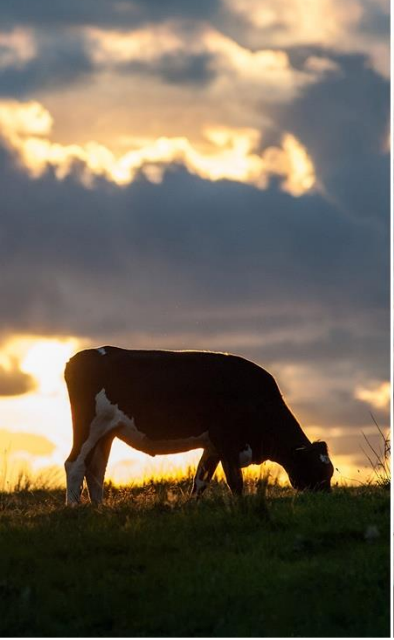
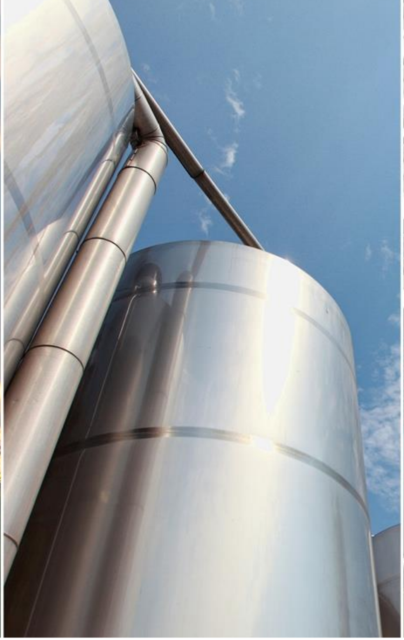

How High for How Long?

Global Dairy Quarterly Q1 2022

RaboResearch Food & Agribusiness ***March 2022***

Rabobank

Summary

- ***Volatility loves uncertainty, and there is no shortage of uncertainty in global dairy markets.*** Even before the Russia-Ukraine conflict, global dairy commodity prices were soaring due to a supply shortfall. The major export regions are grappling with poor weather or margin erosion, resulting in a year-on-year deficit that was much worse than anticipated in 2H 2021. As the shortfalls are unlikely to go away in the near term, Rabobank expects a continued decline in 1H 2022 milk production in the Big-7 exporting regions of 0.7% YOY vs. last year's high comparable, before a mild recovery starting in 2H 2022 and into 1H 2023.

- ***Farmgate milk prices have followed commodity prices higher worldwide, with more potential upside in some regions.*** Still, the rising costs of inputs, lack of labor, unfavorable weather, and variable feed quality and prices continue to limit the production response by producers.

- ***Dairy exports are expected to slow in 2022, after growing by 4% in 2021,*** despite all the supply chain challenges. The export growth seen in 2021 is unlikely to be repeated in 2022, as the supply deficit significantly reduces the exportable surplus from the Big-7 export regions. High-priced dairy commodities could take a bite out of importers' appetites. Conversely, rising oil prices have supported WMP prices in the past, and the elevated food security risk could result in strategic buying activity.

- ***Inflationary pressure is running rampant around the world,*** with an increasingly worsening outlook, begging the question, "How high for how long?" Dairy commodities will stay elevated through mid-year amid the constrained supply. The longer-term outlook hinges upon consumer behavior and normalized market conditions, both being very unpredictable.

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Regional Dairy Markets

US

US milk production will experience negative year-on-year growth through 1H 2022, reducing exportable surplus and potentially lifting markets.

EU

Rabobank expects a 0.5% decline in milk production in Q1 2022 against a low year-on-year comparable.

China

China remains overstocked and will see the import gap (LME) fall by 30% YOY in 2022 to rebalance the market. Marginal import growth is unlikely until 1H 2023.

Australia

On-farm costs are rising, as are milk prices. There is a good amount of feed in reserve heading into the new season. We should see a return to growth in 2H 2022.

South America

Milk production hit by high costs, weather, and weakening domestic demand as macro challenges increase.

New Zealand

Milk supply will struggle to catch up and to recover the volumes lost over peak collection.

Global Summary

In the Big-7 exporting regions, milk production growth fared worse than previously anticipated in 2H 2021. Rabobank expects 1H 2022 milk production in the Big-7 to decline by 0.7% YOY, against a high comparable of 1.8% in 1H 2021, due to persistently unfavorable southern hemisphere weather, high and rising production costs, and lingering disruptions from Covid-19. Positive year-on-year growth – versus a low comparable – is anticipated in Q3 2022, which will carry through to year-end, with a 1.1% YOY gain in 2H 2022.

Farmgate milk prices have increased significantly across the major export regions. And potential further upside in milk prices remains, as the recent strength in global dairy commodity prices has yet to be transferred to farmgate milk prices. Unfortunately, rising milk prices are failing to induce greater output. Poor forage quality is negatively impacting milk yields in the EU and the US. In some cases, dairy producers are maximizing profit, not production, as they consider escalating feed costs. Milk producers around the globe are facing higher corn and soybean prices for the next two years.

Feed costs are flying north, with little hope for meaningful relief through 2023. Drought is sharply reducing South America's soybean and corn production. High input costs and uncertainty about agrichemical supply are putting downward pressure on yields and acreage expectations. The situation is further exacerbated by the Russia-Ukraine conflict, which could impact ports and supplies from Ukraine (for more information, read our Agri Commodity Markets Research monthly).

Dairy exports will slow this year in response to the supply-side shortfall. Most regions have eased Covid-related measures, leading to an ever-tightening domestic market despite the brief disruptions from Omicron at the beginning of the year. Based on Rabobank's supply and demand forecasts, exports in liquid milk equivalents are expected to decline year-on-year through 2022, a duration not previously experienced. In the absence of supply growth and government-held stocks, ***we continue to see the potential for market upside during 1H 2022***, even with the expectation that China will remain on the sidelines.

Lower Chinese import demand is expected and is needed to cool prices in the face of limited supply-side increases. Continued domestic production growth and higher-than-expected imports in Q4 2021 should result in a much lower 2022 Chinese import requirement before imports start to increase marginally year-on-year in 1H 2023.

Inflation is running rampant worldwide, is increasingly felt by consumers, and has a high likelihood of persisting or staying elevated over a longer period. This will influence consumer behavior and invite hawkish monetary policies.

