International Demand Analysis

Data Through: August 2023
This is the International Demand Analysis from the Dairy Economics Team at National Milk Producers Federation (NMPF) and the U.S. Dairy Export Council (USDEC). This monthly report outlines the latest global dairy trade trends and data combined with our own commentary analyzing demand in key markets for cheese, NFDM/SMP, whey (0404.10) and WPC80+, alongside shorter summaries for lactose, butterfat and WMP – all with a forward-looking lens and US exporter viewpoint.

**Data Notes**
- All comparisons are year-over-year unless otherwise noted.
- 3-Year CAGR is calculated from most recent 12-months and not from calendar year.

If you have any questions, comments or suggestions on how to improve the report, send us an email at:
- wloux@usdec.org
- scain@usdec.org
Global Dairy Demand Market Commentary

KEY TAKEAWAYS

- Even as global markets recovered from their lows in recent weeks, global dairy trade data suggests demand remains far from robust. Year-over-year (YOY) volume fell slightly in August, slipping 1% on a milk solids equivalent (MSE) basis (-11,346 MT M5E). While still negative, it was a marked improvement on last month's 6% decline.

- The EU and New Zealand each increased exports 2% in August (+6,277 MT and +2,922 MT, respectively), while U.S. shipments declined again (-10%, -21,838 MT) — which we discussed in more detail in our U.S. Trade Data Analysis.

- China’s import demand continued to lag, with MSE volume down 16% (-23,795 MT), driven by lower imports of fluid milk, low-protein whey and WMP – a familiar summary to anyone who’s read past IDAs.

- Most other major importing markets posted YOY growth in August. Mexico remained the star of 2023, with August volume up 7% (+3,762 MT). Southeast Asian imports rose 2% (+2,804 MT) – a distinct improvement from prior months, largely driven by sizeable gains in SMP (+26%, +11,391 MT). Middle East/North African (MENA) imports increased 7% (+7,575 MT), with growth in most products except WMP.

<table>
<thead>
<tr>
<th>Global Milk Solids Trade</th>
<th>-1.4%</th>
<th>+0.2%</th>
<th>-0.7%</th>
<th>-0.4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>August YoY</td>
<td></td>
<td></td>
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<tr>
<td>YTD, Ending August</td>
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<td>Last 12-Months, Ending August</td>
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<tr>
<td>3-Year CAGR</td>
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August Standout Markets

- CHINA+HK: -16% (-23,795 MT)
- SOUTH ASIA: +66% (+13,181 MT)
- MENA: +7% (+7,575 MT)
- SSA: -18% (-8,631 MT)

ADDITIONAL NOTES

Total milk solids trade to Southeast Asia turned positive for the first time in seven months after lagging for much of the year. This was largely driven off strong NFDM/SMP imports, which improved 26% (+11,391 MT) in August offsetting YOY shortfalls in WMP and lactose as well as small declines in low-protein whey and cheese. While NFDM/SMP and fluid milk were the only major products that saw increases in August, the limited declines elsewhere, especially in low-protein whey, suggests the region has reached the low-ebb of demand after consumption struggled with the challenging economic environment over the previous 18 months. Still, with economic concerns still present, a rapid rebound to pre-inflation import levels is unlikely to materialize overnight.

Source: NMPF/USDEC, TDM
Global Dairy Demand Market Commentary

LOOKING AHEAD

- China’s future demand remains uncertain with economic troubles persisting, but slowing domestic production potentially spurring imports. As we move through the end of year, Chinese import volumes will likely increase seasonally and may even rebound ahead of last year, but a sharp rally in imports anywhere close to 2021 volumes is still unlikely outside select products – cheese, WPC80+, lactose.

- Economic challenges continue to hamper international dairy demand. In contrast to the U.S., where inflation has cooled surprisingly quickly and is forecasted to return to normal levels by next year, the IMF expects global inflation to remain elevated into 2024 and even 2025, which is liable to act as an impediment to rapid demand growth. Still, overall, macroeconomic conditions are improving even as plenty of risk factors remain, including China’s housing sector crisis, further interest rate hikes by central banks, and uncertainty in energy markets given the conflict in Israel and Gaza.

