International Demand Analysis
A Note from the Authors

- 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

• Global dairy trade took another step back in September, falling 7% year-over-year (57,424 MT MSE). All but two major markets (MENA and South Asia) declined in terms of global demand.

• China dropped again in September (-14%, -22,072 MT MSE), continuing the disappointing Q3 for the world’s largest dairy importer. In fact, with September’s decline, China’s imports reached the lowest point on an annualized basis since July 2020. Effectively, China’s imports – even with the rally in Q2 – are now at a lower point than they were during the lowest ebb last year. China’s regression in low-protein whey demand certainly played a major role in the Q3 deterioration, but fluid milk, WMP, cream, butter, AMF and infant formula were all down substantially in September. Only lactose and cheese posted noteworthy improvements over this time last year.

• Outside of China, the U.S.' two largest markets, Southeast Asia and Mexico, recorded notable declines. Global shipments to Southeast Asia fell by 9% (-11,985 MT MSE) and Mexico by 12% (-6,942 MT MSE).

Global Milk Solids Trade

<table>
<thead>
<tr>
<th></th>
<th>September YoY</th>
<th>YTD, Ending September</th>
<th>Last 12-Months, Ending September</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINA+HK</td>
<td>-6.7%</td>
<td>-0.5%</td>
<td>-1.3%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>SOUTHEAST ASIA</td>
<td>-9%</td>
<td>-0.5%</td>
<td>-1.3%</td>
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</tr>
<tr>
<td>MENA</td>
<td>+8%</td>
<td>-0.5%</td>
<td>-1.3%</td>
<td></td>
</tr>
<tr>
<td>MEXICO</td>
<td>-12%</td>
<td>-0.5%</td>
<td>-1.3%</td>
<td></td>
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</tbody>
</table>

September Standout Markets

<table>
<thead>
<tr>
<th>Market</th>
<th>Change</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINA+HK</td>
<td>-14%</td>
<td>-22,072 MT</td>
</tr>
<tr>
<td>SOUTHEAST ASIA</td>
<td>-9%</td>
<td>-11,985 MT</td>
</tr>
<tr>
<td>MENA</td>
<td>+8%</td>
<td>+9,073 MT</td>
</tr>
<tr>
<td>MEXICO</td>
<td>-12%</td>
<td>-6,942 MT</td>
</tr>
</tbody>
</table>

ADDITIONAL NOTES

Similar to the market breakdown, nearly every dairy product declined in terms of overall trade in September. Trade of fluid milk has lagged all year (-15%, -302,140 MT YTD) on account of China’s domestic milk production growth and sluggish demand expansion. This trend continued into September, with global fluid milk trade falling 16% (-32,380 MT). In addition to fluid milk, bulk ingredients in particular came under pressure. NFDM/SMP and WMP both dropped 8% (-13,748 MT and -10,100 MT, respectively) and low-protein whey fell 7% (-9,123 MT). Even cheese declined by 2% (-4,455 MT) though it remains slightly positive through three-quarters of 2023 (+1%, +20,035 MT). Gratefully, high-protein whey performed exceptionally well (+23%, +2,889 MT) on account of strong U.S. exports supplemented by expansion from the EU and Australia.

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

LOOKING AHEAD

• After a tentative rally earlier this year, China's third quarter regression has played a major role in weakening global trade in recent months. Reports from the country paint a mixed picture. Gratefully, milk production growth has slowed at the same time there's been improved activity at the Global Dairy Trade (GDT) auction, which would suggest increased imports as we move into China's traditional buying season. Still, China’s economic conditions have arguably worsened, and consumer demand reportedly remains sluggish. And as a preview to the next IDA, NZ’s October export data suggests WMP and fluid demand in China worsened in October. All this to say, even if China’s imports do improve to finish the year, the country is highly unlikely to drive a rally in global trade and dairy prices.

• Outside of China, we will be keeping a close eye on Mexico. For the first time in over a year, global dairy trade to Mexico declined. A 15% (-5,152 MT) drop in NFDM/SMP was the primary reason, but an 83% (-2,154 MT) decline in AMF demand and a 29% (-1,226 MT) decline in low-protein whey also contributed negatively even as cheese imports kept cruising (+18%, +2,060 MT). We believe the peso weakening slightly in September at the same time ingredient prices found some support and U.S. NFDM production waned all contributed to the September decline. Fundamentally, the data suggests buyers in Mexico are well covered on ingredients, which will dampen the urgency for imports unless price or exchange rates are particularly favorable.

