2020. Although production in the first half of 2021 is expected to be extremely strong, volumes in the second half are expected to return to more normal levels. In the first half of the 2021 milk production is forecast to be 0.7 percent above the same period in 2019 because of a number of key factors:

- Dairy farms should go into 2021 with good pasture volumes, normal to above normal levels of conserved feed, and cows in good condition.
- The La Niña weather pattern is likely to mean normal to above normal rainfall from January to April in the northern half of the North Island where most farms rely on natural rainfall.
- An improvement since mid-2020 in the outlook for the milk price will encourage more confidence among farmers to purchase supplemental feed to support production.

For the second half of 2021, it is forecast that production will not match the extremely strong levels of 2020 for a number of reasons:

- Cow numbers are forecast to be slightly less than 2020.
- The second half periods of both 2019 and 2020 were exceptional. As a result, a return to more typical production per cow in the second half of 2021 would mean lower overall production for the year. (Note: New Zealand milk production is highly seasonal with production spiking during the last four months of the year – see chart below)



Source: DCANZ, Dairy Australia, USDA-NASS

FAS/Wellington forecasts 4.85 million (m) cows will be milked in 2021, which would be 0.5 percent less than 2020 and continue a slow but steady decline that has gone on since the peak of 5.02m in 2015. Farmers have continued to right-size their herds to get the most profitable combination of cow numbers and feed supply. There has also been a very small decrease in land area milked on. Some farms on the edges of the major cities of Hamilton and Auckland have changed land use from dairy towards urban or lifestyle farmlets. In addition, in Northland and the Bay of Plenty regions, a few dairy farms have been converted to growing kiwifruit or avocados. There have been next to no conversions to dairying over the last two years to offset this loss of area. In addition, with new environmental regulations just enacted (August 2020) land use change to more intensive animal use (such as dairy) is classified as a discretionary activity. In order to get consent for the conversion of the land/farm, farmers will have to be able to show no higher discharges of nitrates or phosphates to waterways than the current land use.

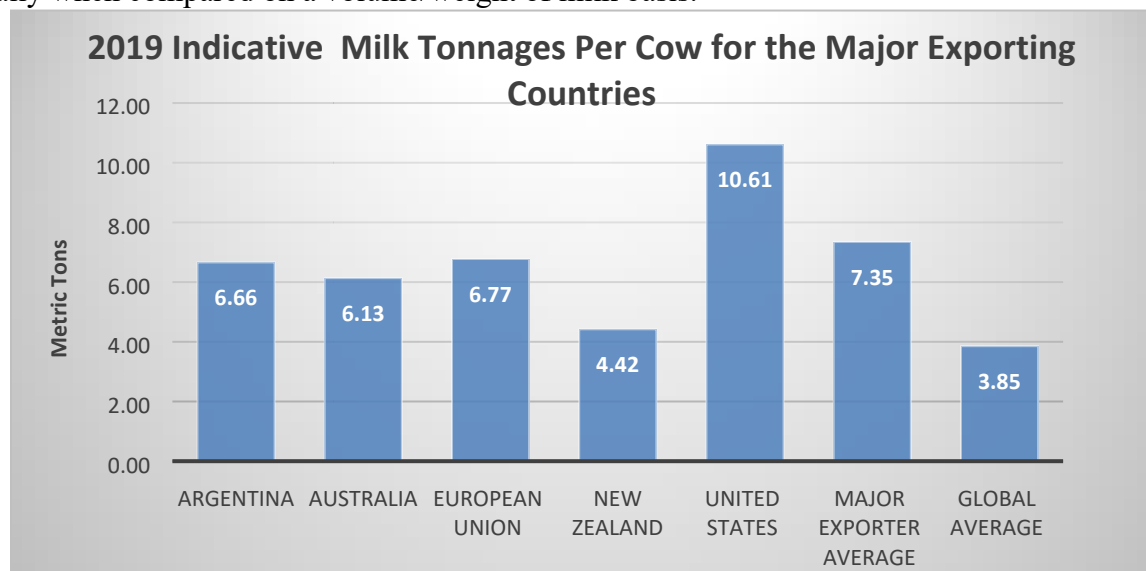
In general, dairy farmers are working to improve efficiency and productivity every year. For example, the use of sexed semen has significantly increased over the last two years. This gives farmers the opportunity to speed up the rate of genetic gain in their herds. Farmers are improving their control of cow nutrition every year, which has led to cows generally producing more milk per cow. With New



Zealand having already reached peak cow numbers and the dairy herd further decreasing, any future production increases will likely come from higher efficiencies per cow.

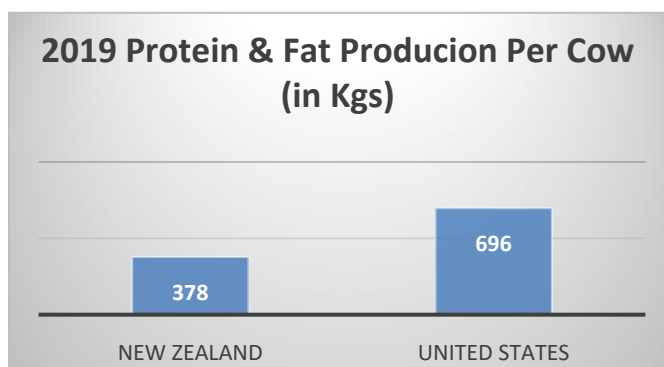
## Milk Production Per Cow

New Zealand milk production per cow is relatively low compared with the other major dairy exporters, especially when compared on a volume/weight of milk basis.



Source: USDA/FAS

There are two main reasons for this. First, for several decades New Zealand dairy industry genetics have been selected for the production of milk solids, rather than milk volume. This is in contrast to most other countries which have concentrated on milk volume production because their industries are predominantly based on domestic liquid milk consumption. While New Zealand production per cow is 58 percent behind U.S. production on a volume basis, New Zealand cows perform better on a protein and fat production basis – only 46 percent less.



Source: USDA/FAS, DairyNZ

Second, in the past New Zealand's dairy industry has been based on a low cost pasture feeding model, with 90 percent or more of feed being pasture. Production per hectare of land was a favored metric given the cost of land was the most limiting factor. Utilizing all the pasture grown with the least possible

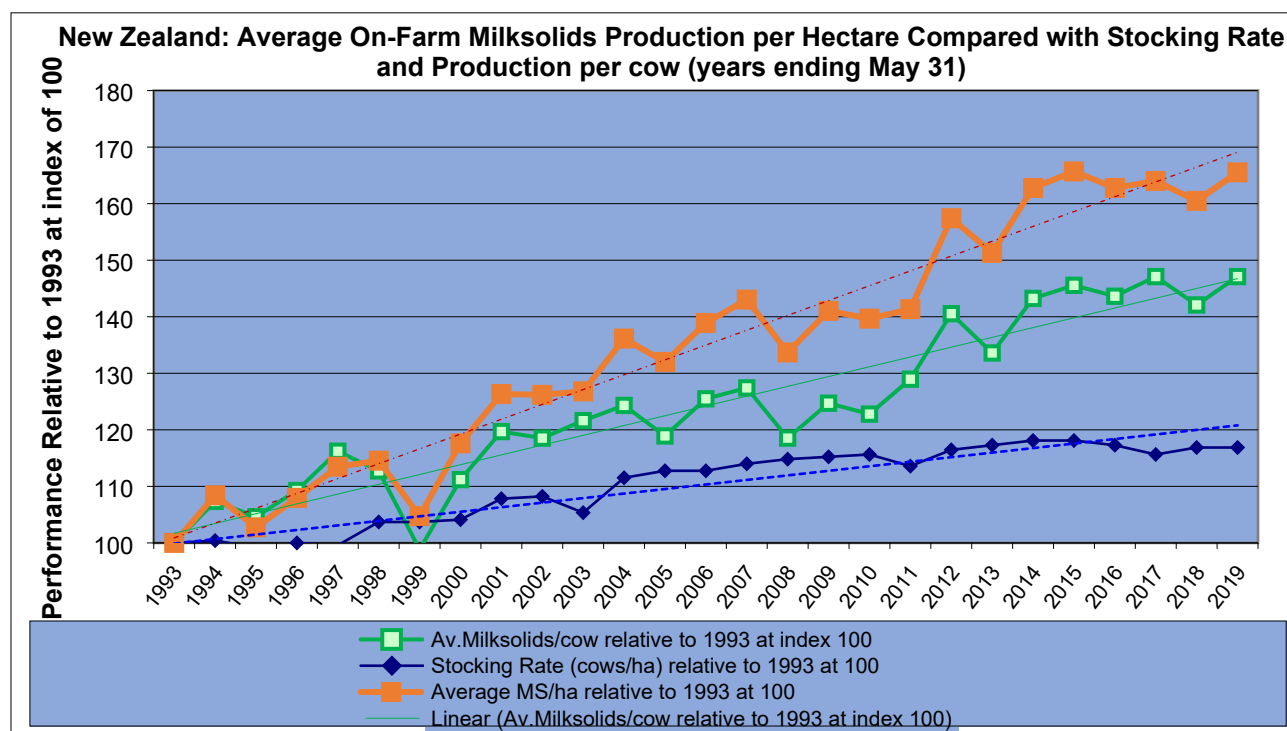
expenditure dominated most producers strategies, and production per cow was a secondary consideration.

