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Report Highlights:

FAS/Wellington's New Zealand milk production forecast is raised for 2023 to 21.5 million metric tons (MMT) as a result of favorable pasture growing conditions entering the year and strong milk production during the first four months of 2023. If realized, this 2023 production would be up two percent from 2022. In the summer months of January and February 2023, key dairy growing regions experienced consistent amounts of rainfall, stimulating pasture growth. Despite this increase in milk production, the national dairy herd is continuing to shrink since peak numbers in 2015. China continues to be the largest consumer of New Zealand whole milk powder (WMP), on average accounting for 40 percent. However, processing during the last 12 months has seen a decrease in WMP production towards other commodity and specialty products such as cheese, butter, protein concentrates, infant formula, anhydrous milk fat, and skim milk powder.

Executive Summary:

FAS/Wellington's New Zealand milk production forecast is raised for 2023 to 21.5 million metric tons (MMT) as a result of favorable pasture growing conditions entering the year and strong milk production during the first four months of 2023. If realized, this 2023 production would be up two percent from 2022. In the summer months of January and February 2023, key dairy growing regions experienced consistent amounts of rainfall, stimulating pasture growth. Despite this increase in milk production, the national dairy herd is continuing to shrink since peak numbers were reached in 2015. However, due to consolidation the average farm herd size increased from 444 cows per farm to 449.

Domestic consumption of fresh and processed dairy products in New Zealand continues to represent a small portion of the milk produced, accounting for less than five percent. The country's processors remain heavily focused on global exports to new and existing markets. China continues to be the largest consumer of New Zealand whole milk powder (WMP), on average accounting for 40 percent. However, processing during the last 12 months has seen a decrease in WMP production towards other commodity and specialty products such as cheese, butter, protein concentrates (WPC, WPI, MPC), infant formula (IMF), anhydrous milk fat (AMF) and skim milk powder (SMP). This change in the composition of global exports is continuing in 2023, and as a result FAS/Wellington has revised its forecasts for 2023.

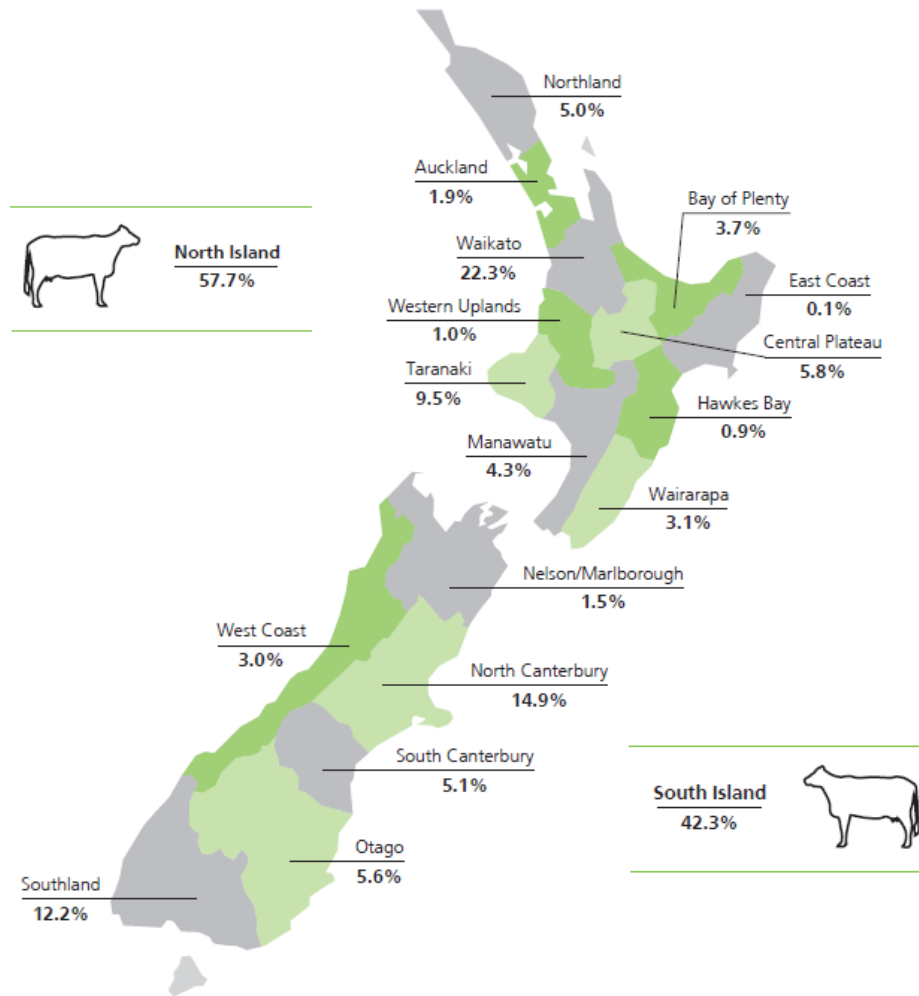
Note: The GAIN Marketing Year (MY) is the same as the calendar year (CY), January 1 to December 31. For the purpose of this report always refer to MY unless otherwise stated. For foreign exchange rate between New Zealand Dollar and United States Dollar, the rate used in this report is NZ\$ 1.00 = US\$ 0.63.

