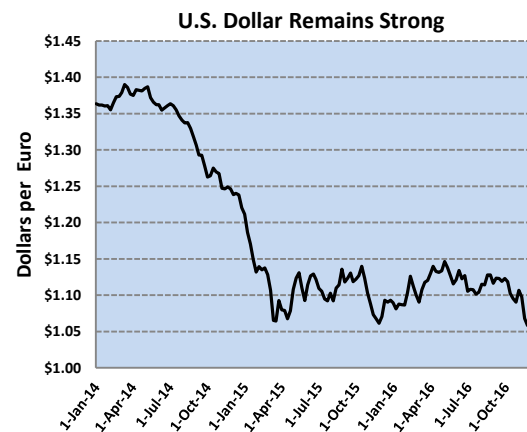


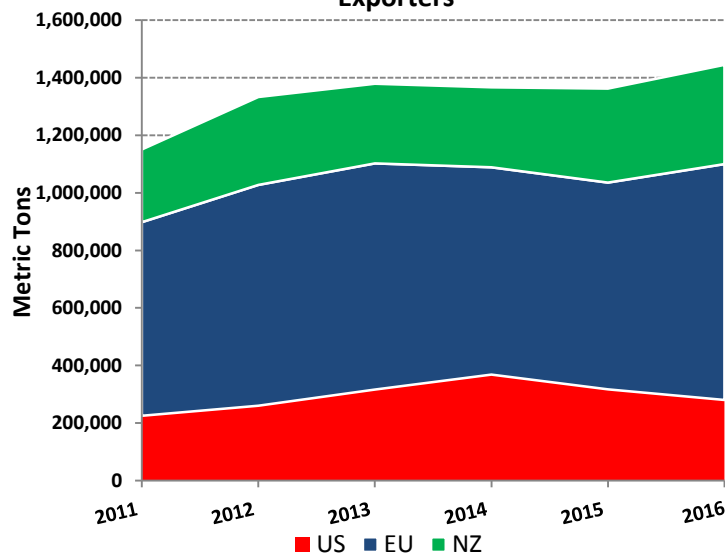
U.S. Cheese Exports Face Strong EU Competition

Although the U.S. dairy export forecast for FY 2017 has been raised to \$5.3 billion, U.S. dairy exporters face significant challenges in the global marketplace. This is particularly evident in the export of cheeses which reached a peak of 368,000 tons in 2014. In that year, Russia imposed a retaliatory import ban on a number of commodities including dairy products from key suppliers, notably the EU. The consequences for the EU dairy industry were significant as cheese exports to Russia dropped from 257,000 tons in 2013 to less than 5,000 tons in 2015. Since then the EU has staged a surprising recovery with cheese shipments in 2016 and 2017 set to reach 820,000 tons and 825,000 tons, respectively. In contrast, U.S. cheese exports peaked at 368,200 tons in 2014 and are now forecast to reach just 280,000 tons in 2016 and 286,000 tons in 2017.

A key issue facing the U.S. dairy industry is the sharp strengthening of the U.S. dollar vis-à-vis the Euro which has been undermining the competitiveness of U.S. exporters. In 2014, a ton of cheese selling on the global marketplace at \$3,600/ton only generated €2,700/ton. Today, this same cheese would generate €3,400/ton – a 26 percent increase in returns for EU producers and exporters.



Global Cheese Market Share Among Major Exporters



The gains achieved by the EU have been mostly at the expense of U.S. cheese shipments particularly in Asian markets. For example, in South Korea, imports of U.S. cheese in 2016 through October are down 31 percent year-over-year. In contrast, imports of EU cheese are up 43 percent and the EU is set to overtake the United States as the leading supplier of cheese. As may be inferred from the chart below highlights, among the top three major exporters of cheese on the world market, the United States is the only country among these suppliers that has experienced a loss in market share between 2014 and 2015. This

trend is likely to persist well into 2017 or until the dollar reverses course and weakens.

Dairy Production and Trade Developments

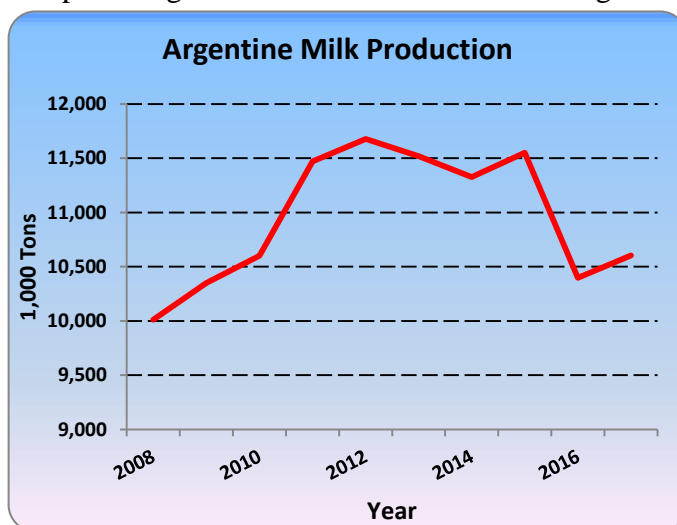
Milk Production: Forecast Summary

Milk Production Summary for Major Exporters

	2015	2016 Estimated	2017 Forecast	Forecast Change %
Argentina	11.6	10.4	10.6	2%
Australia	9.8	9.2	9.5	3%
EU-28	150.2	152.0	152.5	0%
New Zealand	21.6	21.4	21.6	1%
United States	94.6	96.3	98.3	2%
Major Exporter Total	287.8	289.3	292.5	1%

Fluid Milk:

- The 2016 milk production forecast for Argentina is raised from the prior forecast by 4 percent to 10.4 million tons as production has been slightly stronger than anticipated despite widespread flooding and low farm-gate prices. However, this is the lowest level of milk output since 2009. Due to an exceptionally strong “El Niño” weather phenomenon, the main milk-producing regions of Cordoba, Entre Rios, and Santa Fe experienced widespread floods that submerged wide areas of pasture land and impeded milk deliveries. Further compounding the blow to farmers were the negative effects of a high rate of inflation --