However, now the industry is at somewhat of a crossroads with two contrasting approaches to production and ultimately profitability. One approach is the focus on increasing productivity, despite some increased costs such as for supplemental feeding. Offshore genetics have been brought into New Zealand and widely disseminated which means New Zealand cows now have the genetic capability to produce a lot more. In addition, farmers have become more accustomed now to using feed supplements and most cows now receive in excess of 20 percent of their feed requirements from supplements.

The other school of thought, promoted by some extension agencies, is focused on minimizing production costs and championing a pasture only diet wherever possible. In this strategy, supplements are only used in response to a pasture feed deficit.

## 2020

The revised forecast for 2020 milk production is now 22.19 million metric tons (MMT), which is 1.3 percent greater than 2019 production and a record for calendar year production in New Zealand. Despite the drought conditions that impacted heavily on the North Island during February through May, milk production for the first half of the year (H1) was still the third highest on record for an H1 period on a milk solids basis, and the fourth highest on a volume basis. South Island production, led by the Canterbury region, was a record for the period and cushioned the impact nationally from the reduced production in the North Island. Farmers in the North Island were fortunate that they started 2020 with high pasture volumes and very high volumes of conserved feed.



Sources: DairyNZ, FAS/Wellington analysis

## Liquid Milk Exports

Liquid milk export volumes in 2020 were negatively impacted by COVID-19, dropping 13 percent for the period January to August 2020 compared to the same time last year. Reportedly, consumer demand and logistical disruptions are recovering in the main destinations in Asia. For the 2020 full year, FAS/Wellington estimates exports at 245,000 MT, nine percent less than 2019. For 2021, exports are forecast to recover and rise four percent to 255,000 MT.

## Liquid Milk Domestic Consumption

Consumption of liquid milk is relatively stable at a 525,000 MT per annum. This amount only accounts for 2.4 percent of the total milk supply.

## Production Supply, and Demand – Liquid Milk

Dairy, Milk, Fluid Market Year Begins New Zealand	2019		2020		2021	
	Jan 2019		Jan 2020		Jan 2021	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Cows In Milk (1000 HEAD)	4946	4946	4928	4876	0	4850
Cow's Milk Production (1000 MT)	21852	21896	21900	22185	0	22000
Other Milk Production (1000 MT)	0	0	0	0	0	0
Total Production (1000 MT)	21852	21896	21900	22185	0	22000
Other Imports (1000 MT)	4	4	3	5	0	5
Total Imports (1000 MT)	4	4	3	5	0	5
Total Supply (1000 MT)	21856	21900	21903	22190	0	22005
Other Exports (1000 MT)	268	269	240	245	0	255
Total Exports (1000 MT)	268	269	240	245	0	255
Fluid Use Dom. Consum. (1000 MT)	520	520	525	525	0	525
Factory Use Consum. (1000 MT)	21003	21002	21073	21310	0	21116
Feed Use Dom. Consum. (1000 MT)	65	109	65	110	0	109
Total Dom. Consumption (1000 MT)	21588	21631	21663	21945	0	21750
Total Distribution (1000 MT)	21856	21900	21903	22190	0	22005
(1000 HEAD) ,(1000 MT)						

Not official USDA estimates

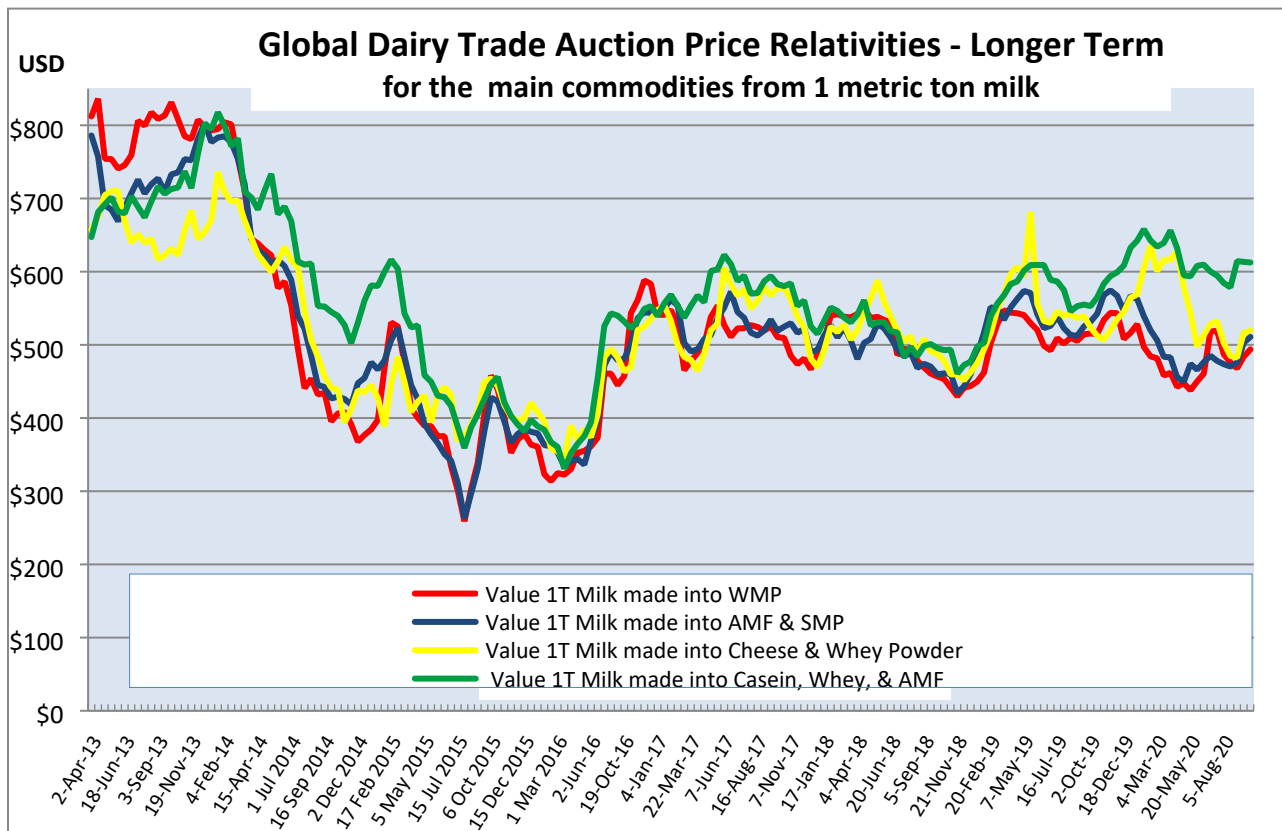
## Production and Trade Overview

Milk powder production remains the foundation for New Zealand dairy processing and will continue to be so for the foreseeable future. Export volumes and pricing for the powders have held up well during the COVID-19 pandemic and the global response. However, New Zealand dairy processors have and are continuing to diversify their product offerings. Foodservice products destined for Asia such as mozzarella, various fresh and cream cheese formulations, and UHT cream are becoming more and more important in the product mix and profitability of the processors. In addition, infant milk formula (IMF) is now an integral part of the product mix and at over a US\$1 billion of exports, a significant component (over nine percent) of total exports and revenue.