- Gratefully, in spite of global economic headwinds, we see positive signs in several key markets like Mexico. Southeast Asia posted its first positive month of trade since January. MENA, while down last month, returned to growth in August, with volumes up in nearly every major product. Overall, we expect to see growth in global demand more broadly as we move through the end of the year and into 2024.

U.S. Milk Solids Exports

<table>
<thead>
<tr>
<th></th>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>-10.2%</td>
<td>-6.3%</td>
<td>-0.6%</td>
<td>-0.2%</td>
</tr>
</tbody>
</table>

EU Milk Solids Exports

<table>
<thead>
<tr>
<th></th>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>+1.7%</td>
<td>+3.0%</td>
<td>+0.1%</td>
<td>+0.02%</td>
</tr>
</tbody>
</table>

NZ Milk Solids Exports

<table>
<thead>
<tr>
<th></th>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>+2.4%</td>
<td>+11.0%</td>
<td>+5.4%</td>
<td>+1.8%</td>
</tr>
</tbody>
</table>

ADDITIONAL NOTES

Mexico’s demand remains a bright spot to global dairy. The strength of the peso has supported the robust trade volumes along with tight domestic supplies and robust domestic consumer demand (driven by the highest consumer confidence index in the world according to the OECD). As milk production continues to tighten globally, pushing prices higher, Mexico may be better positioned than other importing markets to handle that price increase. Still, the peso has weakened of late and imports, while still growing, have decelerated. Fundamentally, growth in Mexico should not be taken for granted.

1U.S. Milk Solids Exports reflect trade data aggregated from 6-digit HS codes (global HS codes are harmonized at the 6-digit level). This number will differ slightly from U.S. Milk Solids Exports reported in our U.S. Trade Data Release which takes a more granular look at U.S. specific, 10-digit HS codes.

Source: NMPF/USDEC, TDM

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Executive Summary: August 2023

Global Total Solids Trade to World

YOY Change in Global Dairy Trade to World: Month of Aug, MSE

YOY Change in Global Milk Solids Trade by Destination: Month of Aug 2023

YOY Change in Global Dairy Trade to World by Product: Month of Aug

Source: NMPF/USDEC, TDM
Global Dairy Trade

Global Dairy Trade
(Milk Solids Equivalent, Rolling 12 Months)

Source: NMPF/USDEC, TDM
Select Markets – Month of Aug. 2023, Milk Solids Equiv.

- **MENA**: +7% (+7,575 MT)
- **UK**: -2% (-891 MT)
- **EU27**: +3% (+1,071 MT)
- **ROW**: +3% (+4,522 MT)
- **S. Am**: +4% (+1,519 MT)
- **SSA**: -18% (-8,631 MT)
- **SEA**: +2% (+2,804 MT)
- **Japan**: -0.2% (-42 MT)
- **China**: -16% (-23,795 MT)
- **Mexico**: +7% (+3,762 MT)

Note: Size of bubble denotes total imports
Source: NMPF/USDEC, Trade Data Monitor

Source: NMPF/USDEC, TDM
Average Global Export Price

Average Dairy Export Value to World, MSE
Global Dairy Spot Prices

Average US, EU, & NZ Wholesale Prices for Select Dairy Products

Source: NMPF-USDEC, CME, NDPSR, Eurostat, EEX, GDT
Cheese Market Commentary

Key Takeaways

- Global cheese trade rose 3% (+6,111 MT) in August, marking its fourth consecutive month of growth. Despite the turbulent year, global cheese trade remained consistent.

- Mexico exhibited strong cheese demand growth once again with August volume rising 15% (+2,003 MT). Year-to-date (YTD) through August, Mexican cheese demand is up 12% (+12,082 MT).

- China’s cheese demand has also proven resilient this year – up 17% (+1,681 MT) in August and 25% (+26,272 MT) YTD. China’s strength likely reflects 2021 inventories having been worked through last year and virtually no domestic production of cheese, necessitating imports.

- Korean imports fell significantly in August – down 26% (-3,792 MT). Demand in the country remains quiet despite abundant low-priced mozzarella on the market, particularly from Europe, over this past year.