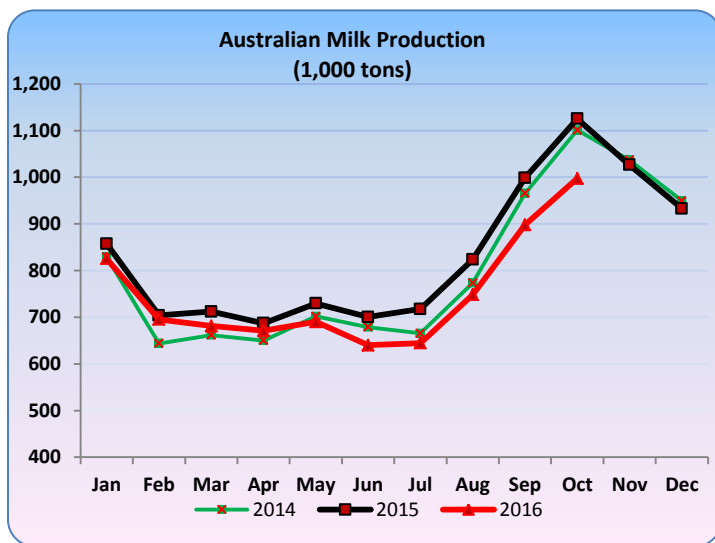


estimated at around 30 percent -- coupled with low milk prices. Early in the year, farmers were receiving an equivalent price of around \$8.80/cwt of milk which led many farmers to switch to a less costly forage based system that lowered milk yields. By June 2016, year-to-date milk production was trailing last year's rate by nearly 13 percent. In August 2016, an estimated 80 percent of dairy farms were still in a critical financial position and some 400 dairy farms had already exited the sector.

The outlook for 2017 is brighter as domestic milk prices in the last half of 2016 staged a recovery led by a rise in global dairy prices that translated into a 50 percent increase in prices to nearly \$13/cwt of milk. Consequently, although the herd is slated to decline by 5 percent, milk output in 2017 is expected to expand by 2 percent to 10.6 million tons as consolidation among the more efficient producers continues. Despite this increase, milk output in Argentina is still well below the annual average of 11.5 million tons recorded between 2011 and 2015, indicating that in the longer term there is a strong upside should global prices continue to recover.

- Favorable weather conditions in Australia since mid-year have broken the drought conditions prevailing over eastern regions improving pasture conditions and replenishing soil moisture and reservoir levels. However, during this period farmers experienced a sharp decline in milk prices to around A\$5/kg (US\$1.68/lb) for milk solids – down 17 percent from the national average received in 2015/16 (July/June). This has put significant pressure on milk margins and producers responded primarily by culling cows. The herd size is expected to decrease by 4 percent in 2016. Cull cow prices have been attractive this year -- up 12 percent in October 2016 over the same month last year -- and reported year-to-date cull volumes through October are up 32 percent in the 2016/17 (July/June) year compared to last year.

Year-to-date milk production through October was 7.5 million tons lagging last year's pace by 7 percent. However, while production in October was down 11 percent compared to the same month last year, ample supplies of moisture and good grazing conditions are expected



to provide a year-end boost. Despite the late-year boost, the milk production forecast for 2016 is revised down to 9.2 million tons, 6 percent below last year.

The outlook for 2017 is positive as the recent increase in global prices is likely to translate to higher margins for farmers. In addition, the dairy sector in Australia continues to become more efficient; while average herd size is about 260 cows, some 10 percent of dairy farms have over

600 cows and 20 percent of dairy farms account for 80 percent of milk production. Assuming normal weather conditions, particularly in the latter half of 2017, milk production is expected to rebound by 3 percent to reach 9.5 million tons. Shipments of fluid milk (primarily Ultra High Temperature milk, UHT) in 2016 are running 21 percent higher year-over-year through October and this trend is forecast to continue as demand in such markets as China, Hong Kong, and Singapore shows no signs of weakening.

- Milk production in **Belarus** is forecast up 1 percent in 2017 as yield growth outweighs a small reduction in the dairy cow herd. Export demand from Russia for dairy products will continue to drive Belarusian milk production in 2017 – over half of butter and two-thirds of cheese production have been exported since 2007. However, export demand is unlikely to grow at the pace of recent years while domestic demand is also flat. With processing demand stable, fluid milk imports from the EU (mostly Poland) are forecast to stabilize. Fluid milk exports are also expected to level-off, but remain high relative to history on continued demand from Russia.
- Due to strong domestic demand particularly for butterfat by the processing industry, milk output in **Canada** has been expanding and the 2016 forecast is revised up 5 percent to 9.1 million tons. This demand for butterfat is expected to persist into 2017 and milk output in 2017 is slated to grow by 4 percent to 9.5 million tons.

The Canadian Milk Supply Management System

Milk production in Canada is set by the Canadian Milk Supply Management Committee which establishes quotas for each province. Shares of these quotas are then allocated to farmers by the provincial milk marketing boards. These quotas are transferable and were estimated in 2014 to be valued at around US \$30,000 per cow or over US \$2 million per average farm. Currently, the value of a kilo of milk quota in Ontario is priced at CA\$24,000/kg (US \$8,190/lb). While this “quota rent” effectively provides a secure capital base for individual farmers, to protect the functioning of the quota system, Canada employs restrictive import barriers in the form of high tariffs ranging from 246 percent for cheese to almost 400 percent for butter. In addition, Canadian farmers are supported by the Canadian Dairy Commission (CDC) which sets support prices for butter and skimmed milk powder (SMP) well above world market prices. For example, the current support price for butter and SMP stands at CA\$7.78/kg (US\$2.65/lb) and CA\$4.4176/kg (US\$1.51/lb), respectively. In contrast, the export price (mid-point Oceania FOB) of butter and SMP (mid-point Oceania FOB) currently is estimated at \$1.85/lb and \$1.07/lb, respectively. Typically, the CDC purchases surplus SMP and disposes of this excess volume either through domestic feed use sales or the use of heavy export subsidies.