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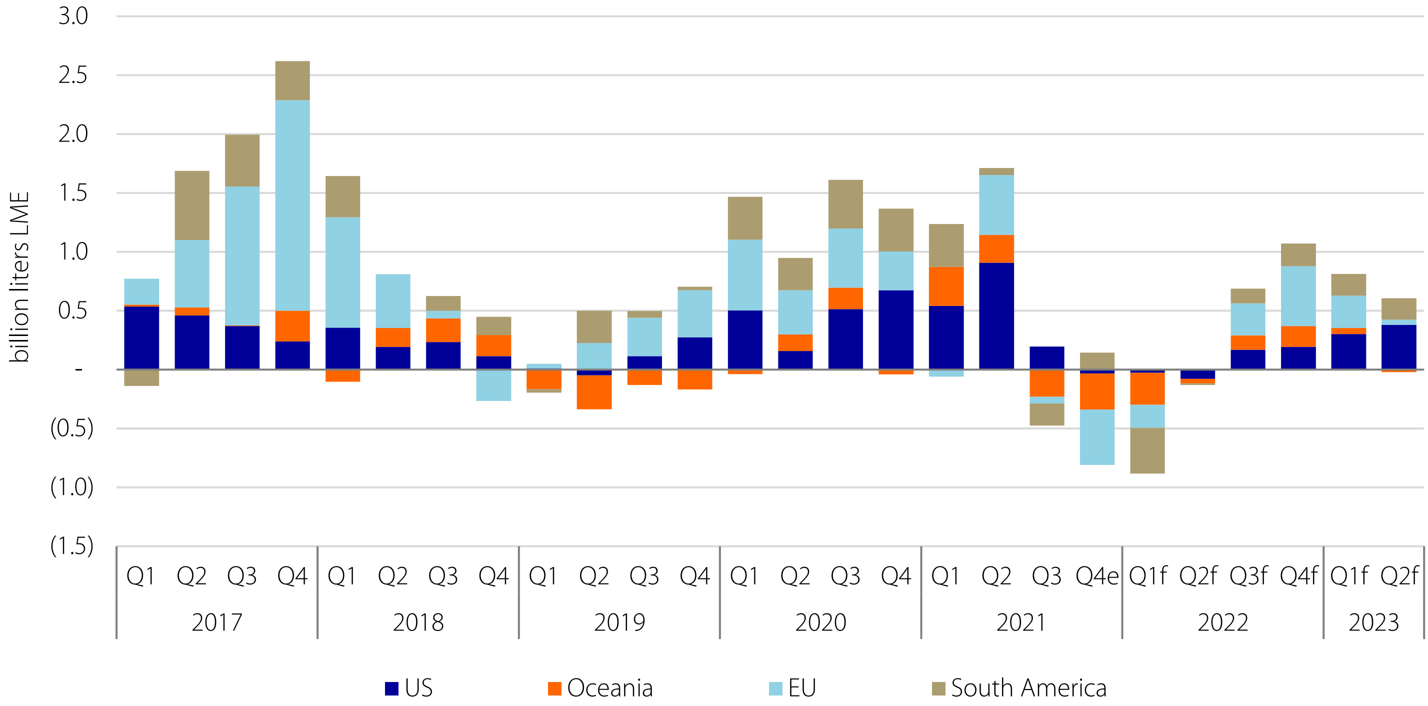
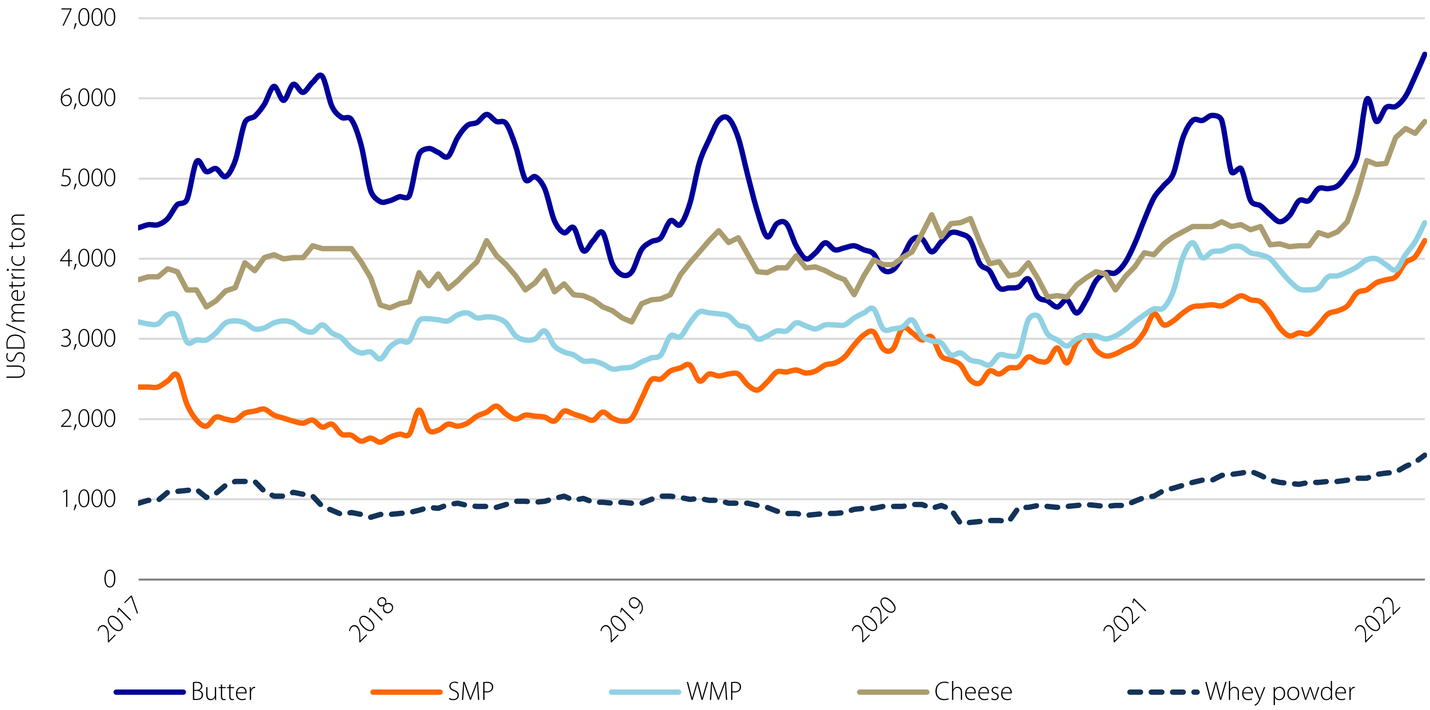
Figure 1: Milk Production Growth, Big-7 Exporters (Actual and Rabobank Forecast), Q1 2017-Q2 2023f*



** Big-7 includes the EU, US, NZ, Australia, Brazil, Argentina, and Uruguay.*

Source: Big-7 government industry agencies, Rabobank 2022

Figure 2: Dairy Commodity Prices, FOB Oceania, 2017-2022*



** Whey is FOB in western Europe.*
Source: USDA, Rabobank 2022

What to Watch: Geopolitical Issues

Russia dealt the global dairy sector its first blow in 2014. After the Russian annexation of the Crimean Peninsula in March 2014, the US, the EU, Australia, New Zealand, and other western countries imposed economic sanctions on Russia. Russia retaliated with an embargo on a long list of food products, including fluid milk and dairy products, resulting in an EU market loss for 250,000 metric tons of cheese and 30,000 metric tons of butter. Since then, Russia has supported improvement in domestic milk quality and production growth, with deliveries up more than 15% since 2015.

The Russia-Ukraine conflict escalates an already high-cost situation. Russia's invasion of Ukraine presents significant upside price risks for energy, fertilizer, and agricultural commodities, which will have a spillover impact on feed costs, feed availability, and ultimately on dairy commodity prices and farmgate milk prices.

Russia supplies about 40% of Europe's natural gas. Together, Russia and Ukraine account for 28% of global wheat exports, 18% of corn, and 30% of barley. The global commodity markets are already tight as other regions battle drought, rising fertilizer costs, and falling yields and acreage.

It hasn't happened, but if China were to support Russia, it would risk exposure to sanctions, which, in turn, could apply to 25% of global dairy product (volume) demand, based on China's 2021 imports of 850,00 metric tons whole milk powder, 426,00 metric tons skim milk powder, 872,000 metric tons dry whey, 162,000 metric tons cheese, and 131,000 metric tons butterfat. Under this scenario, New Zealand would seek an alternative market for nearly 40% of its exports, while the US and Europe would find or absorb 336,000 and 292,000 metric tons, respectively, of dry whey, among other products.

This would be a dire situation for China and its trading partners, hopefully preventing it from coming to fruition.

What to Watch in 2H 2022

Palm oil is not a cheap alternative to milkfat. Indonesian export restrictions and a Malaysian harvest hampered by flooding and labor shortages are sending Malaysia's palm oil inventory toward historical lows. India's duty revisions for palm oil imports inject new demand in a tight market. Strength in palm oil prices provides underlying market support for butterfat prices and limits the availability of lower-cost vegetable fat-filled milk powders (FFMP) as a substitute for WMP.