Global Cheese Trade

<table>
<thead>
<tr>
<th></th>
<th>+2.9%</th>
<th>+1.4%</th>
<th>+0.7%</th>
<th>+0.9%</th>
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<tr>
<td>August YoY</td>
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<tr>
<td>3-Year CAGR</td>
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August Standout Markets

<table>
<thead>
<tr>
<th>Country</th>
<th>Change</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>-26%</td>
<td>-3,792 MT</td>
</tr>
<tr>
<td>MENA</td>
<td>+12%</td>
<td>+2,811 MT</td>
</tr>
<tr>
<td>Australia</td>
<td>+33%</td>
<td>+2,006 MT</td>
</tr>
<tr>
<td>Mexico</td>
<td>+15%</td>
<td>+2,003 MT</td>
</tr>
</tbody>
</table>

Additional Notes

Korea represents 6% of total global cheese trade, ranking just below Mexico but above the U.S. So far this year though, Korean cheese imports are down significantly: -13% YTD (-13,911 MT) and -26% (-3,792 MT) in August. The U.S. has faced the brunt of that decline with YTD U.S. cheese exports to Korea down 45% (-23,897 MT), including a 50% decline (-3,714 MT) in August. YTD EU cheese exports to Korea gained 10% (+3,662MT) through August and NZ shipments grew 46% (+7,036 MT).
Cheese Market Commentary

LOOKING AHEAD

• After a period of volatile pricing, major exporter cheese prices have moved into a relatively tight range, with just a few hundred dollars per MT separating them. Earlier this year, the global price gap reached over $2,000/MT.

• The global market may have finally found consistent support at this level. The tightening global milk supply is likely the primary cause behind the firming of global cheese prices and should prevent significant easing as we finish out the year and move into 2024.

• More importantly, for the long-run, global cheese demand also seems to be returning toward consistent growth after lackluster gains through much of 2022. Consumer confidence remains below pre-pandemic levels, but with a few exceptions, more consumers globally are expressing optimism about their economic situations.

<table>
<thead>
<tr>
<th>U.S. Cheese Exports</th>
<th>-2.9% August YoY</th>
<th>-5.6% YTD, Ending August</th>
<th>-0.9% Last 12-Months, Ending August</th>
<th>-0.3% 3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU Cheese Exports</td>
<td>+3.7% August YoY</td>
<td>+1.5% YTD, Ending August</td>
<td>-0.7% Last 12-Months, Ending August</td>
<td>-0.2% 3-Year CAGR</td>
</tr>
<tr>
<td>NZ Cheese Exports</td>
<td>+18.7% August YoY</td>
<td>+22.2% YTD, Ending August</td>
<td>+18.0% Last 12-Months, Ending August</td>
<td>+5.7% 3-Year CAGR</td>
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</table>

ADDITIONAL NOTES

New Zealand milk production increased 2.8% in H1 of this calendar year making for a strong finish to its 2022/23 season. That increased volume in the shoulder season allowed for additional production outside of WMP, with cheese playing a large part. New Zealand cheese exports through August jumped 22% (+48,714 MT). But with the 2023/24 season in full swing, supply is once again in question. In October, with concerns over El Nino and farm input costs mounting, Fonterra upped its forecast farmgate milk price to a midpoint of $7.25/kgMS. If NZ production tightens as expected, we anticipate cheese and butter/SMP to still be prioritized over WMP, but tighter supplies is likely to keep exportable volumes flat in 2024.

Source: NMPF/USDEC, TDM

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Global Overview: Cheese

Global Cheese Trade to World

Source: NMPF/USDEC, TDM
Trade Flows: Cheese

Global Cheese Trade to World

Source: NMPF/USDEC, TDM
Mexico

Global Cheese Trade to Mexico

Source: NMPF/USDEC, TDM
Korea

Global Cheese Trade to Korea

Source: NMPF/USDEC, TDM
Japan

Global Cheese Trade to Japan

Source: NMPF/USDEC, TDM
Global Cheese Trade to Australia

Source: NMPF/USDEC, TDM
Global Cheese Trade to MENA

Source: NMPF/USDEC, TDM
Southeast Asia

Global Cheese Trade to SEA

Source: NMPF/USDEC, TDM

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China

Global Cheese Trade to China+HK

Source: NMPF/USDEC, TDM
NFDM/SMP Market Commentary

KEY TAKEAWAYS

• After a modest decline in July (-1%, 1,745 MT), NFDM/SMP trade rebounded in August (+13%, 19,499 MT), suggesting the July dip may have had more to do with shipment timings rather than a pullback in demand – especially coming off strong June volumes.