Background

Around 95 percent of all dairy milk produced in New Zealand is exported as milk or dairy products, with export revenues of NZ\$22.6 billion in 2022 (US\$14.2 billion). Dairy accounts for 35 percent of New Zealand's total merchandise exports and around 5.9 percent of gross domestic product (GDP). The industry employs approximately 49,000 people. The majority of New Zealand dairy is reliant on pasture-fed diets, although most herds do utilize purchased/imported feeds and other forage crops. The majority of supplemental feeding is done either through in-shed feeding systems or on feed pads for the purpose of improving milk yields or animal conditions. Due to the seasonality of New Zealand's pasture growth, the majority of calving takes place between late July to September. As a result, milk production is highly seasonal, with almost 40 percent of the milk produced in the fourth quarter of each year.

Figure 1 displays the regional distribution of the national dairy herd, which is situated largely on the easier topography country and higher valued agricultural land, such as Waikato, Taranaki, Canterbury and Southland

Figure 1: Regional Distribution of Dairy Cows 2021/2022

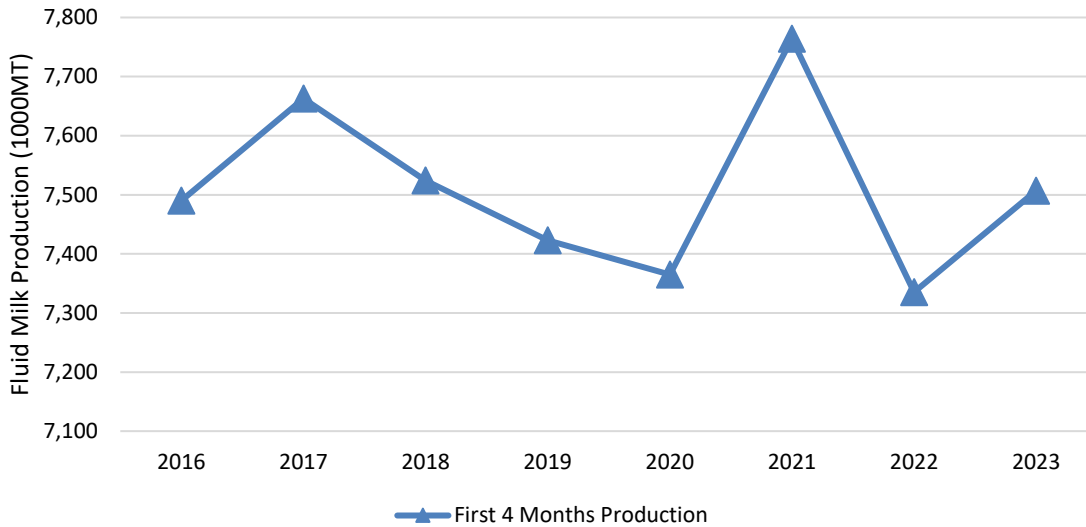


Source: New Zealand Dairy Statistics 2021-22, LIC and Dairy NZ

**Liquid Milk production
2023**

The FAS/Wellington forecast for 2023 fluid milk production is raised to 21.5 million metric tons (MMT) as a result of a favorable start to summer for dairy operations and milk production, as well as a still strong milk price. If realized, this fluid milk volume would be an almost two percent increased on the final 2022 production number of 21.16 MMT. For the first four months of 2023, Dairy Companies Association of New Zealand (DCANZ) are reporting that fluid milk production is currently up on the same time last year (Figure 2) by two percent. In fact, according to DCANZ data, April 2023 milk production was the highest ever recorded for this month at 1.526 MMT.

Figure 2: New Zealand Milk Production (Jan-Apr)