U.S. Milk Solids Exports

-13.2% September YoY

-7.0% YTD, Ending September

-2.5% Last 12-Months, Ending September

-0.8% 3-Year CAGR

EU Milk Solids Exports

-1.9% September YoY

+2.4% YTD, Ending September

+0.6% Last 12-Months, Ending September

+0.2% 3-Year CAGR

NZ Milk Solids Exports

-14.6% September YoY

+8.6% YTD, Ending September

+3.1% Last 12-Months, Ending September

+1.0% 3-Year CAGR

ADDITIONAL NOTES

Dairy exports from the U.S., Europe Union and New Zealand all declined in September. New Zealand exports weakened across the board with WMP and cheese's declines most prominent (-15%, -11,495 MT; -17%, -4,464 MT, respectively). Still, it's worth recalling that August and September are New Zealand's seasonal low ebb as the exporter clears out inventory from the prior season. Given that exports from NZ were so robust in Q2 even as milk production cooled, it’s no surprise to see a regression in Q3. The EU, on the other hand, had posted 7 straight months of growth - albeit moderate growth. Instead, of lack of supply, weaker demand from China and United Kingdom pulled the exporter’s total shipments lower in September.

1 U.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

International Demand Analysis 4
Executive Summary: September 2023

Global Total Solids Trade to World

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

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

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

Source: NMPF/USDEC, TDM
Global Dairy Trade

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

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

MENA +8% (+9,073 MT)

China -14% (-22,072 MT)

Sea -9% (-11,985 MT)

ROW -4% (-5,553 MT)

SSA -16% (-6,826 MT)

UK -8% (-4,506 MT)

U.S. -7% (-2,267 MT)

Mexico -12% (-6,942 MT)

Japan -6% (-1,726 MT)

S. Am -10% (-4,126 MT)

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

Source: NMPF/USDEC, TDM
Average Global Export Price

Source: NMPF/USDEC, TDM
Global Dairy Spot Prices

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

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

**KEY TAKEAWAYS**

- **Global cheese trade continues to move sideways.** International shipments of cheese fell 2% in September after four slightly positive months in a row putting year-to-date shipments up only a modest 1% (+20,035 MT). It’s worth recalling that global cheese trade grew just 21 MT (+0.0008%) in 2022. Certainly, Brexit played a key role in the anemic global growth as shipments between the UK and EU have declined since 2019. However, even if you exclude EU-UK trade, it doesn’t change the overall picture that global cheese shipments have only grown by 0.6% per year on average in the last two years.

- **In large part, this stagnation is related to Japan and Korea remaining the two most challenged markets of 2023.** Shipments to the two critical Asian markets fell 27% (-6,187 MT) and 32% (-4,457 MT), respectively in September. Through Q3, Japan and Korea are markets 1 and 2 for largest declines in 2023. Some of the regression is due to inventory carryover from last year but the primary reason remains the decline in real wages in both countries.

**Global Cheese Trade**

- **September YoY**: -2.0%
- **YTD, Ending September**: +1.0%
- **Last 12-Months, Ending September**: +0.5%
- **3-Year CAGR**: +0.9%

**September Standout Markets**

- **KOREA**: -32% (-4,457 MT)
- **UNITED KINGDOM**: -8% (-2,891 MT)
- **JAPAN**: -27% (-6,187 MT)
- **CHINA+HK**: +32% (+3,520 MT)

**ADDITIONAL NOTES**

Even as China’s recovery stagnates in most dairy products, cheese (and lactose) remains the exception. Global cheese exports to the market improved 32% (+3,520 MT) in October with YTD shipments up by a quarter (+25%, +29,791 MT). In fact, on an annualized basis, global cheese trade to China is actually above trend – a sharp contrast to virtually every other dairy product category. Increased sales of mozzarella for foodservice and cream cheese for further processing to retail channels are both helping drive this growth. Still, mozzarella shipments have been particularly impressive. PH China is reporting robust sales as they target affordability and “expand pizza selections priced below RMB 50.”
LOOKING AHEAD

• Economic headwinds remain the major hindrance to global cheese trade in 2023. Gratefully, global inflation is forecasted to improve in 2024, but for many developing (and developed) markets real wages are not expected to catch up to pre-inflation rates until 2025. This is likely to elongate the period of slow demand growth for another year.