• China’s NFDM/SMP buying slipped 2% (-264 MT) in August, providing further evidence the rebound from the collapse in 2022 has stalled at levels far below trend. Also worryingly, Sub-Saharan Africa imports plummeted -55% (-5,733 MT).

• Still, outside of China and Sub-Saharan Africa, the other major importing markets all increased YOY trade volumes in August. Notably, Southeast Asia rose 26% (+11,391 MT), Mexico gained 6% (+1,825 MT) and MENA increased 17% (+1,825 MT).

• With Southeast Asia, Mexico and MENA making up two-thirds of global NFDM/SMP imports, the strong August volumes from those two regions offset the declines in China and Sub-Saharan Africa.

Global NFDM/SMP Trade

<table>
<thead>
<tr>
<th></th>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>+12.6%</td>
<td>+8.9%</td>
<td>+7.7%</td>
<td>+0.1%</td>
</tr>
</tbody>
</table>

August Standout Markets

- MENA: +17% (+4,986 MT)
- SSA: -55% (-5,733 MT)
- SOUTH ASIA: +105% (+3,719 MT)
- SOUTHEAST ASIA: +26% (+11,391 MT)

ADDITIONAL NOTES

Mexican demand continues to be very strong – bolstered by sturdy economic growth and a healthy peso. Mexican NFDM/SMP imports are back above trend. The question is how long will such growth last? August import numbers were solid, rising 6% (+1,825 MT), but it was the weakest monthly growth rate this year. If prices continue to rally and the peso stabilizes or regresses to the dollar like we’ve seen of late, we may see Mexican imports ease in the back half of the year, especially since volume in the back half of 2022 was robust. Still, while imports may face some headwinds, most economic factors within Mexico point to continued support.
LOOKING AHEAD

- Global NFDM/SMP prices have consistently eased over most of the past 18 months from the highs of early 2022. Over the last month, however, prices have firmed – up on average 14% from a month earlier.

- The global market may have finally found some support at these current levels, but expectations for weaker global milk production has pinched supply. Demand, while showing signs of recovery for NFDM/SMP, still faces challenges from economic conditions, which will be exacerbated if the price rebound pushes prices up considerably in the near-term (though we remain doubtful of that unless China becomes especially active).

- The major importers outside of China (Southeast Asia, MENA and Mexico) grew in August and only Southeast Asia is still below trend in NFMD/SMP imports YTD. If prices rally too high too quickly, both MENA and Mexico may slow import purchases, given the likelihood that stocks have grown. Southeast Asia though likely still hasn't rebuilt its stocks and may, despite a potential rally in prices, need to continue importing out of necessity.

U.S. NFDM/SMP Exports
- +4.2% August YoY
- -0.1% YTD, Ending August
- +1.2% Last 12-Months, Ending August
- +0.4% 3-Year CAGR

EU NFDM/SMP Exports
- +11.0% July YoY
- +20.8% YTD, Ending July
- +16.6% Last 12-Months, Ending July
- +5.3% 3-Year CAGR

NZ NFDM/S SMP Exports
- +71.5% July YoY
- +41.2% YTD, Ending July
- +33.3% Last 12-Months, Ending July
- +10.1% 3-Year CAGR

ADDITIONAL NOTES

MENA purchases of NFDM/SMP have incredibly strong so far this year (+25%, +69,544 MT), thanks in large part to Algeria. Low prices likely spurred manufacturers to rebuild inventory at the same time consumer demand and purchasing power was enhanced by oil prices. Imports today are well above trend, and while they continued to increase in July and August, the percentage gains were much smaller than earlier in the year. With prices starting to rebound, MENA may pull back as we finish out the year with plenty of product on hand.
Global Overview: NFDM/SMP

Global NFDM/SMP Trade to World

Source: NMPF/USDEC, TDM
Global Overview: NFDM/SMP

Global NFDM/SMP Trade to World

Source: NMPF/USDEC, TDM
Global Overview: NFDM/SMP – Last 12 Months

Global NFDM/SMP Trade by Destination: Last 12 Months ending Aug

YOY Change in Global NFDM/SMP Trade by Destination: Last 12 Months ending Aug 2023

Source: NMPF/USDEC, TDM
Trade Flows: NFDM/SMP

Global NFDM/SMP Trade to World

Source: NMPF/USDEC, TDM
Source: NMPF/USDEC, TDM

Mexico
Southeast Asia

Global NFDM/SMP Trade to SEA

Source: NMPF/USDEC, TDM

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Global NFDM/SMP Trade to MENA

Source: NMPF/USDEC, TDM
Whey Products (0404.10) Market Commentary

KEY TAKEAWAYS

- Whey exports (HS code 0404.10, which is primarily sweet whey and permeate) fell 10% in August. It was the seventh month in a row of declining whey trade.