The magnitude and buying pattern of Chinese dairy imports is expected to change in 2022. Rabobank expects China's import requirement to trend much lower in 2022 due to ample domestic stocks and continued production growth. The quota for zero-tariff milk powder from New Zealand (under the free trade agreement) applicable to 2023 was fully drawn down at the beginning of 2022. As such, Chinese buyers will not have to rush to buy products during late Q3/early Q4 in order to time the arrivals at the beginning of the new year, as has been the case in previous years. This should see a shift in the Chinese buying pattern during the rest of 2022.

Northwest Europe is facing a structural decline in milk supply. Lower 2021 annual milk production in Germany, France, and the Netherlands reflects, in part, the anticipation of the more significant regulatory authority of the EU's common agricultural policy (CAP) and heightened individual country oversight (environmental in the Netherlands and animal welfare in Germany).

Effective January 1, 2023, the new CAP (2023-2027), combined with the Green Deal, Farm-to-Fork, and Fit for 55, will become overarching guidelines for future agricultural policies (post-2023) at the EU and national level. At this point, we don't know all the details, but we expect that it will structurally add costs to the value chain and put pressure on milk volumes, especially in more livestock-dense regions, such as Northwest Europe.

In the Netherlands, the new government has proposed plans to reduce the dairy herd by about 30% by 2030 to lower nitrogen (ammonia) emissions. Both France and Denmark set new greenhouse gas targets, while Belgium (Flanders) is following the Dutch route on nitrogen issues.

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EU-27 and UK milk deliveries were down 1.3% YOY (or 479,000 metric tons) in Q4 2021, with declines in Germany (-3.0% or 232,000 metric tons), France (-2.5% or 148,000 metric tons), the UK (-1.6% or 61,000 metric tons), and the Netherlands (-3.9% or 134,000 metric tons). As a result, 2021 EU-27+UK milk deliveries were slightly lower than 2020 (-76,000 metric tons). The major milk-producing countries Italy (+3.3%) and Ireland (+5.7%) showed another year of strong growth. Poland recorded a modest gain, while the UK narrowly managed to stay ahead of last year. Germany (-1.8%), France (-1.2%), and the Netherlands (-2.2%) recorded lower year-on-year growth during most months in 2021, an indication that these countries are past their peak in annual milk production.

EU-27 average farmgate milk prices gained an impressive 8.0% from October, to reach an average of EUR 41.79/100kg in January. Milk prices are expected to strengthen further in the months ahead, as the recent gains in dairy commodity prices have not yet been fully transferred to farmgate milk prices. Spot milk prices broke EUR 55/100kg in February. Some processors are more actively securing their (long-term) milk supply. Thus far, the high milk prices have not propelled EU milk production into positive territory.

At the farmgate, gains in cash margins remained much more restricted due to increased (input) costs, while the quality of roughage also imposed constraints on the yield per cow. Overall, dairy farmers remain hesitant to assume additional costs to increase milk production, as they anticipate even higher input costs later this year. A longer period of sustained strong 'cash' margins will likely improve sentiment.

We expect that Q1 milk deliveries will be down 0.5% YOY. Looking ahead to Q2, we anticipate similar production volumes compared to last year. There is an opportunity to push milk deliveries into positive territory if high milk prices are met with favorable weather conditions during the start of the pasture season. Lower year-on-year comparables during 2H 2022 support stronger gains for Q3 (+0.7%) and Q4 (+1.4%). Overall, we anticipate modest growth in milk deliveries (+0.4%) for FY2022. However, much of this growth is against weak comparables – especially in Q4. Granted, an unfavorable start to the pasture-growth season could quickly dampen the anticipated gains in Q2 and Q3. Moving into 2023, we foresee 0.6% YOY growth for Q1, while the implementation of the new common agricultural policy will likely mute the potential gains for Q2 and FY2023.

EU

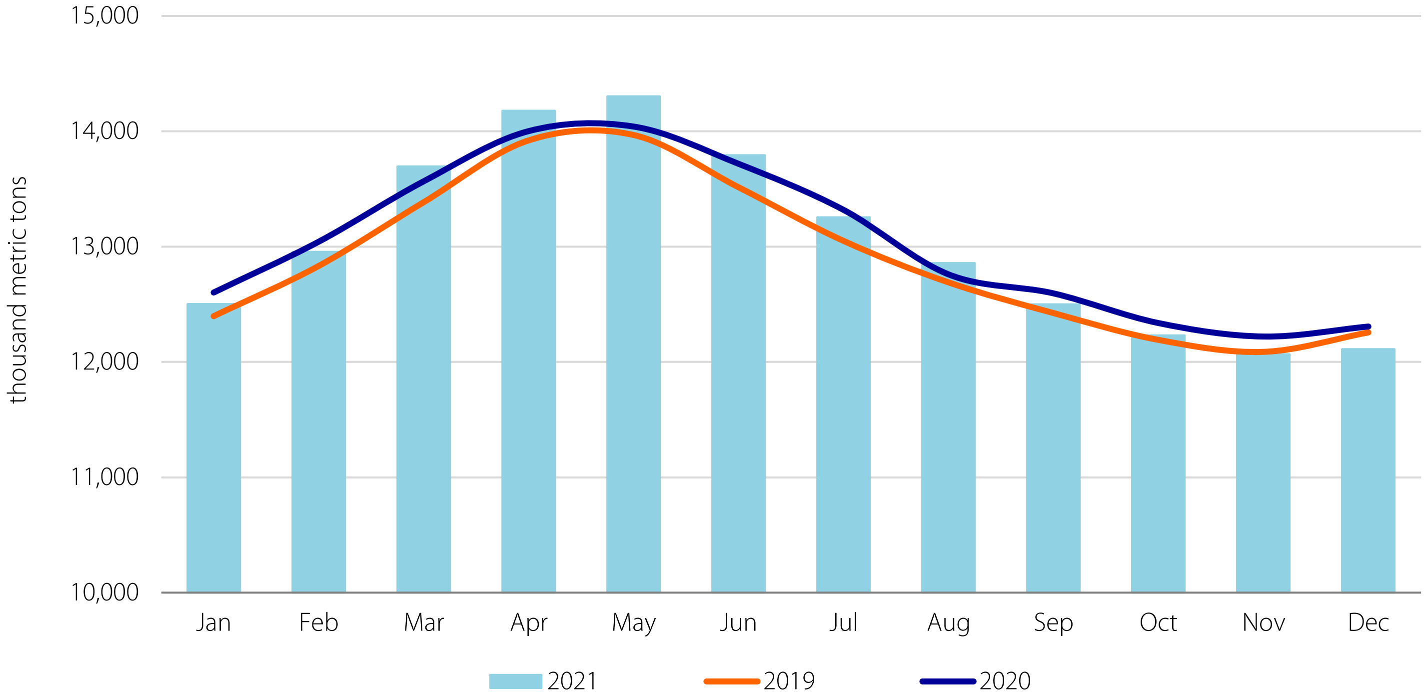
Previously, we expected EU dairy commodity prices to peak in Q1 2022, but this window is closing rapidly as prices strengthen on the back of the current tight domestic market and global market conditions. Between mid-November and mid-February, SMP prices rose by 19.2%, or EUR 579/metric ton, to EUR 3,599/metric ton, while EU WMP prices lifted by 22.7%, or EUR 829/metric ton, to EUR 4,477/metric ton. Butter prices jumped by 13.1%, or EUR 683/metric ton, to EUR 5,915/metric ton. Gouda prices increased by 14.6%, or EUR 525/metric ton, to EUR 4,120/metric ton. Meanwhile, month-ending February spot prices for Gouda (foil) were above EUR 4,400/metric ton.

Moving ahead to Q2 2022, market fundamentals still point towards prices near or even (slightly) above the current price levels. We also recognize that there is potential for a softening in prices. However, lower prices will likely be quickly met by increased demand from buyers needing to cover their positions beyond Q2, keeping prices at elevated levels. As such, we anticipate elevated prices through year-end 2022.