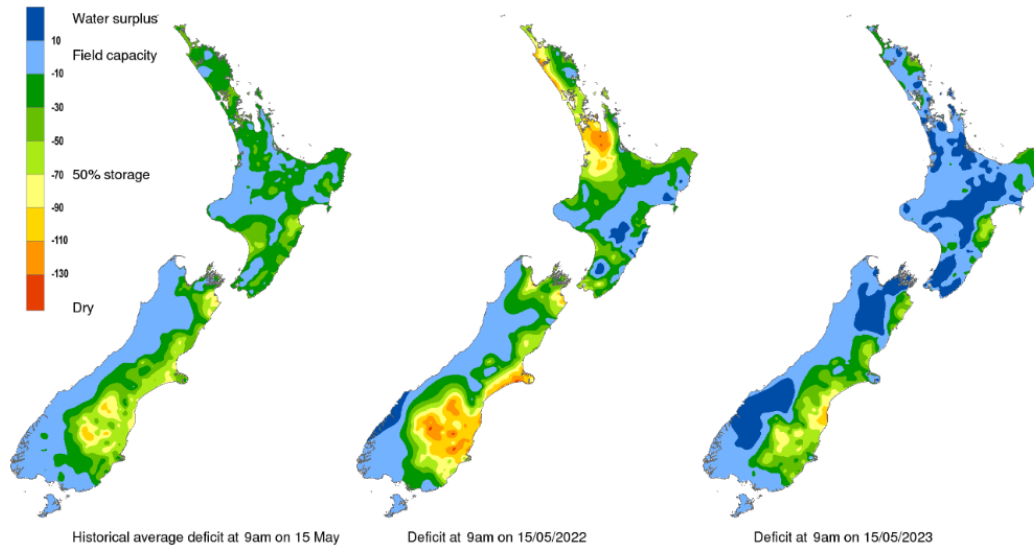
Source: Dairy Companies Association of New Zealand (DCANZ)

Key factors impacting this expansion include:

Favorable Pasture Growing Summer in Key Dairy Regions

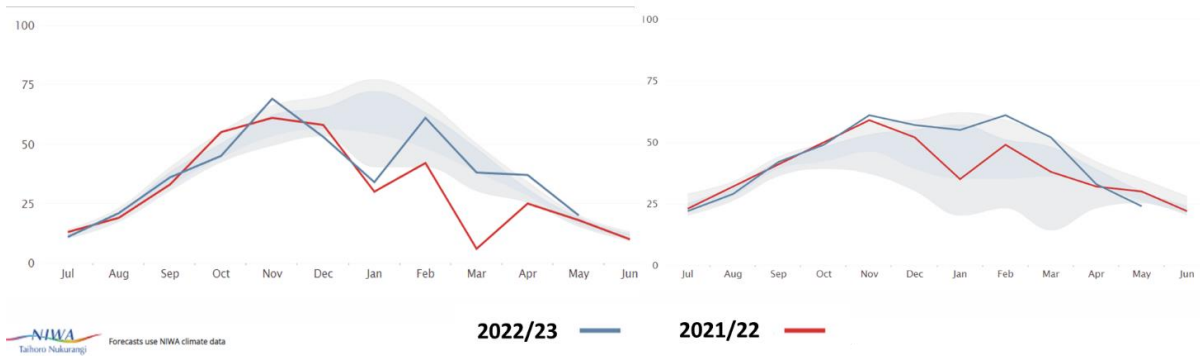
New Zealand dairy farms rely heavily on pasture growth to drive milk production and build winter feed, especially over the summer period (December to January). An exceptionally wet start to 2023 has already benefited key dairy regions, in particular the North Island which contains over 57 percent of the national herd (Figure 3). The wetter conditions have been greatly beneficial for summer pasture growth, which in the year prior was impacted by a prolonged dry period in the first four months (Figure 4). As a result, a two percent increase in milk production has been collected in the first four months compared to 2022. Typically, the first four months of the year account for 35 percent of annual production, and pasture growth and production in the spring period (last quarter of 2023) will be the key determining factor to overall 2023 production.

Figure 3: Soil Moisture as of May 15, 2023



Source: National Institute of Water and Atmospheric Research (NIWA)

Figure 4: Daily Pasture Growth Forecast for Monitor Farms – kilograms of dry matter per hectare per day (kg DM/ha/d)

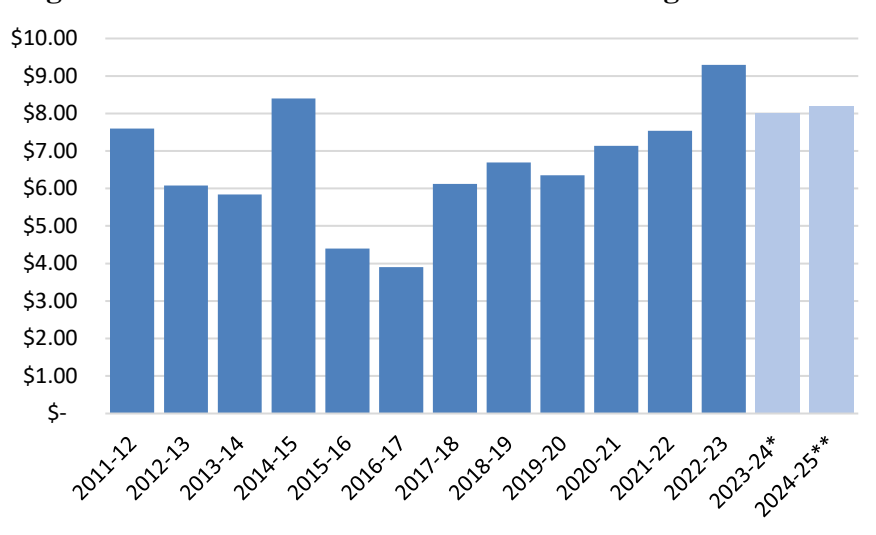


Source: NIWA Monitor Farms (Left: Southland, Right: Northland)