- Not to sound like a broken record, but China continues to drag down the global low-protein whey complex, with August volumes down 28% (-15,180 MT). Southeast Asia also saw weaker August volumes, though the decline was far more modest at -3% (-730 MT).

- Despite the August declines by the two largest low-protein whey import markets, several countries increased purchasing. MENA imports rose 34% (+1,477 MT), Mexico gained 43% (+1,392 MT) and South Asia (primarily India) more than doubled (+107%, +2,194 MT). These strong gains, however, were insufficient to offset the large decline in China’s demand.

### Global Whey (0404.10) Trade

<table>
<thead>
<tr>
<th></th>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whey Products</strong></td>
<td>-9.6%</td>
<td>-8.7%</td>
<td>-5.6%</td>
<td>+0.2%</td>
</tr>
</tbody>
</table>

### August Standout Markets

- **China+HK**
  - Volumes: -15,180 MT
  - Percentage: -28%

- **South Asia**
  - Volumes: +2,194 MT
  - Percentage: +107%

- **Mexico**
  - Volumes: +1,392 MT
  - Percentage: +43%

- **MENA**
  - Volumes: +1,477 MT
  - Percentage: +34%

### ADDITIONAL NOTES

After a steady decline over the past roughly 18 months, global whey prices are finally finding some support. Over the last three months, average prices are up 34%. Given the seven straight months of decline, demand was clearly the primary motivator behind the weakness in price for much of the last year. Still, with tighter milk production and several permeate dryers reportedly being shut off over the summer, supply is helping boost prices again. Even more positively, anecdotes suggest China’s demand has recovered in the 4th quarter and into 2024 even though this has not shown up in the data yet.

Source: NMPF/USDEC, TDM
**LOOKING AHEAD**

- Together, China and Southeast Asia represent roughly two-thirds of all low-protein whey purchases. Demand in both markets has struggled in 2023 with trade to China down 10% (-35,552 MT) and Southeast Asian volumes down 8% (-23,017 MT).

- The pig sector drives Chinese low-protein whey imports. Pork prices are a good leading indicator of where Chinese low-protein whey demand is trending. Large swings in Chinese pork prices have been commonplace over the last few years, stemming from both African Swine Fever and Covid impacts, but recently prices have been more rangebound (between 20-30 yuan/kg over the last eight months). Gratefully, they appear at the higher end of the range of late, which should support improvement in demand later in the year.

<table>
<thead>
<tr>
<th>U.S. Whey (0404.10) Exports</th>
<th>-31.4% August YoY</th>
<th>-22% YTD, Ending August</th>
<th>-9.9% Last 12-Months, Ending August</th>
<th>-3.4% 3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU Whey (0404.10) Exports</td>
<td>+2.5% August YoY</td>
<td>+4.6% YTD, Ending August</td>
<td>+2.6% Last 12-Months, Ending August</td>
<td>+0.9% 3-Year CAGR</td>
</tr>
<tr>
<td>NZ Whey (0404.10) Exports</td>
<td>+180.5% August YoY</td>
<td>+4.7% YTD, Ending August</td>
<td>-2.3% Last 12-Months, Ending August</td>
<td>-0.8% 3-Year CAGR</td>
</tr>
</tbody>
</table>

**ADDITIONAL NOTES**

Amidst China’s pullback in low-protein whey imports, the EU has been the only major exporter to see growth in exports this year – up 5% (+20,390 MT). YTD U.S. low-protein whey exports to China decreased 22% (-90,749 MT). Fundamentally, China is the primary trading partner for U.S. low-protein whey and has been the primary cause of lower exports from the U.S. The EU is less dependent on China, although it is still their second largest partner behind Southeast Asia. Still, that lower reliance on China paired with some strong exports to the EU’s secondary partners, has kept the bloc’s overall low-protein whey exports in positive territory this year.

