Rabobank is committed to the global dairy sector

17/20
17 of the Top 20 Global Dairy players are Rabobank clients

87%
87% of the Dutch dairy farmers financed by Rabobank

16%
of Rabobank’s total loan portfolio is committed to the Dairy sector

€21 billion
outstanding in Dairy (rural & wholesale)
The RaboResearch dairy team

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- Utrecht
- Mumbai
- Shanghai
- Sao Paulo
- Melbourne
- Christchurch
Global Dairy: A Medium-Term View
Global milk production is dominated by few key players

Source: Rabobank
Global dairy product trade is a small percentage of production

Source: Rabobank
Rabobank’s mid-term supply and demand outlook

Import Bridge – Countries in net deficit (million metric tons Milk Equivalent)

Export Bridge – Countries in net surplus (million metric tons Milk Equivalent)

Source: Rabobank
India’s total milk production growth of more than 49 million metric tons is 2 million metric tons less than its forecasted demand growth. Government policies supporting greater domestic production through genetic improvement and feed management could close the potential milk deficit.

Alternatively, opening the traditionally self-sufficient Indian dairy market to greater imports is politically sensitive but it would be welcomed by dairy exporters.

Source: Rabobank
Absent India, the EU-28 and North America are the two largest cow milk producing regions in the world. North America is expected to increase milk output by 9.5 million metric tons from 2018 to 2023 based upon a 1.5% annual gain in milk production.

EU-28 milk production was 30% larger than North American output in 2018. Based upon a 0.7% annual increase in milk production, EU-28 supply expands by 5.5 million metric tons from 2018 to 2023.

Russia’s support for large-scale domestic milk producers is expected to boost supply over the MTO.

Turkey’s dairy sector is also experiencing rapid expansion and is likely to enter the export market.

Source: Rabobank
India’s consumption growth of more than 51 million metric tons liquid milk equivalents (LME) dwarfs the rest of the world.

The vast majority of India’s demand will be filled by domestic supply growth unless production falls short of expectations due to unfavorable weather conditions, lack of feed, animal health issues, or other foreseen events.

A change in government policy could make India an attractive market.

Source: Rabobank
Absent India, a clearer picture of dairy demand growth in the rest of the world emerges. Europe and the United States remain large markets for dairy products due to their populations despite slowing rates of growth in per capita consumption. North American per capita consumption is positively influenced by rising demand in Mexico.

Longer term, rising per capita demand and populations in Southeast Asia, Africa and the Middle East will drive exports to those regions.

Source: Rabobank
Global dairy deficits by markets – change in imports

- A larger deficit during the next five years is anticipated in China due to demand growth outpacing domestic supply growth.
- Mexico is likely to be the second largest growth market for dairy imports.
- Canada expanded its domestic quota program which will reduce its dairy imports.
- Fluctuating oil prices will impact dairy imports from oil exporting nations but are expected to maintain positive growth over the next five years.

Source: Rabobank
Global dairy exports continue to grow

- Global dairy product trade is dominated by milk powders. 2018 SMP exports were influenced by exports of EU intervention stocks. Nevertheless, SMP exports are expected to grow at a faster pace than WMP exports over the MTO, largely reflecting growing demand for the lower-fat milk powder in China.
- Cheese exports will increase in part due to the expansion of quick-served restaurants.
- Greater cheese production results in more by-product production of whey, whey protein, and lactose.
- Infant formula exports continue to grow but at a slower rate.