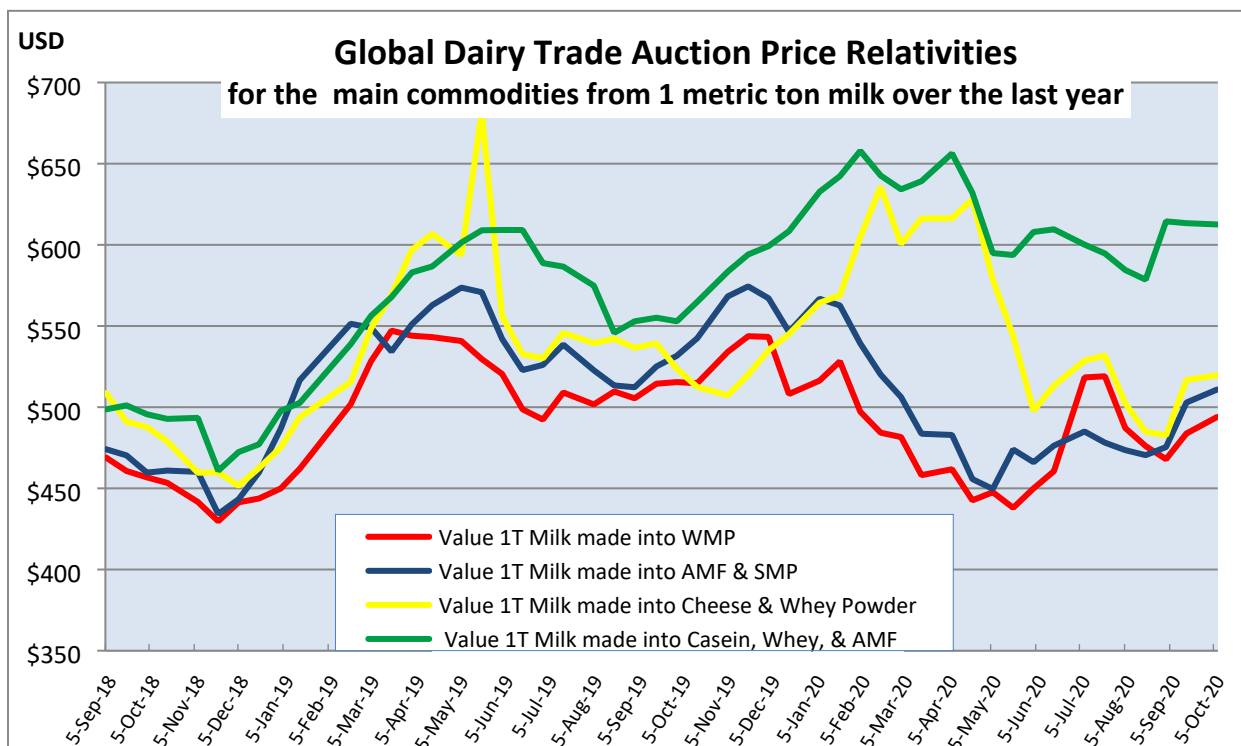
## Dairy Production at a Glance

New Zealand Summary Table for Estimated Dairy Product Production					
Commodity Group (1000s Metric Tons)	2019	2020		2021	
	Firm Estimate	Estimate	% change from prev. year	New Forecast	% change from prev. year
<b>WMP</b>	<b>1,490</b>	<b>1,500</b>	0.7%	<b>1,475</b>	-1.7%
<b>SMP</b>	<b>375</b>	<b>400</b>	6.7%	<b>385</b>	-3.8%
<b>Butter/AMF</b>	<b>525</b>	<b>525</b>	0.0%	<b>520</b>	-1.0%
<b>Cheese</b>	<b>365</b>	<b>350</b>	-4.1%	<b>360</b>	2.9%
<b>Sub-Total PSD Commodities</b>	<b>2,755</b>	<b>2,775</b>	0.7%	<b>2,740</b>	-1.3%
<b>Casein &amp; Caseinates</b>	<b>88</b>	<b>90</b>	2.3%	<b>88</b>	-2.2%
<b>Whey Products</b>	<b>32</b>	<b>33</b>	3.1%	<b>35</b>	6.1%
<b>Milk Protein Concentrates</b>	<b>78</b>	<b>77</b>	-1.3%	<b>75</b>	-2.6%
<b>Cream Products</b>	<b>126</b>	<b>128</b>	1.6%	<b>130</b>	1.6%
<b>Other Products</b>	<b>224</b>	<b>230</b>	2.7%	<b>232</b>	0.9%
<b>Infant Milk Formula</b>	<b>117</b>	<b>115</b>	-1.7%	<b>130</b>	13.0%
<b>Sub-Total Rest of Dairy</b>	<b>665</b>	<b>673</b>	1.2%	<b>690</b>	2.5%
<b>Total Production</b>	<b>3,420</b>	<b>3,448</b>	0.8%	<b>3,430</b>	-0.5%