• Still, with multiple new capacity projects expected in the next twelve months (Tirlán in Ireland; Leprino, Hilmar and Great Lakes in the US) coinciding with expected improvement in economic conditions, there remains significant potential for an acceleration in global cheese trade towards the end of 2024-early 2025.

• In the meantime, until we see signs of Japan and Korea rebounding, global cheese trade is likely to run sideways. China and Mexico remain clear bright spots, but deceleration from their rapid expansion remains a possibility. At the same time, markets such as Australia and MENA have been stocking up, which may cool their import needs if prices continue firming.

U.S. Cheese Exports
- +4.3% September YoY
- -4.6% YTD, Ending September
- -0.8% Last 12-Months, Ending September
- -0.3% 3-Year CAGR

EU Cheese Exports
- -1.1% September YoY
- +1.2% YTD, Ending September
- -0.2% Last 12-Months, Ending September
- -0.1% 3-Year CAGR

NZ Cheese Exports
- -16.5% September YoY
- +17.9% YTD, Ending September
- +13.4% Last 12-Months, Ending September
- +4.3% 3-Year CAGR

ADDITIONAL NOTES

After pulling back sharply from commodity cheese varieties in 2022, Europe has re-emphasized the staples in 2023 as it retreated from specialty cheeses (in large part due to U.S. and other international consumers balking at the premium prices). If you look at the cheese exports that have underperformed the most in 2023, you see a clear pattern. Two different non-standard categories (i.e. specialty given the unit values), emmental, feta, brie, cheese blends with herbs are all down by more than 1,000 MT in 2023. In contrast, mozzarella, cheddar and gouda have been the primary European export varieties to grow (each variety up by more than 10,000 MT YTD). Still, declines in Sep from mozzarella and gouda as well as weaker growth from cheddar suggest that excess inventory has been cleared and the low-cost EU cheese era is ending.

Source: NMPF/USDEC, TDM
Global Overview: Cheese

Global Cheese Trade to World

Source: NMPF/USDEC, TDM
Global Overview: Cheese

Global Cheese Trade to World

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

Global Cheese Trade by Destination: Last 12 Months ending Sep

Source: NMPF/USDEC, TDM

International Demand Analysis
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
Australia

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
China

Global Cheese Trade to China+HK

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

KEY TAKEAWAYS

- NFDM/SMP trade regressed again in September, falling 8% (-13,745 MT).

- NFDM/SMP trade declining in two of the last three months has corresponded with international prices meeting resistance. Since mid-September, global NFDM/SMP prices rose 17% to average $2,753/MT but the rally has since stalled.

- Mexico and Southeast Asia were the two regions that pulled back the most in September – down 15% (-5,153 MT) and 12% (-5,682 MT) respectively. A weakening Mexican peso along with higher prices and adequate supplies south of the border lessened the urgency for Mexican buyers to jump aggressively. Additionally, U.S. production dropped sharply lower, limiting export availability.

- Gratefully, Middle East-North Africa (MENA) remains an active participant in the global market, increasing demand 2% in September (+611 MT) albeit at much lower YOY increases than earlier this year.

Global NFDM/SMP Trade

-7.9% September YoY
+7.2% YTD, Ending September
+7.2% Last 12-Months, Ending September
+0.1% 3-Year CAGR

September Standout Markets

MEXICO -15%
-5,153 MT

CHINA+HK -9%
-1,883 MT

SOUTH ASIA -22%
-1,107 MT

SOUTHEAST ASIA -12%
-5,682 MT

ADDITIONAL NOTES

Global NFDM/SMP exports to MENA in the first half of the year jumped 28% (+60,575 MT). Unfortunately, demand has since cooled even as trade to the market was still positive for every month in the quarter. Q3 exports to the region were “only” up 10% with September being the weakest of month of the quarter (+2%, +611 MT). Two main drivers are likely contributing to the comparatively lower volumes – higher prices and sufficient inventory. As prices rise, expect demand out of the region to soften as buyers balk at higher prices – especially with given the stocks that have been built up over the last year.
LOOKING AHEAD

• At its most basic, global NFDM/SMP prices improved this autumn due to milk production tightening. In a tighter milk production environment, particularly in the U.S. and Europe, cheese manufacturing facilities was prioritized over butter/powder facilities, which serve as balancing assets. For example, over the last three months U.S. NFDM/SMP production dropped 15% while cheese production held flat.