Supply-side constraints became more visible in EU exports in Q4. Exports fell by 2.3% YOY in LME in Q4 compared to a gain of 8.4% for FY2021. Cheese exports remained stable with a slight improvement of 0.3% YOY, or 820 metric tons, in Q4 2021, while liquid milk exports fell by 7.6%. SMP exports declined by 7.3%, or 13,000 metric tons, while WMP volumes fell by 16.9%, or 11,600 metric tons. Butter exports increased by 10.0%, or 4.400 metric tons. Looking ahead, we expect lower year-on-year export volumes in 1H 2022 due to the combination of a tight domestic market, regional price differences, and high shipping costs.

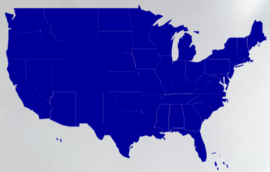
As most Covid measures have been eased, the market is shifting its attention to (food) price inflation. Eurozone inflation is estimated to have reached 5.1% in January, rising from 5.0% in December. Even though processors and retailers are still in fierce negotiations, dairy product price inflation has slowly spread across retail shelves and will become more visible in the months ahead. Historically, EU dairy consumption (volumes) are considered to be relatively price inelastic, but the onset of price inflation increases the risk of consumers trading down to cheaper alternatives.

Figure 3: EU Milk Production, Jan 2019-Dec 2021



Source: ZMB, Rabobank 2022

US



Farmgate milk prices are following dairy commodity prices higher, enough to put a stop to the accelerated culling that reduced the US milk herd by 133,000 head between May 2021 and January 2022. Class III and IV milk prices – both above USD 22/cwt. – are profitable for producers, but a major supply response is unlikely.

High milk prices normally signal that the market wants more milk. However, the high prices are but one factor facing a growing list of barriers to expansion that will hinder any major rebound in milk production growth through the first half of 2022. A low inventory of replacement heifers in the pipeline and persistent limitations on milk shipments in the form of base programs and tiered pricing are currently two key limiting factors.

The USDA January Cattle report stated that 2.84m milk cow replacement heifers are expected to calve this year, down 3% or nearly 80,000 head. This means that any increase in cow numbers will need to come from holding onto lower-yield cows longer rather than introducing new higher-yield cows.

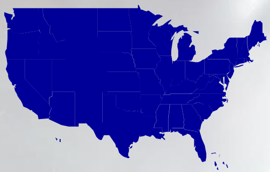
Base programs, meanwhile, remain another limiting factor to production expansion in the US. These programs now may be a result of limited processing capacity stemming from plant staffing shortages or limited hauling availability due to driver shortages. Plans for new processing plants announced last year are being pushed back and will not lead to major capacity increases this year.

The factors above, combined with environmental pressures, labor challenges, and ongoing cost inflation, will keep US milk production flat to slightly negative through the first half of 2022. January milk production was down 1.6% from January 2021. Cow numbers were lower by 82,000 head YOY and milk-per-cow yield suffered as well, down 0.7% YOY.

American cheese production in Q4 2021 fell slightly below the same period in 2020, yet inventories have remained elevated. Markets will continue to grapple with the mixed signals of growing inventories and tight spot cheese availability at the Chicago Mercantile Exchange.

Butter and nonfat dry milk supply have tightened. With slower milk production growth, the need for butter and powder plants to serve a balancing role is reduced. Butter inventories have fallen by 110.6m lb YOY, to 221.3m lb at the end of January. However, strengthening class IV milk prices relative to class III could mean more milk moving into the class IV products in 2022.

US



Disruptions from the Omicron variant during the holidays led to a temporary slowdown in activity, but with case numbers falling quickly, demand should rebound more strongly into the spring. Foodservice traffic for seated dining suffered through December and January, down between 10% and 35%, but it has since rebounded, pushing above 2019 pre-Covid benchmark levels in late February, according to data from OpenTable. Foodservice is far from immune to continued outbreaks, but the sector has become increasingly resilient, and consumers appear eager to bounce back to normal activity more quickly after shorter recommended quarantine periods.

Commercial disappearance data shows increasing domestic demand on a total solids basis for six straight quarters, albeit to varying degrees. Across the full year 2022, domestic disappearance was up 1.8% with the strongest gains in Q1 and Q4, both up 2.6% YOY. Domestic demand in 2022 is forecast to be up 1% YOY, with muted gains in Q1 and Q4 against the strong comparables in 2021 and more strength in Q2 and Q3.

CPI data continues to indicate that food inflation (up 7% YOY in January) is less dramatic than other categories. Within the food category, the dairy CPI posted one of the lowest increases, at 3.1% in January, compared to 12.2% for meat, poultry, fish, and eggs. Still, the pain from inflationary pressure could become more acute this year for consumers, and price sensitivity will need to be watched for signs of demand erosion.

Retailers will have to deal with passing along higher prices to consumers while also trying to compete with other retailers and foodservice outlets for consumers' food dollars. In the four weeks ending February 6, volume sales of natural cheese were down 2.7% YOY, butter sales volume was down 6.7%. Fluid milk sales volumes were down 3.8%.

US exports finished 2021 up 11% YOY on product volume. December exports turned negative YOY, down 3%, but this was likely due to peak congestion at the ports. This congestion will likely continue to improve, but elevated costs and delays are likely to remain a factor to contend with in 2022. The strong export levels of the past two years have been largely thanks to gains from the two major US export destinations, Mexico and China. While no major declines are expected, similar year-on-year growth rates may not be sustainable.

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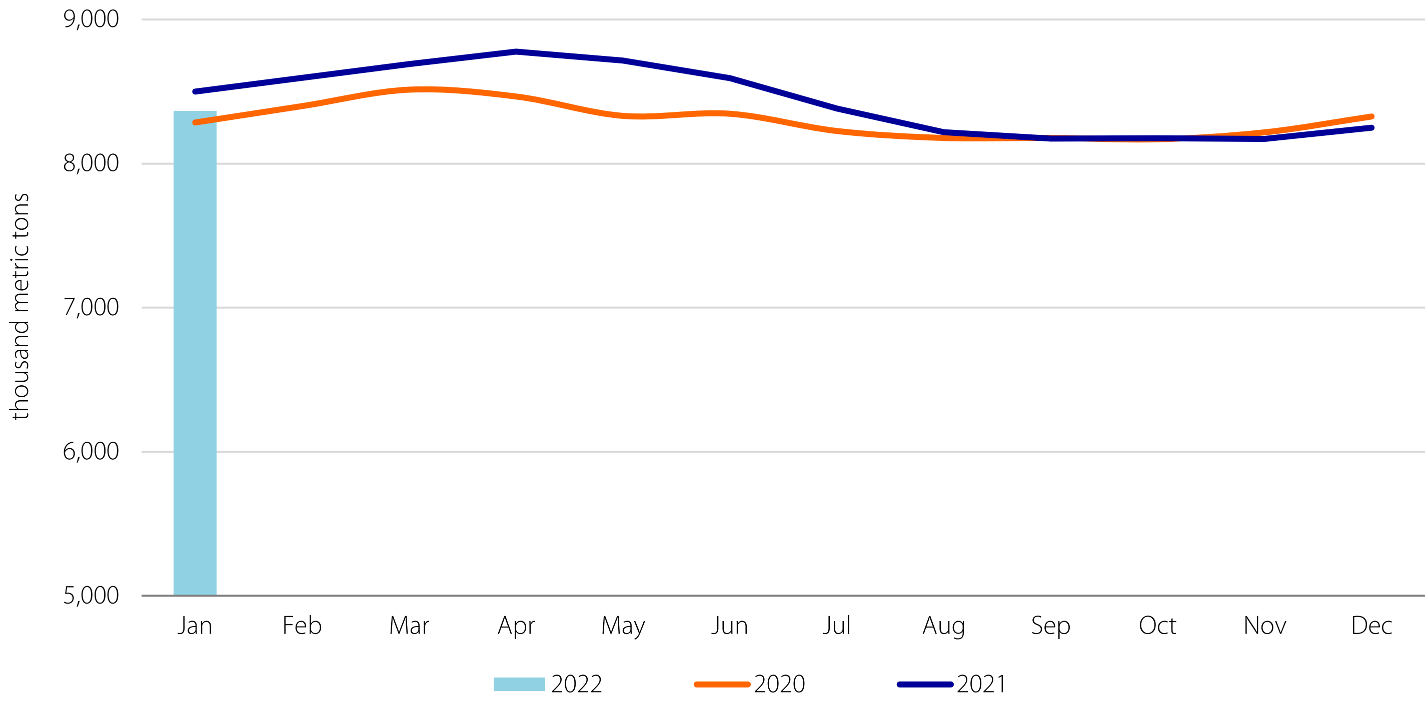
Figure 4: US Milk Production, Jan 2020-Jan 2022