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



Source: GDT, TDM LLB, Post estimates

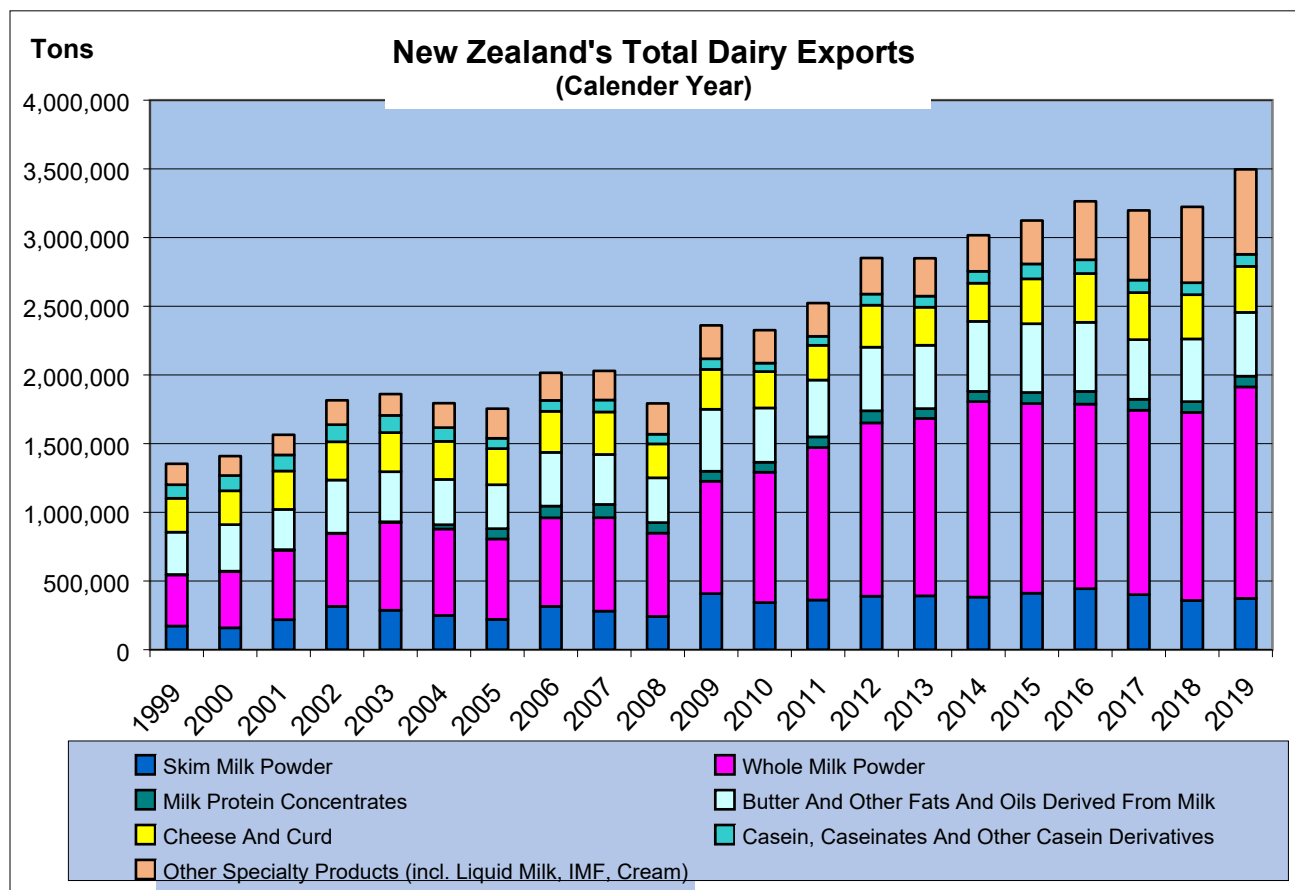


Source: GDT, TDM LLB, Post estimates

## Dairy Exports at a Glance

New Zealand Summary Table for Dairy Product Export Quantities					
Commodity Group (1000s Metric Tons)	2019	2020		2021	
	Actual	Estimated	% change from prev. year	New Forecast	% change from prev. year
<b>WMP</b>	<b>1,536</b>	<b>1,474</b>	-4.0%	<b>1,458</b>	-1.1%
<b>SMP</b>	<b>373</b>	<b>385</b>	3.2%	<b>394</b>	2.3%
<b>Butter/AMF</b>	<b>509</b>	<b>494</b>	-2.9%	<b>495</b>	0.2%
<b>Cheese</b>	<b>335</b>	<b>325</b>	-3.0%	<b>340</b>	4.6%
<b>Sub-Total PSD Exports</b>	<b>2,753</b>	<b>2,678</b>	-2.7%	<b>2,687</b>	0.3%
<b>Casein</b>	<b>88</b>	<b>90</b>	2.3%	<b>88</b>	-2.2%
<b>Whey Products</b>	<b>32</b>	<b>33</b>	3.1%	<b>35</b>	6.1%
<b>Milk Protein Concentrates</b>	<b>78</b>	<b>77</b>	-1.3%	<b>75</b>	-2.6%
<b>Cream Products-Food Service</b>	<b>126</b>	<b>128</b>	1.6%	<b>130</b>	1.6%
<b>Other Products</b>	<b>54</b>	<b>55</b>	1.9%	<b>56</b>	1.8%
<b>Infant Milk Formula</b>	<b>117</b>	<b>115</b>	-1.7%	<b>130</b>	13.0%
<b>Sub-Total Non PSD Exports</b>	<b>495</b>	<b>498</b>	0.6%	<b>514</b>	3.2%
<b>Total Exports</b>	<b>3,248</b>	<b>3,176</b>	-2.2%	<b>3,201</b>	0.8%

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



Source: TDM LLB

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		
	2015	2016	2017	2018	2019	2019	2020	%Δ 2020/19
China	1,900,092	2,108,384	3,312,051	3,451,463	4,096,292	2,154,585	2,431,865	12.9%
Australia	427,959	571,573	740,883	841,585	832,348	549,494	553,154	0.7%
United States	797,433	663,642	583,773	485,885	568,208	413,029	401,767	-2.7%
Japan	440,304	399,512	497,608	521,294	517,014	348,624	359,448	3.1%
Malaysia	403,756	310,469	452,835	422,381	424,818	292,748	286,635	-2.1%
Philippines	334,335	316,811	377,226	393,330	420,355	287,509	269,242	-6.4%
Indonesia	282,525	300,251	374,890	357,663	379,777	248,049	276,343	11.4%
UAE	438,488	287,003	474,237	403,179	359,559	246,223	243,911	-0.9%
Hong Kong	118,419	168,240	233,493	281,280	355,992	246,238	177,722	-27.8%
Thailand	280,683	242,971	311,810	321,797	331,159	233,495	245,792	5.3%
Rest of World	4,084,092	3,830,519	4,209,640	4,157,245	4,115,875	2,800,412	2,783,455	-0.6%
<b>World Total</b>	<b>9,508,086</b>	<b>9,199,375</b>	<b>11,568,446</b>	<b>11,637,102</b>	<b>12,401,397</b>	<b>7,820,406</b>	<b>8,029,334</b>	<b>2.7%</b>
World Total in NZD	13,518,621	13,233,571	16,317,392	16,775,172	18,788,621	11,673,434	12,707,232	8.9%

Source: TDM LLB

## **Product Specific Production and Trade**

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

#### **2021**

WMP remains New Zealand dairy processors go-to product and by far the largest product manufactured by volume (estimated at 43 percent of total). For 2021, it is forecast that 1.48 MMT of WMP will be made, which would be 1.7 percent less than 2020. The lower forecast is in response to the slightly lower milk supply forecast and the continuing emphasis on higher value products including IMF, mozzarella, fresh cheeses, and UHT cream.

Total processing capacity remains in excess of 1.5 MMT per annum. At present, any new drying capacity being built is low throughput and is specialized for the production of nutritional powders such as IMF.

Exports are forecast at 1.46 MMT for 2021, which would be 2.3 percent less than 2020 on account of the reduced production volume. Exports to China, however, are expected to remain strong.

South and Southeast Asia are milk deficit regions and now account for around 29 percent of New Zealand's annual WMP exports. This is likely to increase over the next few years as exports to the Middle East have continued to wane. For example, exports to Sri Lanka and Bangladesh have grown at a compound annual rate of ten percent and 18 percent per annum, respectively, over the last four years.

Around two-thirds of WMP is used for either direct recombining for the drinking milk sector, cultured and blended products, or the bakery trade. The balance remains as powder and is repacked into low volume sachets for consumer use.

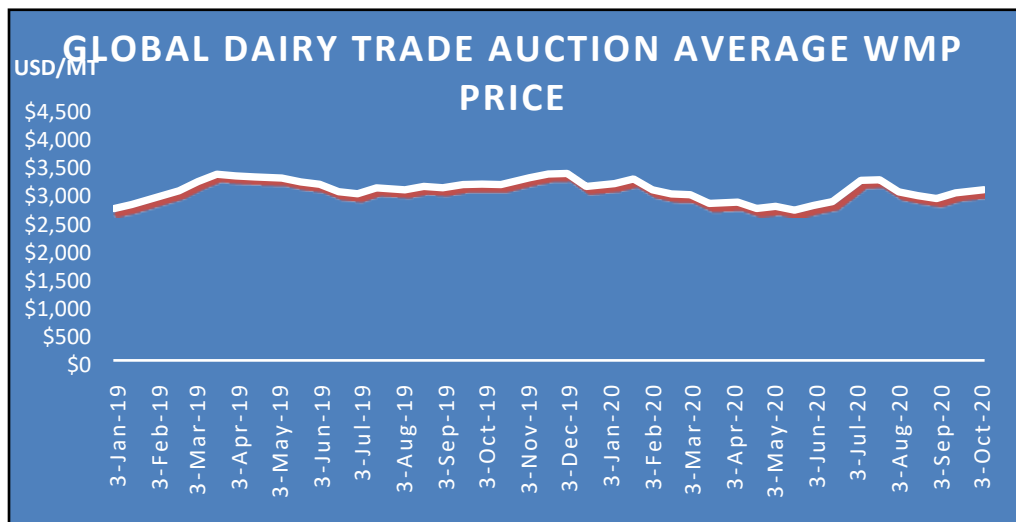
#### **2020**

For 2020, the revised total production is estimated at 1.5 MMT, 0.7 percent greater than 2019. Milk powders remains in demand despite COVID-19 including WMP. With WMP being the most cost-efficient product to manufacture, New Zealand processors are using the extra milk supply available in 2020 to make WMP.

There is no doubting the COVID-19 pandemic and the country by country response to it has disrupted trade, but despite this WMP prices and export volumes have been relatively stable. Industry commentators think that price risk is weighted to the upside and demand remains firm at least in the short term, three to six months.