• Similarly, EU SMP production is down 7% over the last three months. Together, the U.S. and EU account for roughly 70% of globally traded NFDM/SMP. This pinched supply is limiting price downside, while poor demand in China, Southeast Asia, Sub-Saharan Africa continues to limit the upside.

• Overall, global NFDM/SMP trade is likely to run sideways to slightly negative as supply constraints limit exportable supply, demand in key importing markets (China, SEA, SSA) remains quiet, and opportunistic buying from MENA and Mexico cools.

U.S. NFDM/SMP Exports

-20.1% September YoY
-2.2% YTD, Ending September
-0.04% Last 12-Months, Ending September
-0.01% 3-Year CAGR

EU NFDM/SMP Exports

-0.4% September YoY
+18.2% YTD, Ending September
+16.3% Last 12-Months, Ending September
+5.2% 3-Year CAGR

NZ NFDM/SMP Exports

+6.3% September YoY
+38.2% YTD, Ending September
+33.7% Last 12-Months, Ending September
+10.2% 3-Year CAGR

ADDITIONAL NOTES

Over the last 12 months, global NFDM/SMP demand has increased a surprising amount compared to other products (+7%, +157,063 MT). However, the U.S. has not taken advantage as its NFDM/SMP exports have been roughly flat (-324 MT) even as Mexico has grown sharply (+28% L12M). Conversely, the EU and NZ have surged. EU27 shipments are up 16% (+113,159 MT) and New Zealand improved by more than a third (+34%, +112,300 MT). The EU benefitted immensely from robust MENA demand (+54% L12M), capitalizing on their freight advantage. New Zealand export figures benefited from additional product available for export with the strong finish to their 2022/23 season and the shift from WMP to SMP, allowing for increased SMP exports to China (+36% L12M) and SEA (+24% L12M; despite the overall weakness in SEA demand).

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

Global NFDM/SMP Trade to World

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

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

Source: NMPF/USDEC, TDM
Global NFDM/SMP Trade to World

- Argentina
- Australia
- Canada
- EU27
- New Zealand
- Turkey
- UK
- USA
- Uruguay

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

Global NFDM/SMP Trade to SEA

Source: NMPF/USDEC, TDM
MENA

Global NFDM/SMP Trade to MENA

Source: NMPF/USDEC, TDM
KEY TAKEAWAYS

- Whey exports (HS code 0404.10, which is primarily sweet whey and permeate) fell 7% (-9,123 MT) in September. It was the eighth month in a row of declining whey trade.

- Chinese demand continues to be weak – down 19% (-9,567 MT) in September. Demand continues to be challenged by a struggling economy hampering pork consumption and a weak currency. The Chinese Yuan is at its weakest level in nearly 15 years making imports more expensive.

- Looking beyond China, Southeast Asian demand grew 10% (+2,984 MT) in September. Exports to Southeast Asia were positive in two of the last three months after struggling demand in the front half of the year kept imports lower – down 10% in H1.

- Exports to South Asian markets (primarily India) were robust as well for the month (+52%, +1,364 MT). Exports to South Asia have been very strong over the last six months (+228%, +9,014 MT) although as prices rally, continued strong growth may be challenged – especially as import volumes have risen back above trend.

Global Whey (0404.10) Trade

<table>
<thead>
<tr>
<th>September YoY</th>
<th>YTD, Ending September</th>
<th>Last 12-Months, Ending September</th>
<th>3-Year CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>-7.2%</td>
<td>-8.5%</td>
<td>-6.3%</td>
<td>-0.3%</td>
</tr>
</tbody>
</table>

September Standout Markets

- CHINA+HK
  -9,567 MT
  -19%

- SOUTH ASIA
  +1,364 MT
  +52%

- MEXICO
  -1,226 MT
  -29%

- SOUTHEAST ASIA
  +2,984 MT
  +10%

ADDITIONAL NOTES

Southeast Asian demand has picked up slightly in recent months – +2% in Q3 and +10% in September. This growth is positive after an underwhelming first half (-10%). Growth last month was spread across several countries with significant growth to Thailand (+36%, +1,451 MT) even as Indonesia (the largest regional importer in Southeast Asia) lagged in both September and August. Positively, most countries in SEA saw growth in imports last month supported by a tentative economic stabilization and currency improvement. A prolonged price rally may temper some of this growth, but in general, Southeast Asian demand is showing signs the low ebb of whey demand has been found.
**LOOKING AHEAD**

- In general, the mood in the market is mixed. Weakness in China continues to be the norm even as demand picks up elsewhere. Anecdotes and the recent price rally suggest China’s demand has improved but that support has yet to materialize in the data.