Farm Gate Milk Price (FGMP) Down but Still Strong

High FGMP for many operations encourage the increased use of imported to farm supplement feeding. Last season, with record FGMP, the country imported the most feed ever, primarily destined for the dairy sector ([USDA Feed and Grain Report](#)). The largest New Zealand processor dropped its FGMP forecast at the end of May 2023 to a range of NZ\$7.25 to NZ\$8.75 (US\$4.57 to US\$5.51) per milk solid (MS) for the upcoming year, with a NZ\$8.00 (US\$5.04) per MS mid-point for the season starting July 2023 (see Figure 5). With the softening forecast and rising farm input costs due to inflation and interest rates, this could impact on national milk production and farmers willingness to purchase imported feed. However, with prices still remaining relatively high, during the first four months of 2023 feed imports into New Zealand are only four percent behind on the previous year.

Figure 5: Farm Gate Price of New Zealand Largest Processor



Source: Fonterra, *forecast on May 25th, 2023. **NZX futures forecast

Gradually Shrinking Cow Herd

Although milk production is rising this year, this is despite a continually shrinking cow herd. National herd numbers at the beginning of 2023 are forecasted to be the lowest in the last ten years at 4.8 million head. According to the New Zealand Dairy Statistics 2021-22 from LIC and Dairy NZ, New Zealand reached “peak” dairy cow numbers in 2015 and the herd has been very slowly contracting since then at a rate of 0.5 percent per year. Despite the gradual decline, there has been some consolidation and average farm herd size increased from 444 cows per farm to 449 cows per farm. Expansion of the dairy herd in the South Island has contributed to the increase in average herd sizes.

Table 1: New Zealand Dairy Cow Numbers

Year	Total Cows Lactating at Beginning of Year
2015	5,018,333
2016	4,997,811
2017	4,861,324
2018	4,992,914
2019	4,946,305
2020	4,921,548
2021	4,903,733
2022	4,842,122

Source: New Zealand Dairy Statistics 2021-22, LIC and Dairy NZ

2022

New Zealand's 2022 fluid milk production was 21.16 MMT, down nearly four percent from the previous year. There was a slow start to the year as a result of the fall season La Niña weather pattern causing prolonged dry weather, and this caused lower pasture leading into winter (June to August). However, with a wetter November and December experienced in 2022, pasture and milk production at the end of the year were higher than expected.

Liquid Milk Exports

FAS/Wellington forecasts fluid milk exports in 2023 at 280,000 MT, which would be consistent with the previous two seasons volumes of 277,000 MT and 279,000 MT. The largest importer of fluid milk continues to be China, taking three-quarters of total exports.

Liquid Milk Domestic Consumption

FAS/Wellington forecasts domestic fluid milk consumption in 2023 to be consistent with 2022 at 535,000 MT. Just over two percent of milk produced in New Zealand is consumed domestically. This is compared to Australia which consumes 28 percent and the United States which consumes 20 percent of their production as fluid milk. New Zealand channels the remaining amount into processing and exports, and factory use is forecast at 20.58 MMT, up nearly two percent from the previous year as a result of higher overall milk production.

Industry and Policy

Bobby Calves: Currently, non-replacement dairy calves are typically either euthanized on farm or killed for veal in early spring (August-October). However, New Zealand's largest dairy processor added key clauses into their Terms of Supply, where calves of farmers that supply milk to this processor can only be euthanized on-farm when there are humane reasons for doing so. In addition, starting in June 2023, all these farms must ensure all non-replacement calves enter a value stream - either to be grown out for beef, or slaughtered for calf-veal or petfood. As a result, there are currently large investments and programs being carried out to develop opportunities and partnerships for dairy-beef animals. This reduction in slaughter of very young dairy calves means that there will be even more dairy-breed cattle as a proportion of the national beef herd.

Agricultural Emissions Pricing: Over the last three years, the NZ Government has been working with industry to reduce and price agricultural emissions. 2022 saw the release of several pieces of work including the NZ First Emissions Reduction Plan, response from the NZ Primary Sector Climate Action Partnership and recently a government released proposal to reduce agricultural emissions. Outside of pricing emissions, focus is being narrowed on controlling nitrogen fertilizer application rates and stock numbers. The NZ Government are targeting an implementation date of January 1st, 2025, for beginning to price agricultural emissions. This is expected to have the greatest impact on the beef and sheep sector, but also impact the dairy sector as well.