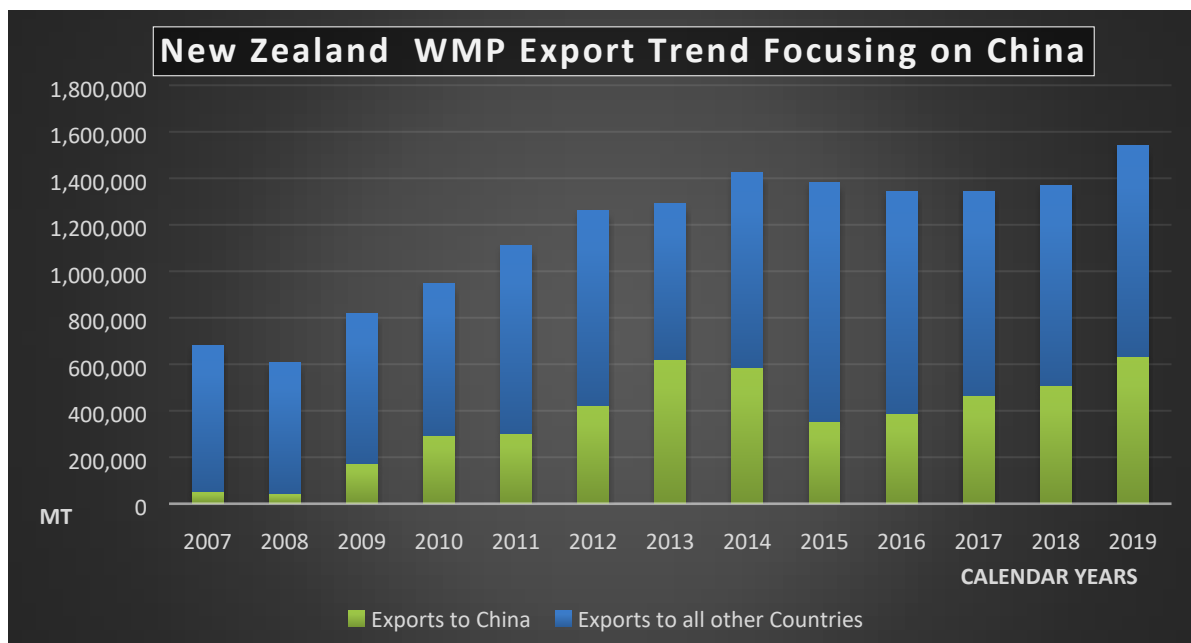
FAS/Wellington has revised its expectation for exports to 1.495 MMT, which would be 2.7 percent less than 2019. 2019 exports were boosted by an inventory reduction during the first half of the year. By

August 2020, the volume shipped was 1.25 percent behind 2019 and FAS/Wellington expects shipments to fall further behind 2019 over the last four months of the year.



Source: GDT

Interestingly, exports to China (which in 2019 topped the previous record of 623,000 MT set in 2013) for January to August 2020 are three percent ahead of the same period in 2019. Logistics into China from New Zealand seem to be just about back to pre-COVID-19 levels of service and demand reportedly is similar to pre-COVID-19 levels.



Source: TDM LLB



New Zealand Whole Milk Powder Export Destinations by Quantity (MT)								
Destination Country	Annual Total Quantity (MT) for Calendar Year					YTD Jan-Aug by Qty (MT)		
	2015	2016	2017	2018	2019	2019	2020	%Δ 2020/19
China	354,291	389,079	467,620	506,707	632,131	298,790	307,428	2.9%
Algeria	121,129	166,570	96,403	96,595	91,419	76,601	58,962	-23.0%
Sri Lanka	57,764	67,137	85,027	83,893	84,831	52,573	54,782	4.2%
UAE	125,488	96,769	108,503	91,979	84,624	55,370	64,580	16.6%
Bangladesh	39,039	42,876	59,599	66,506	76,153	57,253	45,455	-20.6%
Indonesia	32,242	36,392	35,768	42,856	52,526	36,113	29,100	-19.4%
Thailand	44,921	42,522	43,082	49,874	52,526	40,997	36,643	-10.6%
Malaysia	82,358	51,111	57,798	49,748	50,383	37,849	33,346	-11.9%
Vietnam	49,340	38,708	37,248	40,585	44,000	25,331	28,593	12.9%
Singapore	40,031	38,438	41,627	38,309	37,695	24,705	23,685	-4.1%
Australia	8,215	10,341	24,468	24,907	36,928	22,324	31,099	39.3%
Rest of World	425,596	363,714	284,964	277,082	292,493	209,178	211,718	1.2%
<b>Total for World</b>	<b>1,380,414</b>	<b>1,343,657</b>	<b>1,342,107</b>	<b>1,369,041</b>	<b>1,535,709</b>	<b>937,084</b>	<b>925,391</b>	<b>-1.25%</b>
<b>Av. FOB price US\$/T</b>	<b>\$2,551</b>	<b>\$2,361</b>	<b>\$3,143</b>	<b>\$3,096</b>	<b>\$3,081</b>	<b>\$2,981</b>	<b>\$3,201</b>	<b>7.4%</b>

Source: TDM LLB

Dairy, Dry Whole Milk Powder Market Year Begins New Zealand	2019		2020		2021	
	Jan 2019		Jan 2020		Jan 2021	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	212	212	160	150	0	139
Production (1000 MT)	1500	1490	1515	1500	0	1475
Other Imports (1000 MT)	4	4	4	2	0	3
Total Imports (1000 MT)	4	4	4	2	0	3
Total Supply (1000 MT)	1716	1706	1679	1652	0	1617
Other Exports (1000 MT)	1536	1536	1480	1495	0	1460
Total Exports (1000 MT)	1536	1536	1480	1495	0	1460
Human Dom. Cons (1000 MT)	2	2	2	2	0	2
Other Use, Losses (1000 MT)	18	18	18	16	0	18
Total Dom. Consumption (1000 MT)	20	20	20	18	0	20
Total Use (1000 MT)	1556	1556	1500	1513	0	1478
Ending Stocks (1000 MT)	160	150	179	139	0	137
Total Distribution (1000 MT)	1716	1706	1679	1652	0	1617

(1000 MT)

Not official USDA PSD estimates

## Production, Supply, and Demand – Cheese

### 2021

FAS/Wellington is forecasting total production of cheese in 2021 at 360,000 MT, nearly three percent up on 2020. The food service trade for fresh cheeses such as mozzarella and cream cheese into Asia has recovered, especially into China. This will mean production in New Zealand will likely revert to longer-term trends. Fresh cheese production is expected to continue its trend of increasing production, offsetting gradually declining hard natural cheese production.

Cheese exports are set for an increase in 2021, with a forecast to rise 4.6 percent over 2020 to reach 340,000 MT, as production increases in response to recovering food service demand. New Zealand exporters are working with food service companies and chefs in China to develop new products which use cheese. For example, hotpot dishes are very popular in parts of China and recognizing this, New Zealand food technologists are working on hotpot recipes and products which incorporate cheese.

New Zealand Cheese Export Destinations by Quantity (MT)								
Destination Country	Annual Total Quantity (MT) for Calendar Year					Year-To-Date January-August (MT)		
	2015	2016	2017	2018	2019	2019	2020	%Δ 2020/19
China	39,550	51,668	56,409	54,572	71,702	41,695	42,542	2.0%
Japan	55,045	61,345	63,552	64,630	66,087	46,765	43,667	-6.6%
Australia	51,294	61,959	61,618	47,983	47,805	32,491	28,412	-12.6%
South Korea	14,929	19,730	18,957	19,402	22,871	16,535	21,207	28.3%
Saudi Arabia	12,122	11,190	12,754	12,189	14,741	8,998	7,701	-14.4%
Philippines	15,654	15,805	13,807	13,410	13,834	9,377	9,428	0.5%
Indonesia	14,122	15,935	17,738	15,572	13,368	9,544	8,623	-9.7%
Taiwan	8,883	9,208	9,551	7,950	8,719	5,581	6,468	15.9%
Malaysia	9,044	8,607	12,389	8,745	7,949	5,313	6,299	18.6%
Trinidad and Tobago	5,990	5,998	6,136	6,573	7,105	4,468	3,936	-11.9%
Rest of World	100,137	93,660	69,799	70,872	60,717	43,040	32,868	-23.6%
<b>World Total</b>	<b>326,770</b>	<b>355,105</b>	<b>342,710</b>	<b>321,898</b>	<b>334,898</b>	<b>223,807</b>	<b>211,151</b>	<b>-5.7%</b>
<b>Av. FOB price US\$/T</b>	<b>\$3,563</b>	<b>\$3,381</b>	<b>\$4,027</b>	<b>\$4,090</b>	<b>\$3,961</b>	<b>\$3,900</b>	<b>\$4,073</b>	<b>4.4%</b>

Source: TDM LLB

### 2020

The production forecast for cheese in 2020 has been revised to 350,000 MT, four percent lower than 2019. Approximately 50 percent of cheese produced still consists of hard natural cheese such as cheddar (accounting for 150,000 to 200,000 MT) which may be sold as natural cheese blocks, grated or sliced, or further processed. Mozzarella production capacity by Fonterra's proprietary C21 process is

now around 60,000 MT. Together with conventional methods, total mozzarella production is around 110,000 MT. Cream cheese manufacturing capacity is now 35,000 MT and scheduled for further expansion to reach 50,000 MT. Natural hard cheese is primarily only produced during the peak milk supply months (October to December) when all other processing is at full capacity. New Zealand cheese production is significantly exposed to the food service trade and the disruptions caused by the COVID-19 pandemic to food service is likely to have affected orders for New Zealand products and impacted on production.