Source: Rabobank
...fueled by key consumer trends

Health
- Consumers are increasingly cautious of health options
- Preference for fresh products and natural cheese
- Focussed on cheese with high nutrient density
- Strong demand for white-cheeses such as mozzarella

Convenience
- Changing demographics impacting traditional cheese distribution
- Younger generations see cheese as a ‘healthy snack’
- Increased demand for convenience
- Focus on packaging innovation for on-the-go consumption

Taste & indulgence
- Increasing focus on more sophisticated taste profiles
- Rise of indulgent cheese reflected in strong growth of soft cheese category
- Customers are prepared to pay more for quality

Premiumisation
- Rising demand for new flavours and textures as well as artisanal cheese concepts
- Increasing demand for more expensive aged cheeses, cheese-wine pairings and rise of artisanal French / Italian cheeses

Transparency
- Increasing demand for natural, organic and local food products
- Rise of cheese as alternative source of protein for vegetarian and flexitarian diets
- Popularity of non-GMO, VLOG standards and increasing focus on supply chain traceability (e.g. clean label)
So what is Rabobank expecting moving forward...

- The rate of growth in global dairy trade growth will slow during 2019 to 2023 as the growth rate in milk production in key dairy export countries also slows.

- New Zealand milk supply growth will be slowing (land use)

- EU moving towards optimizing or “right fitting” dairy sector post quotas

- The US will be well positioned to fill the trade gap... unless impeded by trade wars

- China dairy demand will find a new norm (with lower rate of volume growth, but growing focus on value)

- India is facing a potential shortage but is unlikely to open trade (but needs to develop a formal chain)

- Africa dairy demand will continue to grow (population growth, but affordability will be an issue)

- Limited escalation in global dairy product prices to incentivise production

- Uncertainty in the geopolitical arena complicates the outlook for global dairy product trade.
Global Dairy: A 12-Month Outlook
Global prices (US $ per metric ton) are mixed

**Dry Whey**

- EU
- US
- avg

**Cheddar Cheese**

- Oceania
- US
- EU
- avg

**Skim Milk Powder**

- Oceania
- EU
- US SMP
- avg

**Butter**

- Oceania
- EU
- US
- avg

Source: USDA, Rabobank
EU milk production growth will be limited

Source: Eurostat, Rabobank
NZ started with great pasture but little growth since

Sources: DECANZ, Rabobank
South American supply struggling

Argentina

Brazil

Uruguay

South American Currencies

Sources: Various government statistics, Rabobank
US milk – smaller better herd driving growth

**US Milk Production (30-day month, in million lbs.)**

**US Dairy Cows (in million heads)**

Source: USDA, Rabobank
US milk production YTD September 0.2% growth vs. 2018

Source: USDA, Rabobank
US dairy margins returns to profitability

**Dairy margin coverage (DMC) levels**

Source: USDA, Rabobank
US milk supply set for modest growth

Source: USDA, Rabobank
Cautious expansions leading to limited growth

Combined milk production growth for the ‘Big 7’

Source: Rabobank
Premium of China’s farmgate milk price over import price

*China WMP import parity analysis*

USD/tonne

Sources: Ministry of Agriculture, USDA, China Customs, Rabobank analysis
Other considerations: African Swine Fever

**Chinese Dry Whey Imports**

**US and EU Dry Whey Prices**

Source: USDA, Global Trade Data Monitor, Rabobank
US total disappearance YTD +0.1%; YOY September +0.4%

**US Domestic disappearance YTD +1.9%; YOY Sept. +0.4%**

**Export disappearance YTD -12.5%; YOY Sept. +0.4%**

*Source: USDA, Rabobank*
US stocks mixed compared with 2018

**US stocks September 2019 vs. 2018**

<table>
<thead>
<tr>
<th>(Million Pounds)</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFDM</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>American Cheese</td>
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<td>750</td>
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<tr>
<td>Butter</td>
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<td>250</td>
</tr>
<tr>
<td>Dry whey</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: USDA, Rabobank
Recessions don’t bode well for dairy...

*All Milk Price vs Recessions*

Sources: USDA, Bloomberg, Rabobank
Summary of current market

1. Current prices are coming through at high enough levels to incentivize supply growth.

2. But a number of factors have limited the ability of dairy farmers to expand milk supply.

3. A recession and ASF both have potential for significant disruption to the market.

4. Our forecasts point to firmness in prices, underpinned by limited supply growth from most markets.

5. Longer term the market will continue to require more substantial growth in today’s core dairy commodities.