Live Export: New Zealand’s Ministry for Primary Industries (MPI) announced in July 2021 that all exports of livestock by sea will cease as of April 30, 2023. The ban follows a two-year transition period to give stakeholders time to adapt to changes. This decision followed the sinking of the vessel Gulf Livestock 1 in August 2020 after departing Napier destined for China. Live exported cattle from New Zealand have been dairy cows and heifers for breeding and milking, almost entirely to China. 2022 was the largest live export year for the country at 137,456 head. The final ship departed Timaru port only days before the ban was enforced, with total exports at 28,447 head during the first four months of 2023.

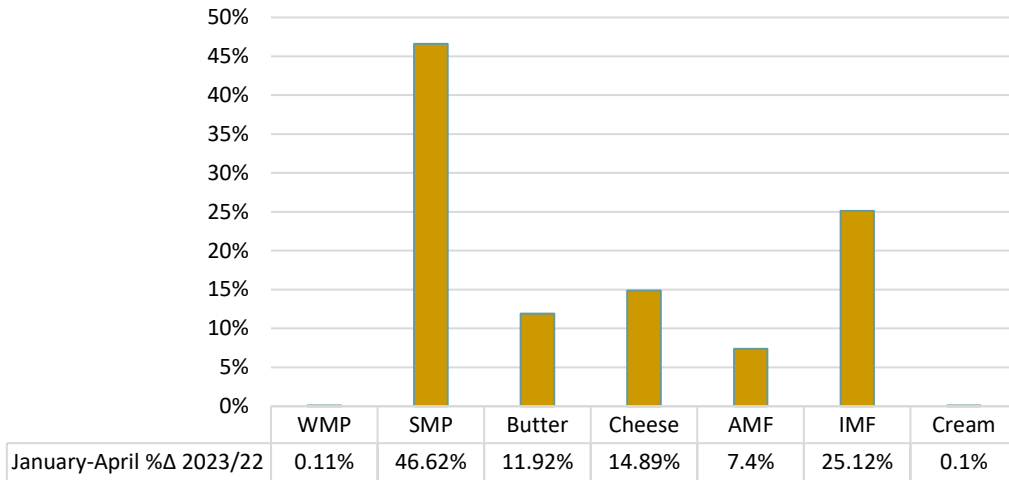
Table 2: Production, Supply and Distribution – Fluid Milk

Dairy, Milk, Fluid Market Year Begins New Zealand	2021		2022		2023	
	Jan 2021		Jan 2022		Jan 2023	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Cows In Milk (1000 HEAD)	4904	4904	4875	4842	4860	4800
Cows Milk Production (1000 MT)	21995	21995	21100	21160	21000	21500
Other Milk Production (1000 MT)	0	0	0	0	0	0
Total Production (1000 MT)	21995	21995	21100	21160	21000	21500
Other Imports (1000 MT)	2	2	5	3	5	5
Total Imports (1000 MT)	2	2	5	3	5	5
Total Supply (1000 MT)	21997	21997	21105	21163	21005	21505
Other Exports (1000 MT)	277	277	290	279	290	280
Total Exports (1000 MT)	277	277	290	279	290	280
Fluid Use Dom. Consum. (1000 MT)	530	530	535	535	535	535
Factory Use Consum. (1000 MT)	21080	21080	20170	20239	20070	20580
Feed Use Dom. Consum. (1000 MT)	110	110	110	110	110	110
Total Dom. Consumption (1000 MT)	21720	21720	20815	20884	20715	21225
Total Distribution (1000 MT) (1000 HEAD) ,(1000 MT)	21997	21997	21105	21163	21005	21505

Processing and Exports

In recent years, large investment by New Zealand processors has been made towards more energy efficient plant upgrades, and away from coal fired heat to other solid energies such as wood chips, gas, and electricity. In some instances, milk companies are shifting processing capabilities away from milk drying to more fresh products such as butter, cheeses, and creams. In addition, there are increases in capability for more specialty products such as infant formula (IMF), protein concentrates (WPC, WPI, MPC), lactoferrin, caseinates, creams, butter, and cheeses. Also, with weaker demand from China during the past year for WMP, there has also been a shift in exports to other products. Figure 6 shows the increase in exports for different dairy products during January to April 2023 compared to the previous year.