A key challenge facing Canada’s dairy industry is balancing a system relatively immune to market forces when domestic demand is shifting rapidly. In 2016, this resulted in a shortage of butterfat and an excess of SMP. Consequently, the Canadian government temporarily relaxed its tariff rate quotas to allow the supplementary import of 4,392 tons of butter and 3,906 tons of cream.

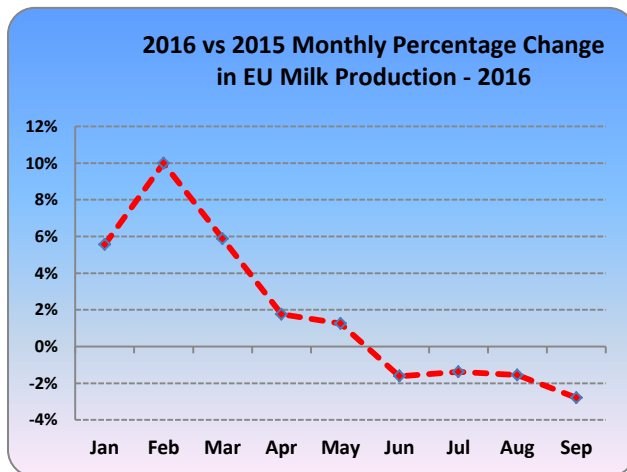
The disposition of surplus SMP generated by a supply quota system is a more substantive structural problem that has persisted over a number of years. While Canada can subsidize the export of some surplus volumes, the WTO disciplines on export subsidies limit this disposal channel to an annual volume of 44,953 tons with a maximum subsidy of \$31.1 million (or an average of \$690/ton). At current prices, a subsidy of about \$970/ton is needed to sell on global markets. Consequently, the value limits have always been the more restrictive factor. Based on Canada’s most recent WTO notification (April 2016) subsidized

exports of SMP in 2012/13 (Aug/July) were limited to only 10,345 tons. Even though global SMP prices were relatively high at that time averaging about \$1.75/lb (mid-point FOB Oceania), the export subsidy equated to \$3,011/ton (\$1.37/lb).

The removal of surplus SMP will become an increasing challenge for Canada due to the impact of the WTO “Nairobi Agreement” which calls for the elimination of all member export subsidies by 2021. In principle, this effectively closes this export outlet for Canadian SMP. Further, since SMP is regularly used in the production of cheese, the Canadian-EU Trade Agreement -- allowing the EU eventual access of 16,000 tons of cheese and 1,700 tons of industrial cheese -- could pressure the domestic market.

One option being explored by Canada is the creation of a competitive milk class priced well below the implied domestic milk price based on the high support price of SMP and butter. On April 2016, the Ontario Dairy Commission created a Milk Ingredient Class 6 directly tied to global dairy ingredient prices that were well below domestic prices. The goal was to displace the importation of competitively price milk protein ingredients with domestically sourced product. The Canadian Dairy Commission followed up on May 1, by temporarily modifying the class 4M milk class to enable all Canadian processors to buy domestic ingredients such as milk proteins instead of imported milk protein concentrates (MPC’s) or ultra-filtered milk. This strategy of effectively displacing imports, though it may entail a heavy domestic subsidy cost, appears likely to be effective. Agropur, a major Canadian cooperative owned by farmers based in Quebec -- with holdings including some cheese and whey operations in the United States -- stated in May 2016 that it would cease to import any diafiltered (or ultra-filtered milk) milk sourced from the United States. U.S. exports of dry or liquid high protein MPC’s to Canada averaged around \$147 million between 2014 and 2015 and this year’s total was \$119 million through October. Although still labelled as a temporary program, in October 2016 the 4M milk class was extended to run until early 2017 with as yet no termination date announced.

- Following a surge of milk production in the first half of this year, **EU** milk deliveries have slowed considerably as low prices have squeezed farmer margins. In July, the average



weighed price of milk was about €0.26/kg (13 cents/lb) or roughly 10 percent below last year’s price level. As a result, cumulative production through September trailed last year’s pace by nearly 2 percent. Following strong protests from farmers, the EU provided an aid package of €500 million to both support dairy producers (€350 million) and to induce farmers to voluntarily cut-back milk production (€150 million). This last measure is expected to curb milk production in the last quarter of

2016 by 1.0 million tons. In addition, the EU expanded market support measures primarily via the use of public intervention purchases aimed at clearing surplus volumes of SMP.

Milk production for 2016 is forecast at about 152 million tons for the year – up marginally from the previous forecast.

For 2017, the dairy herd is expected to shrink by nearly 150,000 head, although milk prices have risen by 19 percent to over €30/kg (15 cents/lb) since mid-year, providing relief for financially pressed producers. Milk production is forecast to grow marginally as higher milk yields-per-cow are likely to more than offset lower cow numbers. Most of this additional milk is likely to flow into the production of cheese and whole milk powder (WMP) while butter and SMP production is expected to decline. Fluid milk exports (primarily Ultra High Temperature milk) have been expanding rapidly in recent years and are likely to increase by over one third in 2016 to 950,000 tons. As global demand for fluid milk is anticipated to remain robust, particularly from such importers as China, shipments in 2017 are forecast to reach 1.0 million tons.

- Faced with low milk prices, **New Zealand** dairy farmers have been culling cows and lowering the use of supplementary feed in order to rein in costs. For the second consecutive year, the milk herd is expected to decline by 2 percent to 5.0 million head in 2016. Monthly milk production in 2016 relative to last year has been highly erratic – up 1 percent in September year-over-year, down 6 percent in October year-over-year. On a cumulative basis, however, annual milk output through October 2016 is currently lagging last year's pace by only 1 percent. Consequently, the previous 2016 milk forecast for the year is revised up to 21.4 million tons.