Source: NMPF/USDEC, TDM
Global Overview: Whey (0404.10)

Global Whey (0404.10) Trade to World

Source: NMPF/USDEC, TDM
Global Overview: Whey (0404.10)

Source: NMPF/USDEC, TDM
Global Overview: Whey (0404.10) – Last 12 Months

Source: NMPF/USDEC, TDM
Trade Flows: Whey Products

Source: NMPF/USDEC, TDM
Source: NMPF/USDEC, TDM
Southeast Asia

Source: NMPF/USDEC, TDM

Global Whey (0404.10) Trade to SEA

Argentina
Australia
Canada
EU27
New Zealand
Turkey
UK
USA
Uruguay

Global Whey (0404.10) Trade to SEA

Global Whey (0404.10) Trade to SEA
WPC80+ (3502.20) Market Commentary

KEY TAKEAWAYS

- High-protein whey trade climbed 26% (+3,016 MT) in August.
- Of the major markets, the only large importer to reduce purchases in August was China, with trade down 10% (-280 MT). All other major importers increased their buying, which easily offset declines to China.
- Japan (+25%, +460 MT), South Asia (+165%, +1,310 MT), South America (+171%, +785 MT) and the EU (+20%, +279 MT) posted significant gains in August.
- Global demand for high-protein whey continues to rebound after a weak 2022 and slow start to 2023, when high prices subdued buying. Lower prices have helped bolster trade over the past four months. Looking ahead, high-protein whey prices have started to rise again, which may pressure trade in some markets if this short squeeze proves a prolonged rally as we move into 2024.

<table>
<thead>
<tr>
<th>Global WPC80+ Trade</th>
<th>+26.1% August YoY</th>
<th>+4.6% YTD, Ending August</th>
<th>+0.3% Last 12-Months, Ending August</th>
<th>+4.1% 3-Year CAGR</th>
</tr>
</thead>
</table>

August Standout Markets

- **JAPAN** +460 MT (+25%)
- **S. ASIA** +1,310 MT (+165%)
- **UNITED KINGDOM** +487 MT (+52%)
- **S. AMERICA** +785 MT (+171%)

ADDITIONAL NOTES

Contrary to what we reported last month, the huge gains we saw in South Asian (primarily Indian) imports in July were not quite a one-month outlier. August imports rose significantly as well (+165%, +1,310 MT). It is still doubtful this level of imports is sustainable, but the higher August volume may be lagged volume entering the country after purchases were made when prices were lower in recent months. With WPC80+ prices increasing again, it is more than likely that South Asian imports will not sustain these levels and will ease to more normal volumes. Though we certainly welcome seeing better than expected demand again.

Source: NMPF/USDEC, TDM

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WPC80+ (3502.20) Market Commentary

LOOKING AHEAD

- As we reported last month, high-protein whey prices have started to tick back up. They have continued to increase for roughly the last two months, which suggests there is a squeeze on high-protein whey availability at the same time many buyers have been caught short.
- WPC80+ prices are up 29% on average over the last seven weeks after being relatively stable over the previous five months. The stable lower prices helped spur increased trade volume, but the steady uptick we’re seeing lately may potentially slow exports over the coming months.
- Looking more long-term, the price whiplash could have the unintended consequence of dampening adoption and slowing new product launches utilizing high-protein whey as an ingredient. Still, the improvement in price is welcome news suggesting demand has clearly returned.

<table>
<thead>
<tr>
<th>U.S. WPC80+ Exports</th>
<th>+33.9% August YoY</th>
<th>+15% YTD, Ending August</th>
<th>+16.8% Last 12-Months, Ending August</th>
<th>+5.3% 3-Year CAGR</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EU WPC80+ Exports</th>
<th>+16.4% August YoY</th>
<th>-0.04% YTD, Ending August</th>
<th>-6.3% Last 12-Months, Ending August</th>
<th>-2.2% 3-Year CAGR</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NZ WPC80+ Exports</th>
<th>+50.7% August YoY</th>
<th>+7.4% YTD, Ending August</th>
<th>-5.6% Last 12-Months, Ending August</th>
<th>-1.9% 3-Year CAGR</th>
</tr>
</thead>
</table>