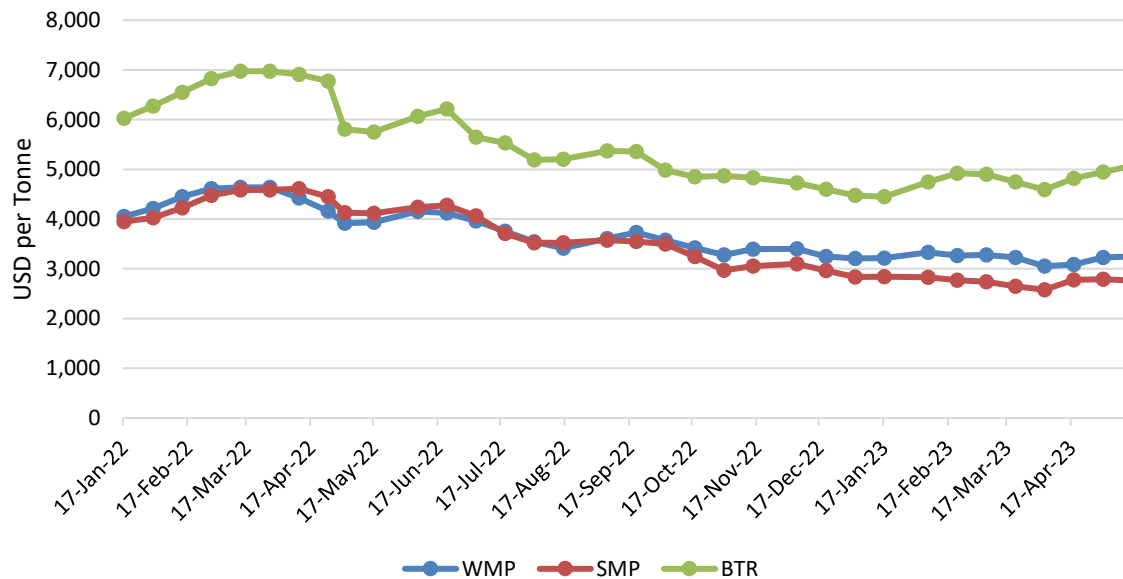
Figure 6: New Zealand Dairy Exports in Jan-Apr 2023 vs 2022



Source: Trade Data Monitor LLC

In March 2022 the GDT butter price rose as high as US\$6,975 per ton (NZ\$11,071 per ton). This was a record high which saw processors in New Zealand pivot production away from WMP to other products such as butter, anhydrous milk fat (AMF) and skim milk powder (SMP) as a by-product. GDT butter and AMF prices have begun to strengthen again into 2023 (Figure 7)

Figure 7: Global Dairy Trade Prices (US\$ per Ton)



Source: Global Dairy Trade

Whole Milk Powder (WMP)

2023

FAS/Wellington has revised down WMP production to 1.45 MMT as a result of lower-than expected production and imports during the beginning of the year. If realized, this forecast would be up four percent from 2022, when WMP production fell to the lowest level since 2017. Exports are also forecast at 1.45 MMT. During the first four months of 2023, export volumes to global markets are tracking similar to 2022, but exports to the largest consumer - China - were already down 13 percent.

Commentary from key dairy processors is that with higher prices for other commodities, greater returns are being experienced by shifting production away from WMP. As a result, more milk for processing is being directed into specialty products such as protein concentrates, whey, IMF, AMF, and SMP. Despite this change, WMP processing still represents just over half the milk processed for factory use in New Zealand.

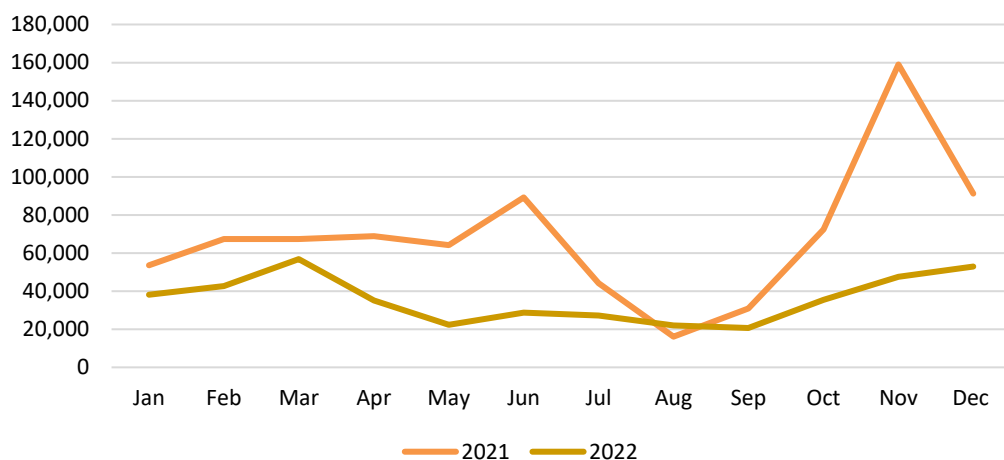
2022

In 2022, WMP exports finished at 1.328 MMT, down 18 percent on the previous year and the lowest annual total in a decade. Exports to China were down almost half compared to the previous year at 429,526 MT. The biggest growth markets were Algeria (140 percent increase), Indonesia (62 percent) and Saudi Arabia (29 percent), but these increases only partially offset the lower volumes to China.