Source: USDA, Rabobank 2022

New Zealand

Export volumes during Q4 2021 dropped by 2% on the same period last year. Exports to China rose slightly during this time but were not enough to offset significantly lower trade to Sri Lanka and, to a lesser extent, Indonesia, Australia, and Algeria.

Milk production over the summer months has been at the mercy of the weather. January 2022 was extremely hot across New Zealand, limiting pasture growth. The Waikato (home to over 20% of the NZ herd) was particularly dry, with farmers tapping into supplementary feed from the spring or reducing milking hours to help maintain milk flows into autumn. NZ milk production for January 2022 declined by 6.1% YOY.

Welcome rainfall was received over most of the country in February 2022, easing fears of a very steep decline in collections and an early end to the season for some farmers. However, parts of Southland (12% of herd) remain thirsty, while Canterbury (20% of herd) is still suffering impacts from a poor spring and less sunshine. Parts of Westland (3% of herd) were also impacted by the ex-Cyclone Dovi delivering heavy rain.

Cash flows remain positive, with the Fonterra midpoint reaching new record levels at NZD 9.60/kgMS. Cost structures continue to lift in tandem. While fertilizer prices have retreated marginally, they remain at elevated levels compared to a year ago. With more input cost pressure, particularly for fertilizer and fuel costs, expected over the short term due to the Russia-Ukraine conflict, the lift in farmgate milk price forecasts is welcome. Margins for farmers remain profitable to very profitable, depending on the operation.

New Zealand agriculture is facing its day of reckoning with Covid-19, as Omicron spreads throughout the country. Labor availability remains stretched on farms. Borders are beginning to reopen in a staged manner between the end of February and October 2022.

Rabobank forecasts milk production for the 2021/22 season to drop behind last year's by up to 4%. Lower volumes of milk collected over the peak period, combined with fickle summer weather, have resulted in a year-on-year gap that is likely too wide to bridge over the shoulder. Feed reserves may be tight in some parts of the country through the winter months due to the negative weather impacts on the grain harvest and the use of feed over summer and autumn.

Rabobank forecasts a milk price for the 2021/22 season of NZD 9.70/kgMS. Lower milk production both within New Zealand and other exporting regions supports a milk price forecast around the midpoint of Fonterra's current range of NZD 9.30/kgMS to NZD 9.90/kgMS. Supply chain challenges, inflation in input costs globally, and food security concerns add upside weight to Oceania dairy commodity prices and the new season.

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Figure 5: New Zealand Milk Production, Jan 2020-Jan 2022

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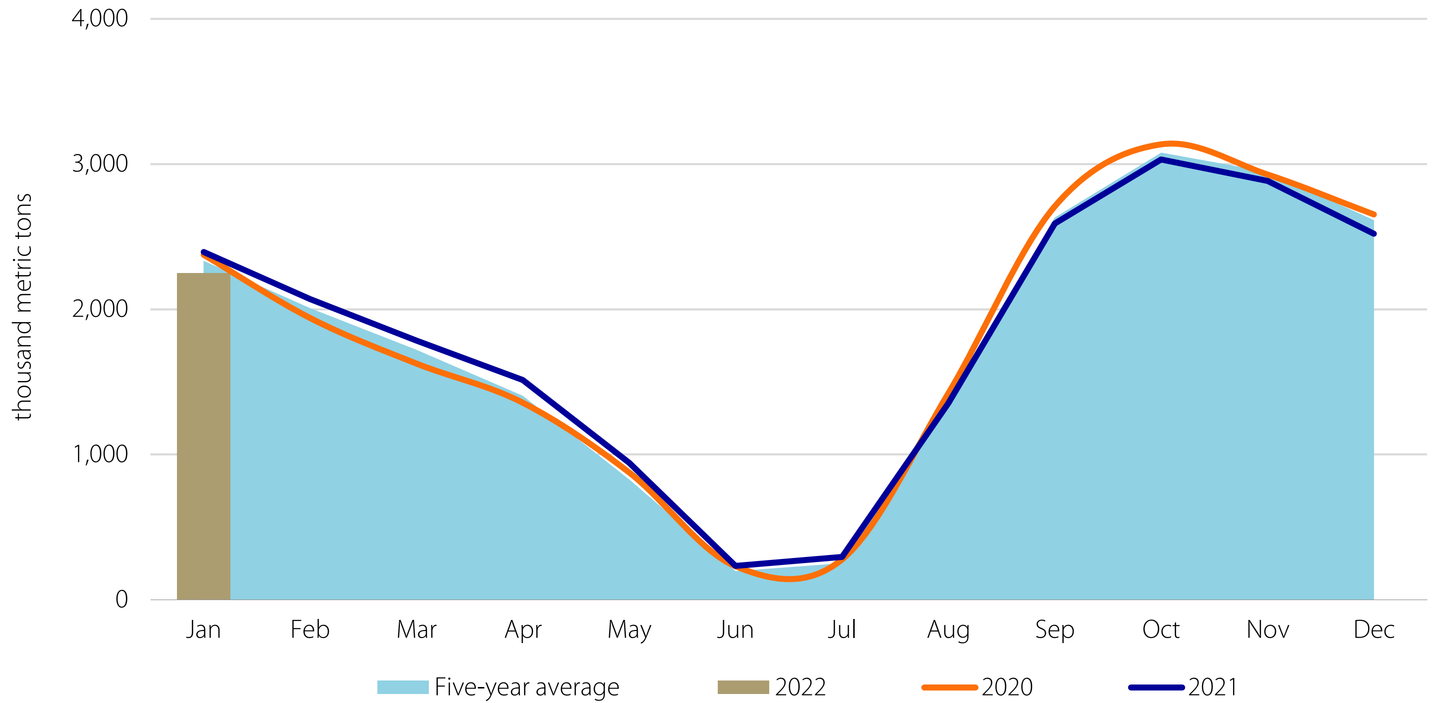


Source: DCANZ, Rabobank 2022

Australia

Milk production is still declining as the season reaches the halfway point. As of January 2022, national milk production was 2.6% behind the previous season. Labor shortages and a wet spring/early summer have been a drag on production. At the time of writing, severe flooding is impacting the northern NSW dairy region, which will negatively impact milk production to some degree. Production should return to growth in 2022/23, albeit from a low base.