The outlook for 2017 is considerably brighter as Fonterra, which processes approximately 90 percent of milk produced in New Zealand, has raised its estimated milk payout price. As of November 2016, the milk price payout for the 2016/17 (June/May) was forecast at NZ\$6/kg milk solids with a final payout price between NZ\$6.50/kg-NZ\$6.60/kg milk solids. This is up sharply from the previous 2015/16 season when Fonterra's payout price totaled NZ\$4.40/kg milk solids. While the herd is forecast to shrink by 1 percent, farmers are expected to retain higher yielding cows and improve feed and pasture use. After 2 years of financial losses, producers are expected to focus on repaying debt rather than on expansion plans. As a result, milk output is forecast to expand by 1 percent over 2016 to 21.6 million tons.

- In **China** dairy farmers have been struggling with low milk prices, and it is estimated that about 50 percent of dairy farms have been operating at a loss during 2016. This is driving many of the smaller farmers to exit the industry. Consequently, the herd size is expected to shrink to 8.0 million head further concentrating the industry into larger, more efficient dairy farms. The 2016 milk production forecast is down 6 percent to 35.7 million tons – down 5 percent from 2015.

For 2017, demand for domestically produced milk is expected to remain flat while consumption of imported fluid milk and dairy products is anticipated to remain strong. The herd size is anticipated to drop by 6 percent to 7.5 million head while production is forecast to decline by 2 percent to 35 million tons. One positive result of the lower herd size is that milk yields are expected to increase by 5 percent to 4.7 tons per cow.

Imports of fluid milk, primarily in the form of UHT milk, continue to surge with shipments for this year through October 2016 up 51 percent year-over-year to reach 524,000 tons. The EU is the dominant supplier, accounting for about 66 percent of shipments to date followed by New Zealand with a 20 percent share. For 2017, imports of fluid milk are set to grow by 38 percent and reach 800,000 tons. Three factors are driving consumer demand: the price of UHT milk is competitive with domestically produced milk, past food scandals have driven consumer's preference to imported milk, and UHT is shelf-stable making it a convenient beverage for urban consumers.

- Milk production in **Russia** is forecast marginally lower in 2017. Despite a ban on dairy product imports from some Western countries, milk output has struggled to grow owing to low margins and lack of investment. Consumer demand for milk and milk products remains constrained due to declines in real disposable income. Rising international dairy product prices are expected to boost milk prices in Russia during 2017 but remain low relative to production costs. The exit of small farms – accounting for about half of production – is a trend likely to continue, driving a 3-percent reduction in the cow herd. However, milk-per-cow is forecast up nearly 3 percent as small, less efficient herds decline and higher milk prices incentivize commercial dairies to boost yields through genetics and higher feed use. While yields continue to rise, output is forecast to average 4 tons per cow in 2016 compared to over 10 tons in the United States. However, gains in output, mostly through genetic improvement, will require significant capital investments which are risky in the current economic and capital environment.

Cheese:

- Cheese production in **Belarus** is forecast up 2 percent in 2017 on continued export demand from Russia. Cheese exports have surged since Russia's 2014 import ban led the market to shift from EU to Belarusian cheese. Belarusian cheese remains highly competitive in Russia due to lower production costs. However, further export growth is constrained by a largely saturated market. Due to higher global prices, Belarusian imports are forecast lower in 2017 although consumption will remain stable.
- Most of the additional milk production in the **EU** is expected to flow into cheese vats to meet domestic consumption and rebounding demand from the export sector. Following the significant loss of the Russian cheese import market in 2014 that resulted in an 8 percent cut in export volumes, EU cheese shipments have since rebounded becoming increasingly competitive. The strength of the dollar relative to the Euro has been one key factor in this competitive drive. This year, cumulative shipments of cheese through September are up 14 percent year-over-year and are poised to hit a record 820,000 tons. The United States is the largest market for EU cheese exports but major gains have been registered in such markets as Japan, South Korea, and Saudi Arabia. End-of-year stocks are estimated to total about 10,000 tons as stocks in the EU's private storage scheme (PSA) totaled approximately 18,000 tons in mid-October.

Going into 2017, cheese output is expected to slow, growing marginally to 9.9 million tons as milk supplies are forecast to tighten. While domestic consumption is likely to rise slightly, most of the additional cheese supplies are expected to be exported. As a result, shipments of cheese are anticipated to expand by 1 percent to 825,000 tons.

- In **New Zealand**, the cheese production forecast for 2016 remains unchanged the last forecast at 350,000 tons – a drop of 1 percent from the previous year. Exports of cheese have been performing well with shipments in 2016 through September up 9 percent year-over-year. About one-third of this cheese is being shipped to Japan and Australia; however, import markets such as China and the United States have been growing rapidly in recent years. In 2015, exports to China totaled 40,000 tons and this year they are on track to grow by 35 percent to potentially reach 50,000 tons. For 2016, exports are forecast at 345,000 tons.

In 2017, cheese production is forecast to increase to 355,000 tons. Exports are projected to decline to 340,000 tons constrained by lower available exportable supplies. For this reason, stocks are expected to be lower.

- Cheese production in **Russia** is forecast marginally lower in 2017 on flat consumer demand. Prices of cheese-quality milk are expected to rise, while consumer income growth is weak. Cheese processors will focus on improving quality rather than quantity in order to capture higher margins. Competitively-priced imports from Belarus are likely to pressure domestic production, although imports are forecast to stabilize. Imports are expected to account for about 20 percent of consumption in 2016 and 2017, down from a high of 41 percent in 2013. As production has been unable to replace the volume of imports previously supplied by the EU, consumption is lower than before the import ban. Substitution remains an issue in Russia as domestic cheese processors stretch supplies of milk by using lower-cost palm oil. The practice is expected to continue as palm oil imports have risen 7 percent through September and are on pace to exceed last year's (CY2016) record imports of 889,000 tons.