Over the last five years New Zealand has been the largest exporter of WMP to China, accounting for on average 89 percent of volumes imported. Other suppliers such as Uruguay, Australia, France, Netherlands, and Argentina collectively made up less than 8 percent.

As mentioned, New Zealand processors have commented that in 2022 WMP exports were reduced as processing was shifted to other commodities and products. In addition, demand in China was impacted by supply chain challenges brought on by Covid-19 restrictions in China, with these disruptions not only being at major ports like Shanghai, but also impacting in-country overland distribution. In addition, with Covid-19 restrictions having been in place, Chinese domestic milk production shifted into its own WMP manufacturing, reducing import demand. As a result of these factors, the WMP monthly exports never caught pace with the previous year and did not experience the typical peak in the last three months of year (Figure 8). There are expectations that this reduced demand resulted in a build-up of New Zealand stocks.

Figure 8: New Zealand Monthly WMP Exports to China



Source: Trade Data Monitor LLC

Table 3: Production, Supply and Distribution – WMP

Dairy, Dry Whole Milk Powder Market Year Begins New Zealand	2021		2022		2023	
	Jan 2021		Jan 2022		Jan 2023	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	171	171	138	138	157	194
Production (1000 MT)	1600	1600	1485	1400	1530	1450
Other Imports (1000 MT)	2	2	2	2	2	2
Total Imports (1000 MT)	2	2	2	2	2	2
Total Supply (1000 MT)	1773	1773	1625	1540	1689	1646
Other Exports (1000 MT)	1617	1617	1450	1328	1500	1450
Total Exports (1000 MT)	1617	1617	1450	1328	1500	1450
Human Dom. Consumption (1000 MT)	2	2	2	2	2	2
Other Use, Losses (1000 MT)	16	16	16	16	16	16
Total Dom. Consumption (1000 MT)	18	18	18	18	18	18
Total Use (1000 MT)	1635	1635	1468	1346	1518	1468
Ending Stocks (1000 MT)	138	138	157	194	171	178
Total Distribution (1000 MT)	1773	1773	1625	1540	1689	1646

Skim Milk Powder (SMP)

FAS/Wellington has revised up SMP production to 390,000 MT for 2023, the same as 2022. Exports, however, are revised up to 450,000 MT, which if realized would be up 26 percent. In the first four months of 2023, exports of SMP are tracking over 46 percent above the same period in 2022. As already mentioned, with the increase in fluid milk being directed for butter and AMF processing, SMP volumes are anticipated to stay up as an early-stage by-product of cream processing.

In 2022, final annual SMP exports were 357,000 MT, the highest volumes since 2019. With the high prices for butter and AMF early in the year, as well as strong cream production, more SMP was produced. China continued to be the largest importer at 30 percent, followed by Indonesia (17 percent), Malaysia (seven percent), and Thailand (seven percent).

Table 4: Production, Supply and Distribution – SMP

Dairy, Milk, Nonfat Dry Market Year Begins New Zealand	2021		2022		2023	
	Jan 2021		Jan 2022		Jan 2023	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	116	116	113	113	98	136
Production (1000 MT)	330	330	350	390	330	390
Other Imports (1000 MT)	8	8	5	5	5	5
Total Imports (1000 MT)	8	8	5	5	5	5
Total Supply (1000 MT)	454	454	468	508	433	531
Other Exports (1000 MT)	326	326	355	357	335	450
Total Exports (1000 MT)	326	326	355	357	335	450
Human Dom. Consumption (1000 MT)	15	15	15	15	15	15
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT)	15	15	15	15	15	15
Total Use (1000 MT)	341	341	370	372	350	465
Ending Stocks (1000 MT)	113	113	98	136	83	66
Total Distribution (1000 MT)	454	454	468	508	433	531

(1000 MT)

Cheese

FAS/Wellington's forecast for cheese production in 2023 is raised slightly to 375,000 MT, the same as 2022, as a result of higher milk production and a continuation of lower-than-typical WMP production. Cheese exports are forecast at 335,000 MT in 2023 just slightly below 2022. In the first four months of 2023 exports were almost 14 percent up on the same period in 2022, although this pace is expected to slow. These higher volumes include a 25 percent increase to China, 56 percent increase to Australia and 59 percent increase in volumes shipped to South Korea.

2022 cheese exports fell to 340,000 MT, down 21,000 MT on the previous year. China, Japan, and Australia are the largest markets for New Zealand cheese.