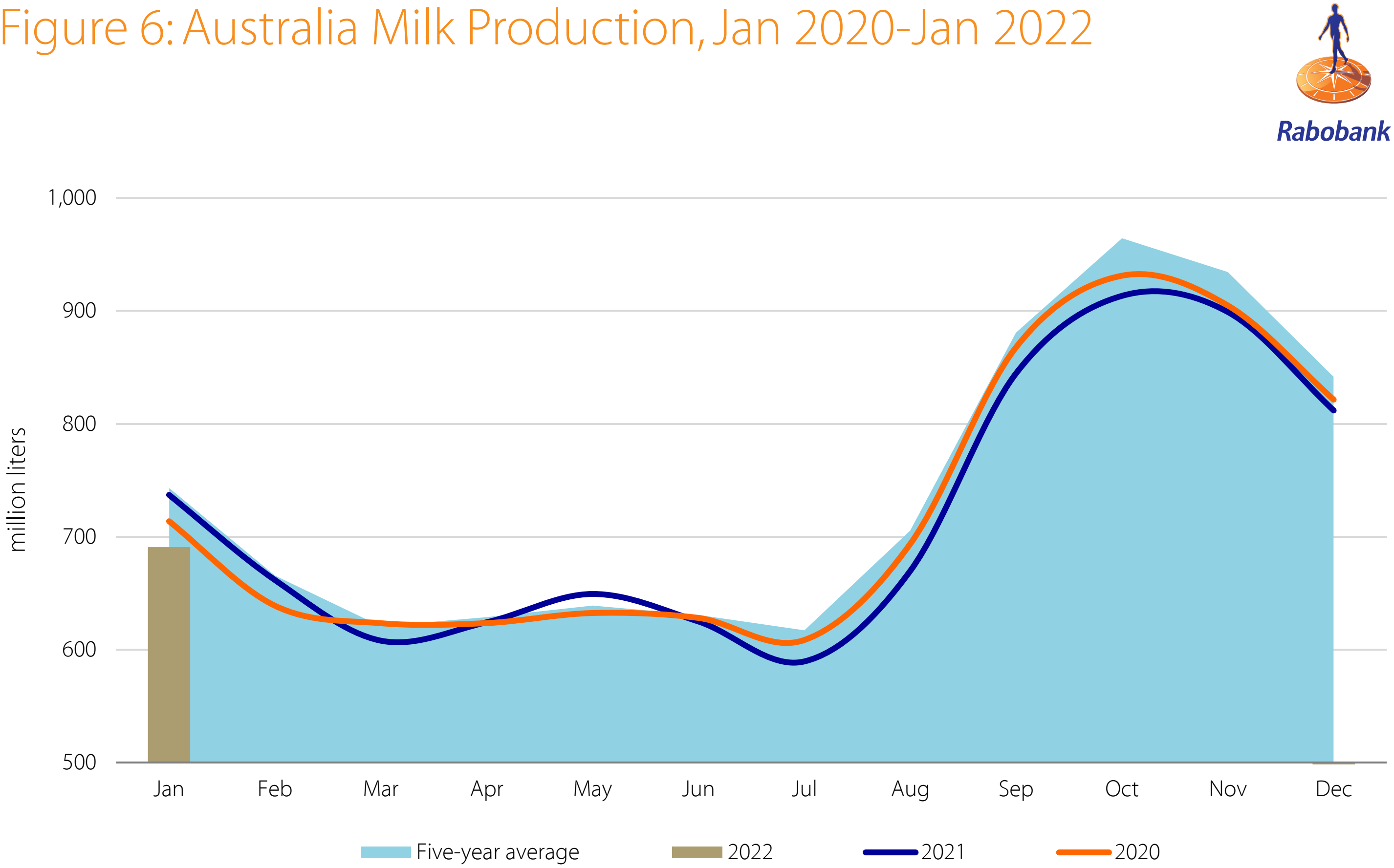
There has been a round of announced increases to milk pricing across the export sector. Stronger export returns are starting to flow through to the farmgate. There is potential room for further increases in both the current and the next season as dairy exporters capture the benefit of higher commodity prices, particularly skim milk powder. Rabobank's modeled farmgate milk price for southern Australia stands at AUD 7.65//kgMS for 2021/22.

Australian dairy farmers continue to enjoy good profitability, but a margin squeeze looms. The cost of key inputs will be elevated for the next production season, eroding some of the benefits of higher milk prices. ***On a brighter note, the outlook for feed remains favorable.*** Most dairy farm operators will have a good feed wedge heading into winter and the new season. There will also be a plentiful supply of supplementary feed available but with elevated risk of higher prices. Producers will be eagerly waiting for a timely autumn break. The current outlook from the Bureau of Meteorology forecasts that rainfall for March to May will likely be above median for key production regions. In a sign of healthy water availability for irrigation dairy farmers, allocations are at record levels in some systems in the southern Murray-Darling Basin.

Australia's food market took another hit from an Omicron outbreak. As summer draws to a close, the operating environment will be as close to pre-pandemic levels as it has been for some time. Borders are open, and mobility and capacity restrictions have been removed. Households generally have healthy balance sheets – but like many, consumers face rising cost-of-living pressure, which will lead to a shift in food purchases and discretionary spending. Overall, the volume impacts to dairy sales are not expected to be material.

Australian dairy exports were strong in the first half of the season (July to December) despite supply chain issues. Total volumes were up 25%, pushed higher by solid exports of milk powders and liquid milk. Total export returns were up 18% over the period, underpinned by firming commodity pricing. It hasn't been completely smooth sailing, though, with a number of exports (dairy included) reporting supply chain issues.

Figure 6: Australia Milk Production, Jan 2020-Jan 2022



Source: Dairy Australia, Rabobank 2022

Brazil

Milk output has declined in Q1 2022. Dry conditions have severely impacted southern Brazil in Q1. Poor weather negatively impacted forage production and grain yields. As a result, grain prices are elevated and expected to remain firm in the coming months. Consequently, farmer margins are being squeezed at the farm level, which has reduced appetite for increased investments in milk production. As a result, low farmer margins and a decline in milk output of around 5% compared to Q1 2021's high comparable are expected in Q1 2022.

Most dairy categories are facing lower margins at the start of 2022. With lower disposable incomes, it has been harder for companies to implement price increases in Brazil. Even categories that have outperformed in recent years, such as cheese, have seen lower margins in Q1. UHT milk is performing slightly better after price increases were implemented. However, margins remain low. Yogurt and other value-added categories continue to face headwinds, and an improvement is dependent on a recovery in economic conditions, consumer sentiment, and lower inflation.

Consumer demand is weak but should start to stabilize. Brazil's economy slowed during the second half of 2021, as the central bank increased interest rates sharply from 2% to over 10% to reduce inflation. This impacted consumer demand with high fuel prices and overall food price increases. However, recent economic data suggests that activity is showing some early signs of moderate improvement, with inflation still accelerating but expected to be lower for 2022 compared to 2021, when inflation reached 10% for the year.

A stronger currency could add to inflation pressures. Surprisingly, the Brazilian real has been the best performing currency so far in 2022. This is welcome news for Brazilians, as prices for fuel and many food items increase when the currency weakens. Despite high oil prices, local fuel prices have been largely flat this year compared to the second half of 2021.

The export window remains open for Brazil. With current international prices and exchange rates, Brazil remains competitive in the export markets, particularly in WMP. Meanwhile, imports remain expensive for local market buyers. Therefore, the dairy trade deficit is likely to narrow further during the first half of 2022, with more companies trying to export at current prices.

Farmgate milk prices to remain elevated in 1H 2022. The industry is facing a challenging situation with decreasing milk supply, lower imports, and ongoing weak demand. This has meant that farmgate milk prices are now improving, and with more competition for raw milk, this should provide more support for farmgate prices in the coming months.

Argentina

Extreme heat and dry weather have reduced milk output in Q1 2022. An extreme heatwave hit Argentina's main dairy basin during January, bringing record-high temperatures and drought conditions. As a result, a reduction of around 5% in milk production was recorded in January 2022 compared to January 2021. The extreme heat negatively impacted animal comfort and resulted in a spike in corn and soymeal prices.