Butter:

- Shipments of **EU** butter through September are up an impressive 40 percent year-over-year; however, rising internal prices are likely to slow exports during the last quarter of this year. The current EU export price for butter is about \$4,725/ton FOB (\$2.14/lb) in contrast to the lower Oceania price of approximately \$4,360/ton FOB (\$1.98/lb). Exports for the year are projected at 235,000 tons – down slightly from the previous 2016 forecast but 22 percent over 2015. Internal demand appears to be fairly robust as there are no EU intervention stocks. Stocks under the private storage scheme (PSA) stood at 76,000 tons in October. Typically these stocks peak in July or August and are then drawn down rapidly towards the end of the year. Ending stocks are forecast at 55,000 tons and this, coupled with the uncertainty over available milk supplies in the coming months, may explain why butter prices remain high in the EU domestic market.

In 2017, butter production is expected to remain flat at just under 2.4 million tons as

additional milk deliveries are projected to flow into the production of the more profitable commodities, i.e., cheese and WMP. Exports are forecast to grow by 2 percent to 240,000 tons as global demand looks to remain fairly robust.

- Although butter production in **New Zealand** is expected to decline by 3 percent in 2016, exports have been progressing well with shipments through September up 3 percent over the comparable period in 2015. As a result, the export forecast for 2016 is revised up to 565,000 tons. China and Mexico are the leading destinations and this will likely continue in 2017. For 2017, despite a projected further decline in production, shipments are expected to grow by 1 percent to 570,000 tons and lead to a drawdown in stocks.
- Butter production in **Russia** is forecast down in 2016 and flat in 2017 as increased substitution of palm oil depresses production of full-fat butter. The recent rise in global butter prices has boosted prices in Russia – where imports account for one-quarter of butter consumption – but dampened consumer demand. The impact of higher prices is likely to push consumption slightly lower next year, with imports also even with 2016 levels.

Skimmed Milk Powder:

- In mid-October, total **EU** stocks of SMP stood at about 428,000 tons comprising some 353,000 tons of intervention stocks and the balance in the private storage scheme (PSA). Given that the current intervention is set at €1,698/ton (\$1,800/ton) or approximately €400/ton below prevailing domestic market prices, no further intervention purchases are anticipated for the balance of the year. Total end-of-year stocks are forecast to fall to 400,000 tons as a result of a drawdown in intervention and PSA stocks. In response to improving domestic dairy prices and in an effort reduce these substantial stocks, the EU Commission is tentatively offering 22,150 tons of intervention SMP to the market. Bids are due in early December. Some EU farms groups have opposed the move since there is a concern markets remain fragile. It does appear, however, that any upward movement in the price of SMP will be tempered while these stocks overhang the market.

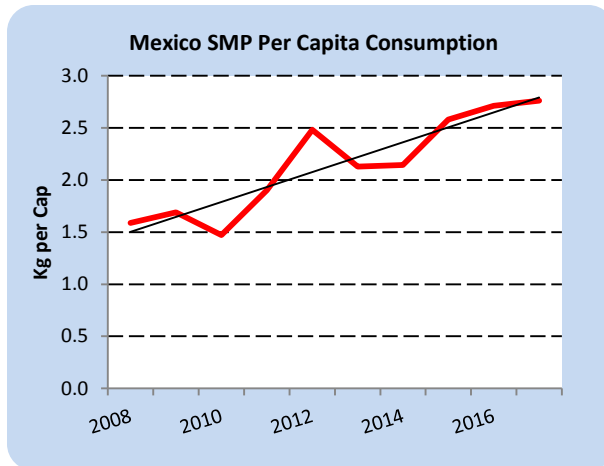
Exports of EU SMP have been lagging this year and the 2016 forecast is cut to 560,000 tons. In 2017, led by import demand in Asia, EU exports of SMP are expected to rebound by 21 percent. There is also some expectation that the EU will continue to release intervention stocks in an effort to contain stock levels which are forecast to grow to 450,000 tons by the end of 2017.

- **New Zealand** exports of SMP have been surging this year with shipments through September running 15 percent over the comparable period in 2015. While sales to key markets such as China and Singapore are trailing, these have been offset by strong exports to other countries in Asia such as Malaysia, Thailand, Vietnam, and the Philippines. Consequently, the 2016 export forecast is revised up to 450,000 tons. This is well in excess of projected production and thus stocks are likely to decline.

In 2017, along with higher butter production, SMP output is forecast to grow by almost 3

percent to 410,000 tons. However, exports will be limited by available exportable supplies as stocks are projected to remain relatively low. Further, international market conditions for SMP are expected to improve at a relatively slow pace in comparison to WMP and cheese while the substantial EU stocks of SMP continue to overshadow global markets. As a result, exports of SMP are forecast to decline by 6 percent to 425,000 tons.

- Driven by strong demand from the processing industry, the 2016 SMP import demand



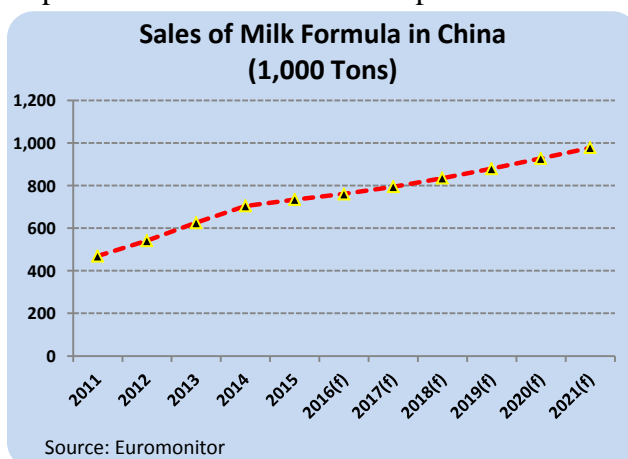
forecast for **Mexico** is revised up to 280,000 tons. Mexican imports of SMP have been averaging about 23,000 tons a month, and through September 2016, equaled a total 209,000 tons – a 17 percent year-over-year increase. The United States is the major supplier to Mexico accounting for nearly all of Mexico’s total SMP imports during this period.