- Fundamentally, pork prices in China have bottomed out and have recovered slightly from their low point, which should at least stabilize demand for feed in the country. However, the pork price is still not at sufficient levels to incentivize rapid growth and given recent African Swine Fever outbreaks, a rapid import surge is unlikely to materialize. As such, we expect low-protein whey trade into the country to bottom out towards the end of the year and then modestly recover as inventories are depleted.

- Effectively, we expect the roller coaster of China’s whey demand to continue in fluctuation with inventory levels but the rapid rise and falls will be more moderate than past expansion cycles.

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### ADDITIONAL NOTES

The Chinese economy only grew by 3% in 2022 and while 2023 growth expectations are higher, the outlook for 2024 is not robust. Government advisors are advocating for growth around 5% in 2024 while recognizing that to achieve that, significant government stimulus will be required. As foreign direct investment in the country wanes, the Yuan weakens and the interest rate gap widens with the West, the government stimulus that would be required to hit that growth target will continue to balloon. The Chinese government is no stranger to involving itself in the economy, but mounting hurdles continue to suggest the Chinese economy is still a ways off from recovery, even with government support.
Global Overview: Whey (0404.10)

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

Global Whey (0404.10) Trade by Destination: Last 12 Months ending Sep

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

Global Whey (0404.10) Trade to World

Source: NMPF/USDEC, TDM
China

Global Whey (0404.10) Trade to China+HK

Source: NMPF/USDEC, TDM
Southeast Asia

Global Whey (0404.10) Trade to SEA

Source: NMPF/USDEC, TDM
In contrast to most other dairy products, which are largely running sideways, high protein whey prices are on the way up. And, as evidenced by the data, global demand is clearly a major reason behind the price improvement.

Global WPC80+ trade reported the highest month of trade on record, increasing 23% compared to September 2023 (+2,889 MT).

In September, two major buyers (Japan and India) drove the improvement, but many other markets improved purchasing albeit at a more modest pace. WPC80+ trade to Japan nearly doubled compared to the same month last year (+89%, +1,551 MT) and sales to India nearly tripled (+178%, +1,333 MT).

In particularly welcome news, the U.S. was the primary supplier growing exports (+40%, +2,118 MT) though the EU27 (+11%, +485 MT) and Australia (+120%, +277 MT) also posted positive growth.

Like many other products, the recovery in China’s WPC80+ demand has stalled well below trend. While the U.S. is still gaining market share, aggregate trade from all the major supplying origins to China increased just 71 MT in September (+3%). After improving 13% in Q2 (+926 MT), Q3 trade grew just 5% and even that was primarily due to July’s strong numbers. Effectively, on an annualized basis, today’s global WPC80+ trade to China is comparable to March 2020 – well below the long-run the trend. Much of China’s high protein whey goes into infant formula, which despite the trend in birth rates, has been growing as local production replaces imports. However, given China’s limited population growth, expanding dairy protein usage beyond infant formula will be critical to getting the country’s WPC80+ demand back to trend.
### LOOKING AHEAD

- Even as high protein whey trade has improved in recent months, several critical buyers are likely to require additional volume – namely Japan, Korea and Brazil. Japan – despite the record September – has largely moved sideways in 2023 and given the increasing usage/importance of protein is likely to require additional imports. Korea’s purchases grew for the first time in 2023, potentially suggesting their demand has found a floor and inventories will need to be replenished. At the same time, Brazil’s imports are still skyrocketing as the sports nutrition market expands. All of which suggests global trade should keep growing to finish 2023.

- Even so, the improvement in high protein whey prices is likely to cause some international buyers to balk. Positively, prices remain well below the 2022 peak, which should help avert “sticker shock”. Additionally, given the robust sports nutrition sales figures in the United States, improvement in the European economy and the mainstreaming of protein in markets like Japan, the price rally may prove sustainable even if some price sensitive buyers slow purchasing.