Exports are now forecast at 325,000 MT, three percent less than 2019. Exports for the period January to August 2020 are running at six percent less than the same period in 2019. Reportedly, the food service trade has recovered well in China where a significant proportion of the fresh cheese formulated for food service is destined. In addition, the Global Dairy Trade (GDT) auction prices for cheddar are still relatively high compared with milk powders, however tariff/quota limitations in the Northern Hemisphere restrict New Zealand cheddar exports to mainly China, Japan, and Australia.

Dairy, Cheese Market Year Begins New Zealand	2019		2020		2021	
	Jan 2019		Jan 2020		Jan 2021	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	68	68	73	73	0	73
Production (1000 MT)	365	365	360	350	0	360
Other Imports (1000 MT)	13	13	12	13	0	13
Total Imports (1000 MT)	13	13	12	13	0	13
Total Supply (1000 MT)	446	446	445	436	0	446
Other Exports (1000 MT)	335	335	340	325	0	340
Total Exports (1000 MT)	335	335	340	325	0	340
Human Dom. Consumption (1000 MT)	38	38	38	38	0	38
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT)	38	38	38	38	0	38
Total Use (1000 MT)	373	373	378	363	0	378
Ending Stocks (1000 MT)	73	73	67	73	0	68
Total Distribution (1000 MT)	446	446	445	436	0	446
(1000 MT)						

Not official USDA PSD estimates

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

### 2021

FAS/Wellington is forecasting SMP production in 2021 to fall by 3.8 percent from 2020 to 385,000 MT. This is in response to a slightly reduced milk supply and reduced pricing relative to the other products that could be produced.

Exports are forecast to reach 390,000 MT, very similar to 2020. Shipping is expected to be strong to begin the year as a result of the fulfilling of high priced contracts concluded in late 2020. However, as

Northern hemisphere production becomes increasingly available during the year the pace of shipping is likely to slow down.

China and Southeast Asia dominate the destinations for SMP. In these countries SMP is used as a protein fortification in many food manufacturing processes. It is also used in recombined sweetened condensed milk, cultured milk drinks, UHT milk, in-market fat filled powders, ice-creams, and for repacking in low fat, often calcium enriched, or flavoured consumer powders.

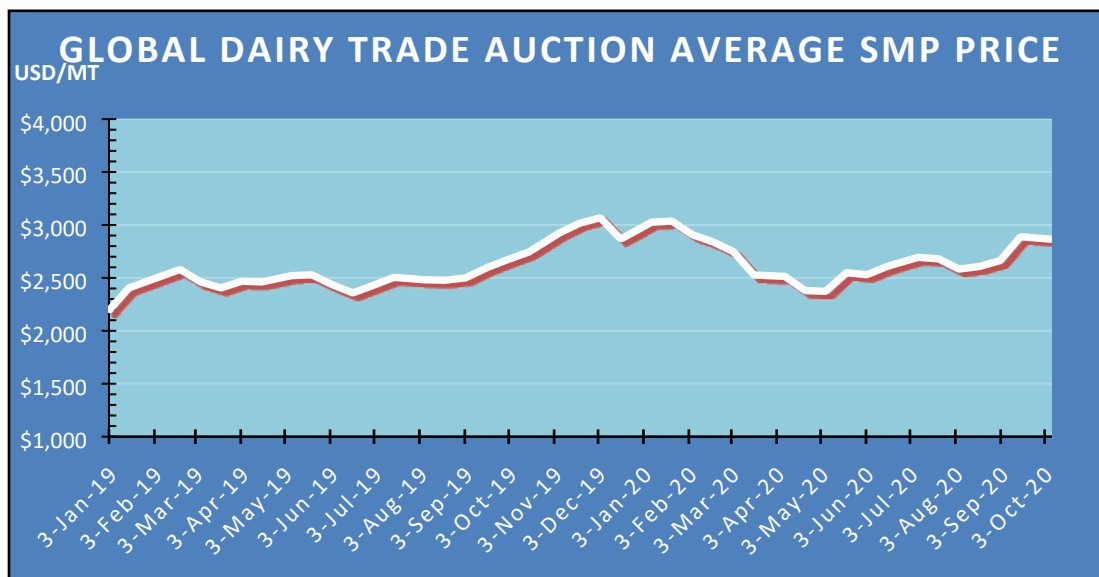
New Zealand Skim Milk Powder Export Destinations								
Destination Country	Annual Total Quantity (MT) for Calendar Year					Year-to-Date January-August Qty (MT)		
	2015	2016	2017	2018	2019	2019	2020	%Δ 2020/19
China	122,926	107,627	129,535	126,229	131,410	70,888	62,053	-12.5%
Malaysia	31,272	39,439	34,168	31,727	29,547	20,381	16,745	-17.8%
Philippines	32,668	41,247	26,208	25,590	28,516	21,101	19,760	-6.4%
Thailand	25,838	27,078	23,952	23,525	24,009	16,728	15,893	-5.0%
Singapore	35,266	24,038	23,975	19,405	22,256	15,431	13,403	-13.1%
Taiwan	20,655	18,476	18,658	17,612	20,755	14,619	12,595	-13.8%
Indonesia	24,021	32,470	19,815	20,600	19,977	13,255	22,582	70.4%
Vietnam	18,483	19,373	22,582	12,520	14,864	12,722	11,260	-11.5%
UAE	7,622	10,574	6,654	5,294	9,503	6,918	4,798	-30.6%
Australia	3,828	3,115	4,426	6,415	8,355	5,220	4,609	-11.7%
Rest of World	88,735	120,620	91,029	69,295	63,717	44,149	44,033	-0.3%
<b>World Total</b>	<b>411,314</b>	<b>444,057</b>	<b>401,002</b>	<b>358,212</b>	<b>372,909</b>	<b>241,412</b>	<b>227,731</b>	<b>-5.7%</b>
<b>Av. FOB price US\$/MT</b>	<b>\$2,337</b>	<b>\$1,967</b>	<b>\$2,234</b>	<b>\$2,020</b>	<b>\$2,427</b>	<b>\$2,292</b>	<b>\$2,896</b>	<b>26.3%</b>

Source: TDM LLB

## 2020

Production of SMP in 2020 has been revised up to 400,000 MT, 6.7 percent greater than the 2019 estimate. The main reasoning for an upward revision is the combination of stronger pricing for SMP and the increased milk supply available. At the same time, with food service products and IMF demand disrupted at least temporarily by the COVID-19 pandemic their trend of increased production year on year has been somewhat impeded. The extra milk supply available is likely to be processed into powder products and some AMF/Butter. Based on current GDT Auction prices, the SMP/fat production stream will be a slightly more valuable use for the extra milk for the last quarter 2020.

Exports for 2020 are now expected to surpass 2019 by three percent to reach 385,000 MT. Even though exports to August 2020 were nearly six percent behind 2019, it is expected the improved pricing and relatively lower amounts of EU products in the markets (now the intervention stocks have been reduced) will stimulate a much quicker pace of shipping in coming months.



Dairy, Milk, Nonfat Dry Market Year Begins New Zealand	2019		2020		2021	
	Jan 2019		Jan 2020		Jan 2021	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	117	117	116	116	0	125
Production (1000 MT)	375	375	385	400	0	385
Other Imports (1000 MT)	4	4	5	5	0	4
Total Imports (1000 MT)	4	4	5	5	0	4
Total Supply (1000 MT)	496	496	506	521	0	514
Other Exports (1000 MT)	373	373	425	385	0	390
Total Exports (1000 MT)	373	373	425	385	0	390
Human Dom. Cons (1000 MT)	7	7	6	11	0	10
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Cons (1000 MT)	7	7	6	11	0	10
Total Use (1000 MT)	380	380	431	396	0	399
Ending Stocks (1000 MT)	116	116	75	125	0	114
Total Distribution (1000 MT)	496	496	506	521	0	514
(1000 MT)						

Not official USDA PSD estimates

(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.)