On a positive note, farmers are showing signs of resilience and better planning during heatwaves. Dairy farmers are moving towards more intensive production models in Argentina, with lower dependence on forage and a significant increase in free-stall production. This has meant that despite extreme heat, the relative impact on milk production has been more moderate than during previous similar episodes. On the other hand, dependence on supplementary feed has increased, and despite domestic market restrictions on exports, grain prices continue to rise, especially in comparison to milk prices.

Farmer margins are contracting despite recent hikes to milk prices. Milk producers are feeling the effects of higher grain prices, which are also being compounded by higher fertilizer costs and overall inflation. The processing industry agreed to a 4% increase in January farmgate milk prices. However, this is not compensating for increasing costs. Overall milk production is expected to decline by around 2% in Q1, with worsening margins for dairy farmers.

Increased stocks from 2021 are sufficient to supply the local market and continue exports. Weaker production numbers will not affect domestic market sales nor exports in 1H 2022. The processing industry is well supplied from last year's strong output, which means that companies will try to maintain market share locally and in the export market. However, there are concerns that some additional restrictions to exports could be implemented later in the year if domestic production does not recover.

Overall inflation to continue disrupting dairy consumption and production. The inflationary spiral continues in Argentina, with negative consequences for consumers and processors. Consumers are ever more dependent on government subsidies, at a time when government deficits need to be controlled for inflation to decline. For processors, the loss of consumer spending power negatively impacts sales as shoppers trade down to more affordable products. Also, overall inflation continues to impact costs of production and puts further pressure on margins. The processing industry has limited scope for higher farmgate milk prices, but farmers are also under pressure from high grain prices.

China

Average Chinese farmgate milk prices have further eased from Q4 2021, to CNY 4.24/kg (USD 0.67/kg) in late February 2022, only 3% off the peak in August and down 0.5% YOY. Meanwhile, Oceania WMP prices have escalated markedly. ***Rabobank's latest import parity analysis shows that the landed Oceania WMP price discount has narrowed to 6% off the average domestic milk price, vs. the historical average of 15% since 2013.***

China's production of dairy products, a proxy for demand strength, reaccelerated to 9.2% YOY following a weak Q3 of 1% YOY, according to the National Bureau of Statistics (NBS). This brought 2H 2021 volume growth to 5% YOY – vs. 17% YOY in 1H 2021 – as the end market demand normalized quickly.

Macro headwinds have persisted, brought about by regional lockdowns due to the zero-Covid policy, layoffs induced by government policy shifts in some sectors in 2021, and property developers' debt crisis, which have all contributed to weakened consumer sentiment. The number of domestic trips declined by 2% YOY during the Chinese New Year (CNY) holiday week in 2022, with domestic tourism revenue lower by 4% YOY. The recovery reached only 74% of the number of domestic trips made during the 2019 CNY holiday week. In contrast, domestic tourism revenue was 56% of the 2019 holiday period, which likely impacted foodservice performance during the holiday.

China's dairy supply continues to grow via domestic production and imports. The NBS reports that 2021 milk production increased by 7.1% YOY, driven by ongoing herd expansion, yield improvements, a mild summer, and farmgate profitability. Chinese milk production had grown by 15% cumulatively since 2019.

Chinese import volumes of dairy products (LME) increased by 10% YOY during 2H 2021, vs. the 18% YOY anticipated in Rabobank's Q4 2021 outlook. Such a contrast means that ***there was hardly any destocking during 2H 2021.*** Considering a much stronger domestic supply base, China seems comfortable with the current level of stocks before the Covid-related supply uncertainties wear off.

Channel checks suggest that local market prices have tracked the recent gains in GDT auction prices. However, the cost of imported WMP has remained largely on par or slightly below the current GDT price levels. The justification for Chinese traders to step back into the market would then become one of betting on further rises from current purchase prices and/or of building a higher food security reserve in the wake of renewed geopolitical conflicts. These levels would entail uncertainties over the future direction of both GDT and local spot market prices and upside risks to China's import volume.

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China

Looking further into 1H 2022, Rabobank retains its milk production forecast of 4% YOY growth, with 2H 2022 output tapering off to 3% YOY. ***Our forecast production growth could well be on the conservative side,*** as heifer exports to China from Oceania hit 164,000 head, a ten-year record high in 2021 (albeit with a decelerating growth compared with 2020). Feed costs have decidedly caught up at the farmgate, with farm-level profit peaking out in Q4 2021. With average milk prices only marginally below the historical high, culling has yet to accelerate. ***It may take longer than forecast for supply to respond to weakening milk prices, higher feed costs, and lower feed quality due to poor harvest weather last year.*** This could present downside risk to China's import gap.

Rabobank maintains consumption growth in LME at 3% YOY for all of 2022, in line with a decelerated longer-term trend line. Assuming no inventory change at year-end 2022, Rabobank expects the import gap for 2022 to remain unchanged from the previous expectation. This means that the estimated import gap in LME will fall by 26% YOY (unchanged) in 1H 2022, but it will be followed by a worse decline of 37% YOY in 2H 2022 (previously a decline of 15% YOY) due to much higher-than-expected imports in Q4 2021. This should bring about a 30% YOY decrease in imports (previously 22%) for full year 2022. ***This could result in an estimated reduction of 250,000 metric tons and 130,000 metric tons, respectively, in WMP and SMP imports for 2022 vs. 2021.***

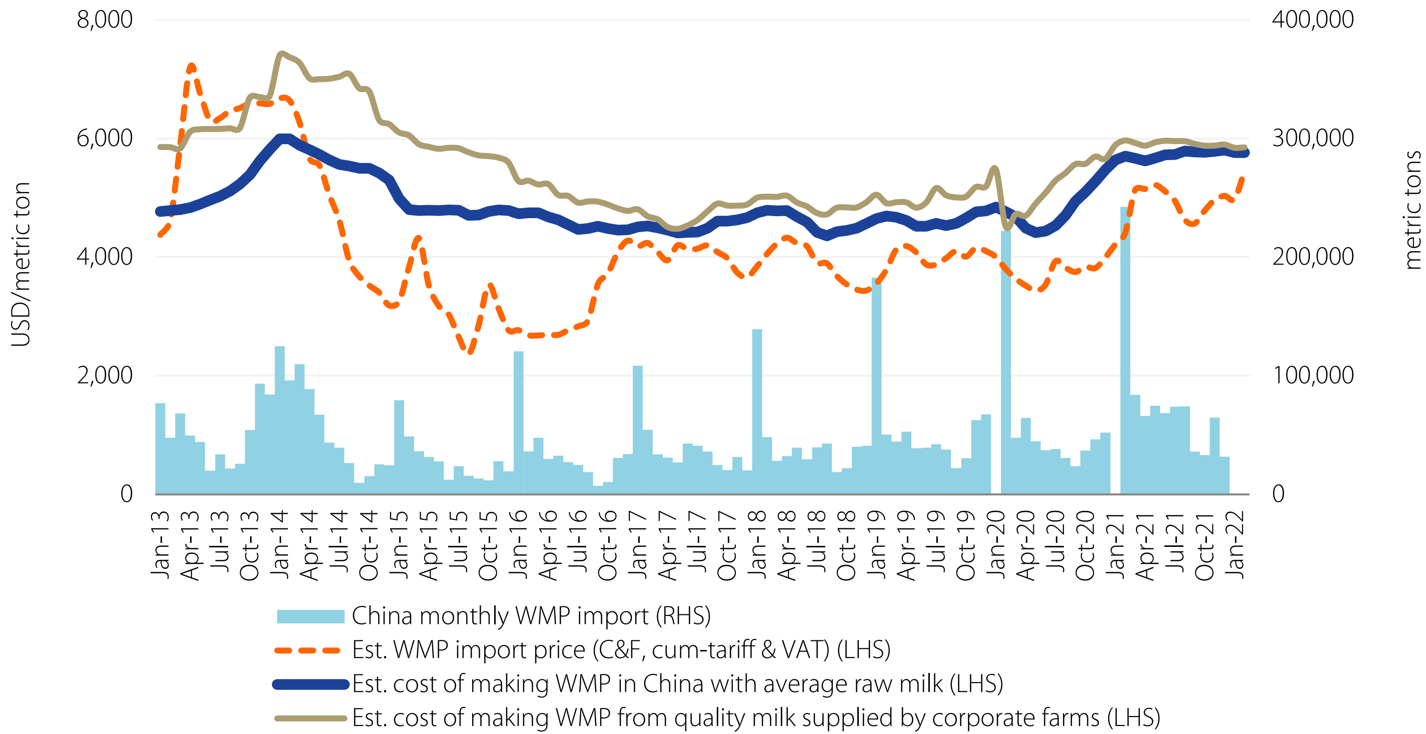
In 1H 2023, Rabobank expects production growth to slow further to 3% YOY. Consumption growth is forecast at 3%. ***This should lead to the import gap widening marginally by 2% YOY in 1H 2023.***