The outlook for 2017 points towards continued growth, with imports slated to grow by 4 percent to reach 290,000 tons.

WMP:

- Import demand for WMP in **China** is recovering as stocks are drawn down and consumer demand continues to grow. Imports of WMP for the year through October are running 18 percent ahead of last year over the comparable period; consequently, the 2016 forecast is revised up to 395,000 tons. Approximately 35 percent of WMP is used in the infant formula market, 20 percent in the milk beverage market, 28 percent for the reconstitution of milk, and the balance is for use in the production of yogurt and bakery products. New Zealand dominates the import market supplying over 90 percent of shipments of WMP to China. This is not expected to change in the near future, particularly since a number of Chinese companies have acquired WMP plants in New Zealand.

Imports of WMP in 2017 are expected to maintain the current pace of growth, rising 14



percent to reach 450,000 tons. In June 2016, the Chinese government introduced new regulations effective October 2016 governing the marketing of infant formula in China. Domestic and international companies will be limited to the use of 9 infant formulas under one brand. In addition, there have been labelling changes to ensure that the country of origin is stated. There are reports that these actions may slow imports of WMP as firms consolidate

brands and attempt to clear infant milk formula stocks at low prices. Over the longer term, the outlook is bright as the infant milk formula market in China is estimated at 761,000 tons in 2016 and is forecast to grow by 4 percent in 2017 to 795,000 tons (source: Euromonitor). This growth is expected to be sustained over the longer term as per capita incomes and population rises. The population of China is projected to increase by 2 percent or 24.3 million people from 2016 to 2021.

- The **EU** WMP 2016 export forecast is adjusted down to 390,000 tons as shipments have been weaker than anticipated lagging behind the Jan-Sept 2015 pace by 3 percent. WMP sales to a number of small markets, e.g., Lebanon and Kuwait have registered gains; however, shipments to its top three markets -- Oman, Algeria, and Nigeria -- are lagging over last year's pace. Overall demand for WMP, however, appears to be strengthening during this last quarter based on the steady gains in internal (German) prices. Since May 2016, the price of EU of WMP has been rising fairly consistently from about €1,930 ton to over €3,100 ton (\$3,400/ton).

For 2017, higher milk output is expected to boost WMP production by 1 percent adding to available exportable supplies. As a result the export forecast for 2017 is set for 410,000 tons – up 4 percent over 2016.

- As a result of lower milk production this year, WMP production in **New Zealand** is forecast down 2 percent over last year to 1.4 million tons. This is down from the previous 2016 forecast. Shipments of WMP through September 2016 have been lagging by 4 percent compared to the same period last year due to soft demand in the Middle East and Asian markets. However, shipments of WMP to some key markets have posted strong gains. For example, exports of WMP to China through September year-over-year are up 16 percent to 210,000 tons accounting for nearly a quarter of total export sales. The recent run-up in WMP prices suggests that import demand is growing.

In 2017, the expected growth in milk supplies is forecast to result in higher output of WMP. However, import demand from such markets as China is expected to absorb this additional volume; consequently, exports are slated to grow by 5 percent to 1.4 million tons.

U.S. Dairy Export Forecasts:

Based on the stronger pace of U.S. shipments of NDM/SMP during the second half of this year, the 2016 export forecast is revised up 5 percent to 569,000 tons. Based on current prices, U.S. NDM/SMP holds a competitive position relative to the EU and New Zealand and shipments to key markets such as Mexico, the Philippines, and Indonesia remain strong.

For 2017, the production of SMP/NDM is projected to expand by 3 percent to 1.1 million tons. However, exports are expected to grow by 6 percent or 35,000 tons to reach 604,000 tons and lead to a reduction in stock levels. Import demand for U.S. SMP is anticipated to remain fairly strong, particularly in Mexico and Asian markets.

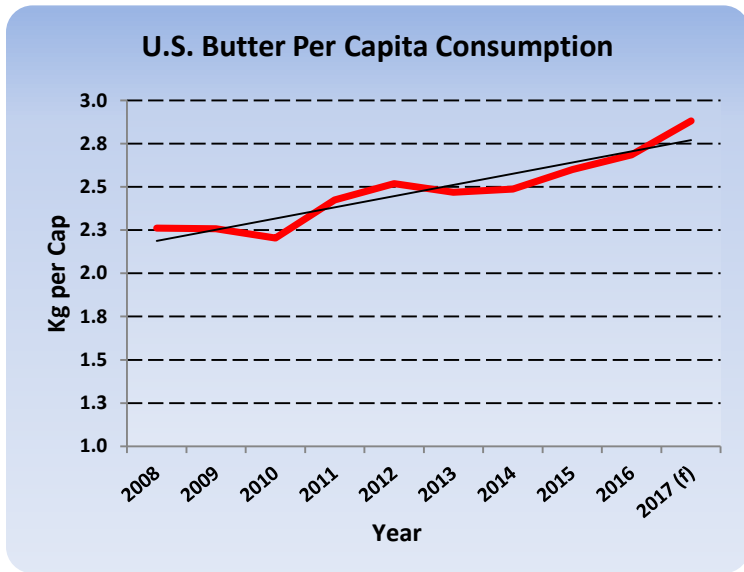
U.S. Dairy Products Export Forecast - Calendar Year 2016-2017