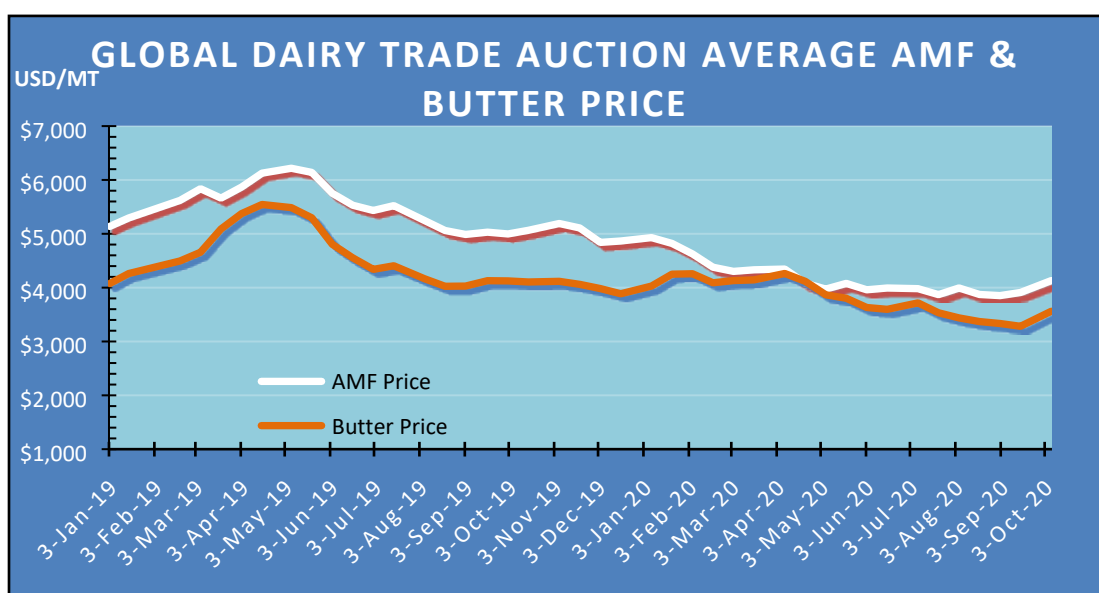
## Production, Supply, and Demand – Butter and Anhydrous Milk Fat (AMF)

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

## 2021

It is expected that butter and AMF production will continue the trend of relatively stable production. Production in 2021 is forecast at 520,000 MT, just 5,000 MT (or under one percent) less than 2020. This is primarily a result of the forecast reduction to the milk supply, as well as that cream production is expected to rise due to its greater profitability. In the long term, UHT cream production is on a growth trajectory and will limit butter and AMF production given that overall milk supply growth is expected to be slow.

Total exports for 2021 are forecast at a similar level to 2020 at 495,000 MT (butter equivalents). World butter and AMF prices have come off the peaks reached during 2018 and 2019 as Northern hemisphere processors have geared up butter and AMF production and exports. Diversification into innovative consumer products in Asia is a strategy being followed to enhance value returned to New Zealand. For example, New Zealand exporters are working in China to develop and promote new consumer offerings such as butter that can be added to hot beverages like coffee or tea.



Source: GDT

## 2020

The production estimate for 2020 for total AMF and butter has been revised to 525,000 MT, the same as the 2019 estimate. This was because of the extra milk supply available along with the slower growth in UHT cream production, due to the period of COVID-19-disrupted food service.

Exports in butter equivalents are now forecast at 494,000 MT, three percent less than 2019. Even though January-August 2020 exports are running 7.4 percent behind the same period in 2019, the current value strength of the SMP/fat production stream relative to WMP is likely to have the processors emphasizing butter/AMF production during the August to December period of 2020.

Despite food service trade to the United States, Mexico, and Vietnam being materially affected by COVID-19 shut-downs, overall AMF exports are three percent above 2019 for the January-August period in 2020. Butter exports (down nearly 18 percent for January-August 2020) have been hit by the dual effects of COVID-19 shut-downs and the 58 percent increase in butter exports out of the EU. However, butter exports to China bucked the trend at nearly 16 percent up from January to August.

<b>New Zealand Butter &amp; AMF Export Destinations by Quantity (MT Butter Equivalents)</b>								
<b>Destination Country</b>	<b>Annual Total Quantity (MT Butter Eq.) for Calendar Year</b>					<b>Year-to-Date January-August Qty (MT But.Eq.)</b>		
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2019</b>	<b>2020</b>	<b>%Δ 2020/19</b>
China	71,886	72,056	87,849	104,584	89,671	44,641	54,824	22.8%
Philippines	30,334	31,589	33,031	33,529	36,314	24,724	22,978	-7.1%
Australia	20,370	29,443	30,017	36,940	36,050	22,487	22,532	0.2%
United States	20,122	12,111	7,287	14,324	32,668	29,007	20,479	-29.4%
Mexico	36,271	59,482	25,757	23,191	26,214	18,876	16,112	-14.6%
Russia	8,766	22,971	15,018	8,926	26,171	10,260	15,301	49.1%
Saudi Arabia	23,760	26,837	23,058	22,766	22,568	14,385	19,019	32.2%
Vietnam	16,570	14,803	18,039	16,515	20,587	14,660	12,465	-15.0%
Egypt	42,853	40,050	16,254	19,642	19,095	11,004	14,741	34.0%
Malaysia	16,079	16,509	16,581	16,352	17,500	12,001	11,481	-4.3%
Rest of World	264,862	228,586	203,026	204,118	182,005	133,208	100,598	-24.5%
<b>World Total</b>	<b>551,873</b>	<b>554,437</b>	<b>475,917</b>	<b>500,887</b>	<b>508,843</b>	<b>335,253</b>	<b>310,530</b>	<b>-7.4%</b>
<b>Av. FOB price US\$/T BEQ</b>	<b>\$2,953</b>	<b>\$3,078</b>	<b>\$4,953</b>	<b>\$5,175</b>	<b>\$4,510</b>	<b>\$4,508</b>	<b>\$4,122</b>	<b>-8.6%</b>

Source: TDM LLB

<b>Dairy, Butter Market Year Begins New Zealand</b>	<b>2019</b>		<b>2020</b>		<b>2021</b>	
	<b>Jan 2019</b>		<b>Jan 2020</b>		<b>Jan 2021</b>	
	<b>USDA Official</b>	<b>New Post</b>	<b>USDA Official</b>	<b>New Post</b>	<b>USDA Official</b>	<b>New Post</b>
<b>Beginning Stocks (1000 MT)</b>	105	105	93	93	0	95

Production (1000 MT)	525	525	530	525	0	520
Other Imports (1000 MT)	1	1	1	1	0	1
Total Imports (1000 MT)	1	1	1	1	0	1
Total Supply (1000 MT)	631	631	624	619	0	616
Other Exports (1000 MT)	509	509	510	494	0	495
Total Exports (1000 MT)	509	509	510	494	0	495
Domestic Consumption (1000 MT)	29	29	29	30	0	30
Total Use (1000 MT)	538	538	539	524	0	525
Ending Stocks (1000 MT)	93	93	85	95	0	91
Total Distribution (1000 MT)	631	631	624	619	0	616
(1000 MT)						

Not official USDA PSD estimates

## Other Products

### Infant Milk Formula (IMF)

New Zealand Export Statistics for Infant Milk Formula Products											
Destination Country	Calendar Year: 2017 - 2019						Year-to-Date January-August				
	2017		2018		2019		2019		2020		Qty %Δ 2020/19
	USD (1000's)	Qty (MT)	USD (1000's)	Qty (MT)	USD (1000's)	Qty (MT)	USD (1000's)	Qty (MT)	USD (1000's)	Qty (MT)	Qty (MT)
China	301,568	27,043	325,194	27,182	482,069	39,356	329,545	27,618	409,827	31,818	15.2%
Australia	212,235	25,005	303,313	40,023	288,571	44,054	201,120	30,941	191,402	27,994	-9.5%
Hong Kong	137,940	10,905	198,407	19,160	270,887	23,335	186,000	17,444	130,946	7,326	-58.0%
Thailand	11,596	979	16,422	2,322	17,017	4,165	12,475	2,982	14,320	3,193	7.1%
South Korea	16,696	1,117	18,390	1,265	12,268	780	9,046	566	10,296	634	12.0%
Taiwan	19,266	2,163	17,066	1,824	17,696	1,690	11,626	1,117	8,990	910	-18.5%
Malaysia	14,101	1,448	15,692	2,006	16,753	1,536	10,287	887	7,458	658	-25.8%
Russia	8,084	682	7,774	644	9,137	766	5,868	494	4,591	366	-25.9%
UK	2,388	266	3,944	425	3,743	391	3,094	321	3,724	361	12.5%
Indonesia	0	0	780	218	3,472	1,122	2,702	870	3,017	985	13.2%
Rest of the World	32,533	6,799	21,248	3,235	23,314	3,652	15,540	2,696	17,472	1,887	-30.0%
<b>World Total</b>	<b>756,408</b>	<b>76,407</b>	<b>928,229</b>	<b>98,304</b>	<b>1,144,927</b>	<b>120,847</b>	<b>787,302</b>	<b>85,936</b>	<b>802,042</b>	<b>76,132</b>	<b>-11.4%</b>