ADDITIONAL NOTES

The U.S. has solidified itself at the primary supplier of WPC80+ to the world since COVID-19, after previously trading that position back and forth with the EU. That fact has become clearer since late 2022, with the U.S. being the only supplier growing WPC80+ exports since that time. Over the last 12 months, U.S. exports of WPC80+ have increased 17% while EU and New Zealand exports have each declined by 6%. The U.S. also has additional high-protein whey production capacity coming online in the coming years which will bolster export capability and competitiveness.
Global Overview: WPC80+

Global WPC80+ Trade to World

Source: NMPF/USDEC, TDM
Global Overview: WPC80+

Global WPC80+ Trade to World

Source: NMPF/USDEC, TDM
Global Overview: WPC80+ – Last 12 Months

Global WPC80+ Trade by Destination: Last 12 Months ending Aug

Source: NMPF/USDEC, TDM
Trade Flows: WPC80+

Global WPC80+ Trade to World

Source: NMPF/USDEC, TDM
China

Global WPC80+ Trade to China+HK

Source: NMPF/USDEC, TDM

International Demand Analysis
Global WPC80+ Trade to Korea

Source: NMPF/USDEC, TDM
Southeast Asia

Global WPC80+ Trade to SEA

Source: NMPF/USDEC, TDM
Other Dairy Products
Global Overview: Lactose

**KEY TAKEAWAYS**

**Global Lactose Trade**

-3.3%  +3.2%  +4.0%  +3.2%
August YoY  YTD, Ending August  Last 12-Months, Ending August  3-Year CAGR

• After a strong Q1, global lactose trade has returned to more normal levels with Southeast Asia putting the most downward pressure on global demand (-41%, -4,701 MT). The CIS countries (-55%, -1,464 MT) and Sub-Saharan Africa (-28%, -557 MT) also contributed to the downturn.

• Contrarily, strong demand in South Asia (+69%, +3,273 MT) and continued stable purchasing from China (+16%, +2,091 MT) stymied the loss of lactose exports across the board compared to strong exports last year. China continues to buy lactose despite reportedly ample inventories.

Source: NMPF/USDEC, TDM
Lactose – China

Global Lactose Trade to China+HK

Source: NMPF/USDEC, TDM
Lactose – Southeast Asia

Global Lactose Trade to SEA

Source: NMPF/USDEC, TDM
Global Overview: Butter

**KEY TAKEAWAYS**

- Butter trade rose slightly in August (+1.5%), but it may not match the strong volumes recorded in the back half of 2022. So far this year, butter exports are slightly down (-1% YTD).

- Exports to MENA (+56%, +3,115 MT) and China (+44%, +2,296 MT) soared in August, though they were countered by shortfalls to the UK (-32%, -1,786 MT), the EU (-43%, -1,279 MT) and Canada (-31%, -887 MT).

- Butter is extremely tight in the U.S. and with domestic prices breaking records, U.S. butter imports were up 20% in August.

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Source: NMPF/USDEC, TDM
Butter – MENA

Source: NMPF/USDEC, TDM
Butter – China

Global Butter Trade to China+HK

Source: NMPF/USDEC, TDM
Global Overview: Whole Milk Powder

KEY TAKEAWAYS

Global WMP Trade

<table>
<thead>
<tr>
<th>August YoY</th>
<th>YTD, Ending August</th>
<th>Last 12-Months, Ending August</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>-17.8%</td>
<td>+1.1%</td>
<td>-5.3%</td>
<td>-4.4%</td>
</tr>
</tbody>
</table>

• WMP continued to lag in August as New Zealand’s inventory was cleared. Exports to China led the decline (-52%, -14,259 MT). But WMP trade to MENA (-13%, -3,883 MT), SEA (-24%, -4,362 MT) and Sub-Saharan Africa (-30%, -2,649 MT) also fell markedly in August.

• On the flipside, South Asian WMP exports rocketed in August, rising 119% (+5,633 MT) and shipments to South America increased +10% (+1,577 MT).

• Recent activity on the GDT suggests some strength in Chinese WMP demand and is further supported by weaker domestic milk production, but the country is still facing challenges with reportedly heavy stocks which will limit the upside potential.

Source: NMPF/USDEC, TDM
Whole Milk Powder – China

Global WMP Trade to China+HK

Source: NMPF/USDEC, TDM
Whole Milk Powder – MENA

Source: NMPF/USDEC, TDM
Reach Out for Questions or Comments

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