	2016 (P)	Milk Equivalent		2017 (For)	Milk Equivalent	
		Fat	Skims		Fat	Skims
NON-FAT DRY & SKIM MILK PWDR	568,702 MT	0.3	13.4	604,000 MT	0.3	14.3
MILK POWDER > 1.5% MILK FAT	58,206 MT	0.9	0.9	41,000 MT	0.6	0.7
BUTTER/MILKFAT/SPREADS	23,560 MT	1.2	0.0	20,450 MT	1.0	0.0
CHEESE & CURD	279,875 MT	4.4	2.2	286,200 MT	4.5	2.3
FLUID PRODUCTS 4/	145 Mil. Liters	0.6	0.3	131 Mil. Liter	0.4	0.3
DRIED WHEY PRODUCTS	484,070 MT	0.6	11.2	506,000 MT	0.6	11.8
LACTOSE	362,427 MT	0.0	8.9	369,000 MT	0.0	9.2
OTHER DAIRY PRODUCTS	170,273 MT	0.9	1.6	173,900 MT	0.9	1.7
TOTAL - Billion Pounds		8.8	38.7		8.4	40.1

Note: 1) CY 2016 includes actual exports through Oct. 2016
 2) Milk equivalent figures are rounded and totals may not add up.
 3) Forecasts assume current policy
 4) Includes milk based drinks, fluid whey, cream and fluid milk

U.S. cheese exports continue to face strong competitive headwinds particularly from the EU in Asian markets. Although the 2016 forecast is revised up to 280,000 tons, this is well below the pace set in 2015 when U.S. shipments totaled 317,000 tons. U.S. cheese exports in 2017 are forecast to increase by 2 percent to 286,000 tons. However, global prices of cheese (cheddar) have increased sharply from about \$2,500/ton FOB in May 2015 to approximately \$3,700/ton FOB (Oceania mid-point) or \$1.68/lb. The current weekly price of #40 Block cheese is around \$1.73/lb (as of 12-09-2016) but has ranged since early September from a low of \$1.54/lb to a high \$1.93/lb. In effect, with the recent rise in global prices, the gap, albeit volatile, between U.S. cheese prices and world prices has narrowed considerably which should help promote exports of U.S. cheese in the future.

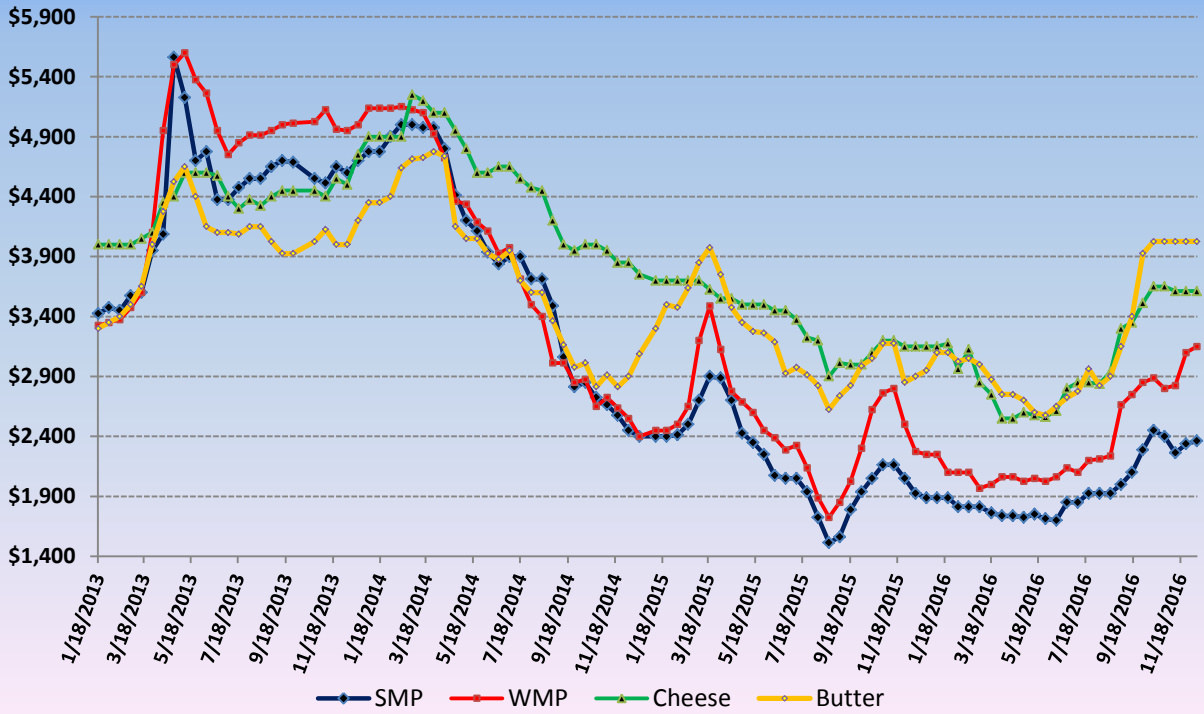
The outlook for U.S. exports of butter (including butteroil/AMF) is disappointing as the U.S. price of butter has been largely above global prices. Since January through November 2016, the price of U.S. butter at the Chicago Mercantile Exchange has averaged about 2.07 cents/lb (\$4,850/ton). However, this strong price is a reflection of robust domestic demand for butter that has so far shown



no signs of waning. In 2016, domestic demand is expected to grow by 4 percent; for 2017 a further 8 percent.

Exports of butter in 2016 are expected to total 22,000 tons in part helped by a late season boost from import demand from Canada. For 2017, shipments of butter are forecast to decline to 21,000 tons as domestic demand is expected to remain fairly strong.

Oceania Export Prices Mid-point \$/Ton FOB



Additional Resources:

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Subscription services for FAS circulars can be obtained at:
<https://public.govdelivery.com/accounts/USDAFAS/subscriber/new>

Individual FAS country reports covering dairy are available at:
<http://gain.fas.usda.gov/Pages/Default.aspx>

The USDA Production, Supply and Demand database is available at:
<http://www.fas.usda.gov/psdonline>

A monthly “Livestock, Dairy, and Poultry Outlook” for the United States published by the Economic Research Service is available at: <https://www.ers.usda.gov/publications/>

U.S. trade data is available on the Global Agricultural Trade System (GATS):
<http://apps.fas.usda.gov/gats/default.aspx>

The next publication of this circular will be in July 2017.