Dairy companies continue to bear the brunt of nearly historically high domestic milk prices, as attempts to raise retail dairy prices have met resistance from the consumer market.

The Chinese dairy CPI remained muted at 1.8% YOY in 2021 and 0.8% YOY in January 2022, compared with the magnitude of the change in the average farmgate milk price. As pricey dairy commodities purchased during late Q1 and into Q2 2022 enter the cost calculation, processors are expected to pass on the increased milk and ingredients costs to consumers, potentially reducing demand more than expected and pressuring milk prices lower.

Rabobank expects a visible reversal in farmgate milk prices to occur as early as Q1 2022 amid a well-stocked market, following January 2022 FTA arrivals, and continued milk production and stock growth, as consumption is unlikely to accelerate with the relatively weak consumer sentiment.

Figure 7: China WMP Import Parity, Jan 2013-Feb 2022



Source: China Customs, Eucolait, Chinese Ministry of Agriculture, Rabobank 2022

Table 1: Quarterly Dairy Commodity Prices (Historic and Forecast), Q4 2020-Q2 2023f

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		2021				2022				2023	
		Q1	**Q2**	**Q3**	**Q4e**	**Q1f**	**Q2f**	**Q3f**	**Q4f**	**Q1f**	**Q2f**
Butter											
Europe	EUR/metric ton	3,607	4,056	3,997	4,975	5,875	6,050	5,825	5,500	5,250	5,250
US	USD/metric ton	3,236	3,958	3,830	4,255	5,875	5,625	5,900	5,500	4,900	4,900
Oceania	USD/metric ton	5,092	5,182	4,650	5,150	6,400	7,000	6,500	6,000	5,800	5,300
Cheese											
Europe (Gouda)	EUR/metric ton	3,162	3,228	3,318	3,625	4,175	4,450	4,300	4,200	4,000	3,885
US (Cheddar)	USD/metric ton	3,559	3,803	3,530	3,885	4,250	4,575	4,600	4,500	4,350	4,000
Oceania (Cheddar)	USD/metric ton	4,219	4,405	4,195	4,600	5,900	6,400	6,300	6,000	5,500	4,550
Dry whey powder											
Europe	EUR/metric ton	862	992	964	1,020	1,275	1,350	1,300	1,200	1,100	1,100
US	USD/metric ton	1,116	1,402	1,250	1,300	1,685	1,675	1,450	1,250	1,200	1,200
Skim milk powder											
Europe	EUR/metric ton	2,338	2,541	2,540	2,975	3,540	3,725	3,600	3,400	3,250	3,250
US	USD/metric ton	2,475	2,702	2,795	3,225	3,825	4,000	3,845	3,600	3,300	3,300
Oceania	USD/metric ton	3,466	3,473	3,150	3,550	4,200	4,600	4,600	4,000	3,800	3,500
Whole milk powder											
Europe	EUR/metric ton	2,918	3,189	3,188	3,625	4,425	4,600	4,400	4,200	4,000	4,000
Oceania	USD/metric ton	3,652	4,093	3,700	4,000	4,500	4,800	4,800	4,800	3,800	3,800
South America	USD/metric ton	3,250	3,500	3,500	3,650	4,350	4, 800	4,800	4,800	4,200	3,800

Source: USDA, forecasts by Rabobank 2022

Figure 8: Exchange Rates, USD vs. Exporters, Jan 2016-Jan 2022

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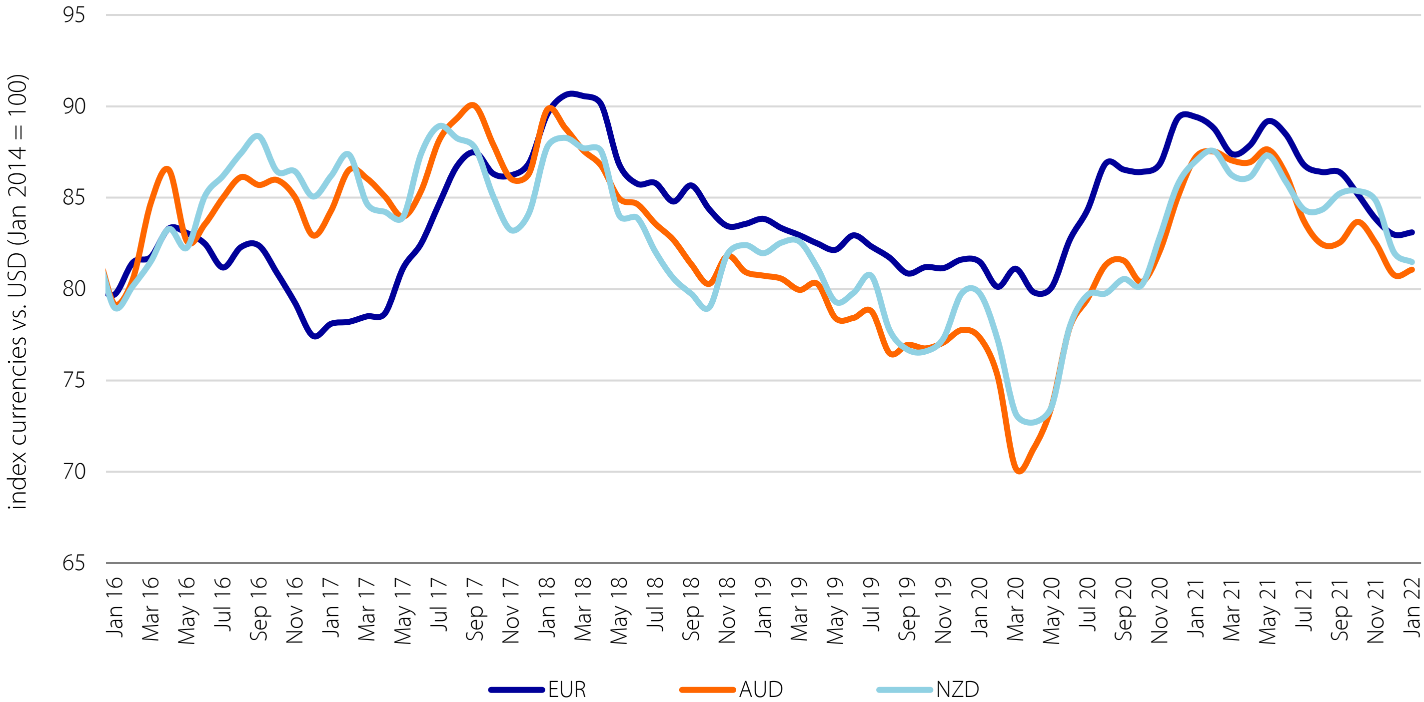

Source: UDM Board of Governors of the Federal Reserve System, Rabobank 2022

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