Table 5: Production, Supply and Distribution – Cheese

Dairy, Cheese Market Year Begins New Zealand	2021		2022		2023	
	Jan 2021		Jan 2022		Jan 2023	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	68	68	63	60	76	67
Production (1000 MT)	380	380	375	375	360	375
Other Imports (1000 MT)	11	11	12	12	12	12
Total Imports (1000 MT)	11	11	12	12	12	12
Total Supply (1000 MT)	459	459	450	447	448	454
Other Exports (1000 MT)	358	361	335	340	335	335
Total Exports (1000 MT)	358	361	335	340	335	335
Human Dom. Consumption (1000 MT)	38	38	39	40	40	40
Other Use, Losses (1000 MT)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT)	38	38	39	40	40	40
Total Use (1000 MT)	396	399	374	380	375	375
Ending Stocks (1000 MT)	63	60	76	67	73	79
Total Distribution (1000 MT)	459	459	450	447	448	454

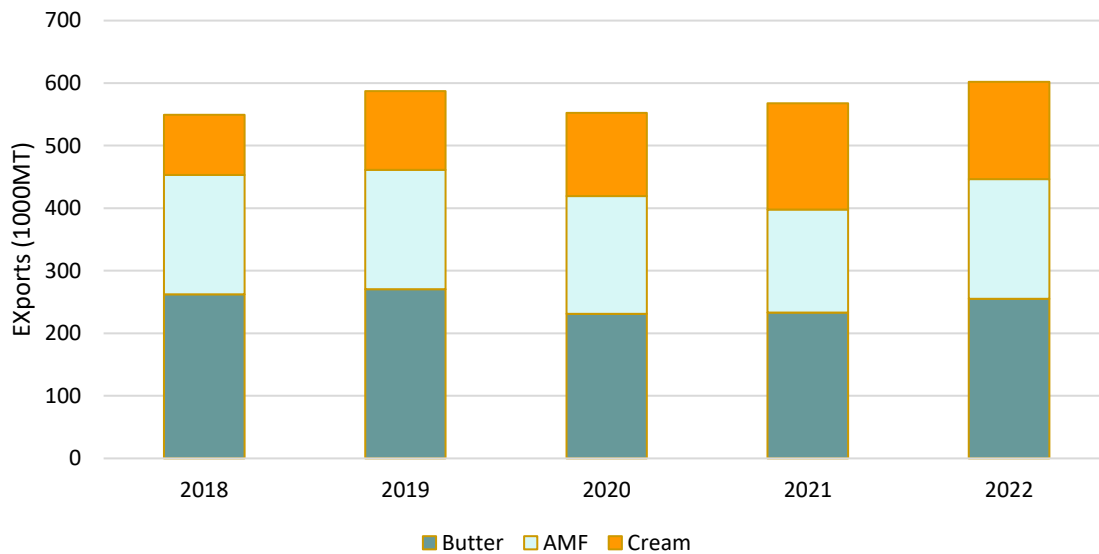
(1000 MT)

Butter and Anhydrous Milk Fat (AMF)

FAS/Wellington forecasts butter and AMF production to remain steady at 480,000 MT, although still higher than typical levels of recent years. GDT prices and investment in processing has continued to be favorable for butter and AMF. Exports are forecast to remain consistent at 450,000 MT. In the first four months of 2023, exports are currently ten percent up on the same period in 2022. In recent years, exports of New Zealand UHT cream have also been climbing, which is one of the reasons why SMP production has increased relatively faster than butter/AMF production (see Figure 9).

New Zealand's 2022 butter and AMF exports reached 447,000 MT. A major improvement was as a result of an upgraded butter facility for one of the largest butter processors coming back online. China continues to be the largest market for New Zealand butter and AMF (27 percent combined), with Australia being the second largest market for butter (10 percent) and Mexico for AMF (10 percent).

Figure 9: New Zealand Milk Fat Exports



Source: Trade Data Monitor LLC

Table 6: Production, Supply and Distribution – Butter

Dairy, Butter Market Year Begins New Zealand	2021		2022		2023	
	Jan 2021		Jan 2022		Jan 2023	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Beginning Stocks (1000 MT)	93	93	97	97	67	100
Production (1000 MT)	470	470	500	480	475	480
Other Imports (1000 MT)	1	1	2	2	1	1
Total Imports (1000 MT)	1	1	2	2	1	1
Total Supply (1000 MT)	564	564	599	579	543	581
Other Exports (1000 MT)	436	436	500	447	450	450
Total Exports (1000 MT)	436	436	500	447	450	450
Domestic Consumption (1000 MT)	31	31	32	32	32	32
Total Use (1000 MT)	467	467	532	479	482	482
Ending Stocks (1000 MT)	97	97	67	100	61	99
Total Distribution (1000 MT)	564	564	599	579	543	581
(1000 MT)						

Other Dairy Products

New Zealand milk processors have commented that with global demand and recent investments in specialty plant facilities, there will be some increase in milk volumes shifted from WMP production. This milk will be channeled to more specialty products such as IMF, milk protein concentrates, caseinates, whey, and lactoferrin. In the first three months of 2023, exports for these products combined are already over 30 percent more than the same period in 2022.

Attachments:

No Attachments