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

IMF exports have been a 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, exports have slowed and from January-August are 11 percent behind last year. FAS/Wellington expects as Asian countries recover from COVID-19 disruptions the pace of shipping will pick up and exports will reach 115,000 MT, around four percent less than 2019. Looking forward to 2021 exports should resume their upward trend to exceed 130,000 MT.

A feature of exports over the last four years has been the substantial growth of shipments to Australia. Some of the IMF product shipped is further processed in Australia to a final formulation and packaging. Some is re-exported from Australia through informal channels (daigou pathway).

There are now eight processors involved in manufacturing IMF and exporting. Only manufacturers with complete supply chain control and ingredient traceability can be approved for IMF manufacture and export into China.

## Other Protein Products

Casein, Whey, and Milk Protein Concentrates (MPC) are not likely to experience large production increases but will fluctuate fairly closely around the production and export levels observed over the last four to five years.

The GDT charts (page 14) which show relative values of milk used in the various products indicate casein and fat production had a high value during 2020. However, the volumes that can be exported at good prices is limited with the main markets being: United States, China, Mexico, Japan, Germany, and Indonesia. For January-August 2020, total casein exports are at the same level as 2019. Exports are expected to hover around 88,000 to 90,000 MT.

MPC is being exported at a similar volume to 2019 for January to August 2020. The United States is the primary destination for New Zealand MPC exports and the outlook is limited given increasing domestic supply in the United States. Exports are forecast to remain around 77,000 to 78,000 MT in 2020 then perhaps drifting downwards in 2021 to 75,000 MT.

Whey product exports are likely to remain in a tight band between 32,000 to 35,000 MT over the 2020 to 2021 period. Most of the whey in New Zealand is further processed to Whey Protein Concentrate or Whey Protein Isolate in order to add value and differentiate it from standard whey powder produced in big quantities as the by-product of cheese making in the Northern hemisphere.

## **Imports**

New Zealand imported a total of US\$411 million worth of dairy products in 2019, up 29 percent on the total for 2018. The leading import was lactose used in the manufacture of WMP. The volume imported reached 117,976 MT of lactose, up 37 percent from 2018. For 2020 lactose will again be the main import, and is up 2.2 percent for January-August 2020, compared to the same period in 2019.

## New Zealand Import Statistics For All Dairy Products

Description	Unit	Annual Total by Qty for Calendar Years				Year-to-Date Jan-Aug Qty		
		2016	2017	2018	2019	2019	2020	%Δ 20/19
Milk And Cream, Nt Concnd, Nt Sweetd, Nov 1% Fat	T	271	205	200	259	174	211	21.3%
Milk/Cream Nt Cnctrd/Swt, Fat Content Ov 1% Nov-6%	L	769,161	1,350,124	1,817,541	2,910,768	2,005,270	2,463,557	22.9%
Milk/Cream Nt Cnctrd/Swt, Fat Content Ov 1% Nov-6%	T	1	16	1	47	47	0	-100.0%
Milk & Cream Fat Cont Gt 10%, Not Concent Or Sweet	L	0	0	0	170	614	765	24.6%
Milk & Cream Fat Cont Gt 10%, Not Concent Or Sweet	T	935	1,114	1,205	1,179			
Mlk & Crm,Cntd,Swt,Powdr,Gran/Solids,Nov 1.5% Fat - SMP	T	2,730	1,992	2,704	3,990	1,956	3,431	75.4%
Mlk/Cream Cnctrd Nt Swtn Pwd/Oth Solids Ov 1.5% Fat - WMP	T	3,799	1,690	1,551	3,621	2,381	899	-62.2%
Mlk & Crm,Cntd,Swtnd,Powdr/Solids, Over 1.5% Fat - WMP	T	199	35	201	38	12	226	1783.3%
Total WMP		3,998	1,725	1,752	3,659	2,393	1,125	-53.0%
Milk And Cream, Concentrated, Not Sweetened, Nesoi	T	92	108	150	184	151	112	-25.8%
Milk And Cream, Sweetened, Concen Or Not Nesoi	L	2,756	14,314	114,743	138,371	75,296	79,748	5.9%
Milk And Cream, Sweetened, Concen Or Not Nesoi	T	3,329	3,723	3,175	3,741	2,236	2,645	18.3%
Yogurt, W/N Sweetened, Flavored Or Cntg Fruit/Coco	T	427	252	209	84	37	49	32.4%
Buttermilk/Kephir/Curdled Fermntd Acidfd Mlk & Crm	T	107	310	481	533	367	398	8.4%
Whey & Modfd Whey Whet/Nt Cnctrted Cntg Add Sweetn	T	16,449	23,489	31,219	20,861	15,488	13,101	-15.4%
Products Of Natural Milk Constituents, Nesoi - MPC	T	3,468	3,037	4,614	5,844	4,275	417	-90.2%
Butter	T	1,877	578	311	713	566	317	-44.0%
Dairy Spreads	T	16	2	4	24	3	12	300.0%
Fats And Oils Derived From Milk, N.E.S.O.I. - AMF	T	301	228	406	241	200	162	-19.0%
Total Fat in Butter equivalents		2,269	865	823	1,038	819	532	-35.1%
Cheese, (Unripened Or Uncured) Fresh (Including Whey Cheese), And Curd	T	2,410	2,250	1,819	1,759	962	1,272	32.2%
Cheese Of All Kinds, Grated Or Powdered	T	504	514	432	434	339	1,495	341.0%
Cheese, Processed, Not Grated Or Powdered	T	1,314	1,354	1,389	1,111	838	780	-6.9%
Cheese, Blue-Veined, Nesoi	T	221	222	201	230	130	168	29.2%
Cheese, Nesoi, Including Cheddar And Colby, incl Mozzarella	T	6,016	7,088	7,842	9,202	6,140	2,980	-51.5%
Total Cheese		10,465	11,428	11,683	12,736	8,409	6,695	-20.4%
Lactose & Lactose Syrup Cont 99% More Lactse By Wt	T	74,692	90,470	85,916	117,976	82,239	84,073	2.2%
Lactose In Solid Form And Lactose Syrup, Nesoi	T	1,881	98	1,352	410	409	3	-99.3%
Ice Cream And Other Edible Ice, With Cocoa Or Not	L	693	9,078	369,861	189,907	51,466	200,449	289.5%
Ice Cream And Other Edible Ice, With Cocoa Or Not	T	4,301	4,976	7,817	7,189	4,039	4,208	4.2%
Caseinates And Other Casein Derivatives; Casein Glues	T	38	10	21	37	36	6	-83.3%
Milk Albumin,Inc Concen Of 2 Or More Whey Proteins	T	1,407	166	2,530	1,948	1,279	1,277	-0.2%
Albumins, Albuminates And Other Albumin, Nesoi	T	7	35	18	29	19	1	-94.7%
Peptones And Derivatives; Other Proteins And Derivatives, Nesoi; Hide Powder, Chromed Or Not	T	667	930	834	924	656	790	20.4%
Rennet And Concentrates Thereof	T	11	27	14	9	1	5	400.0%
Enzymes And Prepared Enzymes, Nesoi	T	436	407	451	432	257	327	27.2%
IMF	T	1,000	1,099	1,193	1,351	924	1,002	8.4%

Source: TDM LLB

**Attachments:**

No Attachments