### ADDITIONAL NOTES

India remains a challenging market to do business in and to forecast. The U.S. is largely sidelined from the market given non-tariff barriers, and imports of WPC80+ have swung wildly in the past three years. Still, India’s demand for high protein whey, which isn’t produced much domestically, remains remarkably strong and on a clear long-term growth trajectory as dairy protein becomes increasingly mainstream in food applications. In the last three months, global WPC80+ trade to the market have set three consecutive monthly records and have climbed 142% in that time (+3,557 MT). Even as the direct importance to the US is limited due to market access limitations, India remains critical to the global balance sheet given its place as Europe’s third largest market for WPC80+ and fifth largest in the world.

### U.S. WPC80+ Exports

<table>
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<tbody>
<tr>
<td>+40.4%</td>
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<td>+17.8%</td>
<td>+21.2%</td>
<td>+6.6%</td>
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### EU WPC80+ Exports

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<td>+11.4%</td>
<td></td>
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<td>-4.8%</td>
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</tbody>
</table>

### NZ WPC80+ Exports

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<td>-1.8%</td>
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</tbody>
</table>
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

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

Global WPC80+ Trade to World

Source: NMPF/USDEC, TDM
Japan

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

Global WPC80+ Trade to SEA

Source: NMPF/USDEC, TDM
Brazil

Global WPC80+ Trade to Brazil

Source: NMPF/USDEC, TDM
India

Global WPC80+ Trade to India

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

KEY TAKEAWAYS

Global Lactose Trade

<table>
<thead>
<tr>
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<th>September YoY</th>
<th>YTD, Ending September</th>
<th>Last 12-Months, Ending September</th>
<th>3-Year CAGR</th>
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</thead>
<tbody>
<tr>
<td>-1.0%</td>
<td>+2.7%</td>
<td>+3.1%</td>
<td>+2.9%</td>
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- Global lactose trade continues to be on a downward trend despite a strong start to the year and exceptional imports from China. Decreased demand from Southeast Asia (-23%, -2,706 MT), Japan (-14%, -1,154 MT), and South America (-27%, -1,006 MT) all dragged global trade down in September.

- By contrast, China’s surge in lactose demand continues to baffle. Lactose shipments are far above trend and showed little appearance of slowing in September, setting a new monthly record for the country, bucking every other trend in China. Low prices have certainly helped, but this level of surge suggests either excessive inventory or new applications (local WMP standardization?).

Source: NMPF/USDEC, TDM
Lactose – China

Global Lactose Trade to China+HK

Source: NMPF/USDEC, TDM
Lactose – Southeast Asia

Source: NMPF/USDEC, TDM
Global Overview: Butter

- Butter trade fell in September albeit in comparison to the high volumes the prior year.
- Though overall trade was down, demand was mixed across major regions. Butter trade to MENA (+30%, +1,845 MT), Southeast Asia (+29%, +1,074 MT), and Japan (+182%, +675 MT) grew in September, but not enough to counter losses to China+HK (-27%, -1,841 MT), non-EU European countries (-61%, -1,259 MT), and the EU (-37%, -1,059 MT).
- Butter prices remain elevated in the U.S., and shipments to the U.S. were up 13% as the holiday baking season approaches.

Source: NMPF/USDEC, TDM
Butter – MENA

Global Butter Trade to MENA

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

KEY TAKEAWAYS

Global WMP Trade

-7.8%  +0.3%  -5.9%  -4.8%
September YoY  YTD, Ending September  Last 12-Months, Ending September  3-Year CAGR

- Global WMP trade dropped significantly in September. With New Zealand’s inventory cleared and China still lagging in purchases (-30%, -7,519 MT), global trade took another step back. Drops in exports to Southeast Asia (-17%, -4,020 MT) and, oddly, the Caribbean (-68%, -4,664 MT) also weighed on lactose trade.

- With China and SEA’s demand lower, NZ and other WMP suppliers looked elsewhere. In particular, shipments to MENA soared (+22%, +6,490 MT), buoyed by strong oil revenues. Additionally, South Asia has also improved dramatically (+51%, +1,746 MT) as Sri Lanka – after the political instability of 2022 – has returned to the global market.

Source: NMPF/USDEC, TDM

International Demand Analysis
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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