Cows Milk Production and Consumption: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Cows Milk Production						
Argentina	11,679	11,519	11,326	11,552	10,397	10,605
Australia	9,811	9,400	9,700	9,800	9,200	9,500
Belarus	6,766	6,640	6,703	7,047	7,170	7,245
Brazil	23,008	24,259	25,489	24,770	22,726	24,208
Canada	8,614	8,443	8,437	8,773	9,100	9,450
China	32,600	34,300	37,250	37,550	35,700	35,000
European Union	139,000	140,100	146,500	150,200	152,000	152,500
India	55,500	57,500	60,500	64,000	68,000	72,000
Japan	7,631	7,508	7,334	7,379	7,420	7,400
Korea, South	2,111	2,093	2,214	2,169	2,126	2,083
Mexico	11,274	11,294	11,464	11,736	11,934	12,100
New Zealand	20,567	20,200	21,893	21,582	21,370	21,600
Russia	31,831	30,529	30,499	30,560	30,350	30,195
Taiwan	348	358	363	374	380	380
Ukraine	11,080	11,189	11,152	10,584	10,380	10,200
Others	18	19	20	13	14	15
Subtotal	371,838	375,351	390,844	398,089	398,267	404,481
United States	91,010	91,277	93,485	94,620	96,343	98,339
World Total	462,848	466,628	484,329	492,709	494,610	502,820
Fluid Use Dom. Consum.						
Argentina	2,133	2,065	2,044	2,100	1,743	1,779
Australia	2,511	2,494	2,600	2,700	2,675	2,725
Belarus	1,089	1,001	1,050	1,050	1,050	1,055
Brazil	8,562	9,036	9,660	10,925	10,141	10,948
Canada	3,040	2,982	2,946	2,923	2,945	2,960
China	13,517	14,350	15,150	15,360	14,600	14,700
European Union	33,800	33,800	34,066	33,800	33,600	33,400
India	52,000	54,400	57,000	59,750	62,750	65,200
Japan	4,045	3,975	3,911	3,935	3,965	3,955
Korea, South	1,578	1,587	1,540	1,529	1,488	1,458
Mexico	4,168	4,160	4,180	4,185	4,183	4,186
New Zealand	425	451	495	497	497	500
Russia	11,000	10,150	9,859	9,500	9,250	9,085
Taiwan	340	356	369	384	400	403
Ukraine	5,588	5,316	5,538	5,385	5,190	5,009
Others	52	58	62	54	58	61
Subtotal	143,848	146,181	150,470	154,077	154,535	157,424
United States	27,740	27,334	27,060	26,789	26,521	26,500
World Total	171,588	173,515	177,530	180,866	181,056	183,924

Fluid Milk - Cow Numbers: Summary For Selected Countries
1,000 Head

	2012	2013	2014	2015	2016	2017 Dec
Cows In Milk						
Argentina	2,193	2,100	1,826	1,786	1,715	1,630
Australia	1,650	1,650	1,700	1,705	1,640	1,670
Belarus	1,477	1,519	1,525	1,533	1,512	1,510
Brazil	16,455	16,599	16,825	17,426	17,430	17,850
Canada	960	961	955	954	959	960
China	8,000	8,350	8,400	8,400	8,000	7,500
European Union	23,053	23,193	23,468	23,559	23,624	23,475
India	46,400	48,250	50,500	52,500	54,500	56,500
Japan	813	798	773	750	752	750
Korea, South	209	206	208	197	194	190
Mexico	6,350	6,300	6,350	6,400	6,450	6,500
New Zealand	5,010	5,005	5,176	5,056	4,950	4,900
Philippines	15	16	18	10	11	12
Russia	8,600	8,250	8,050	7,750	7,550	7,320
Taiwan	59	60	60	62	62	62
Ukraine	2,582	2,554	2,509	2,322	2,226	2,150
Subtotal	123,826	125,811	128,343	130,410	131,575	132,979
United States	9,237	9,224	9,257	9,317	9,329	9,359
World Total	133,063	135,035	137,600	139,727	140,904	142,338

Cheese Production and Consumption: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Production						
Algeria	0	0	0	0	0	0
Argentina	564	556	564	548	535	545
Australia	330	320	320	324	320	330
Belarus	199	182	226	241	275	275
Brazil	700	722	736	754	745	772
Canada	386	388	396	419	427	435
European Union	9,287	9,368	9,560	9,740	9,850	9,875
Japan	47	49	46	46	45	45
Korea, South	23	22	24	23	24	24
Mexico	264	270	275	280	285	293
New Zealand	328	311	325	355	350	355
Philippines	2	2	2	2	2	2
Russia	790	713	760	861	845	840
Taiwan	0	0	0	0	0	0
Ukraine	245	247	203	190	200	206
Total Foreign	13,165	13,150	13,437	13,783	13,903	13,997
United States	4,938	5,036	5,222	5,370	5,490	5,545
Total	18,103	18,186	18,659	19,153	19,393	19,542
Total Dom. Consumption						
Algeria	0	0	0	0	0	0
Argentina	513	507	510	506	481	490
Australia	240	220	239	244	244	254
Belarus	66	65	67	69	71	71
Brazil	724	750	754	773	787	799
Canada	400	403	407	418	433	438
European Union	8,597	8,656	8,883	9,087	9,117	9,125
Japan	282	285	278	295	300	305
Korea, South	101	107	118	137	134	144
Mexico	349	368	370	391	405	418
New Zealand	39	39	40	35	38	40
Philippines	21	16	20	21	23	25
Russia	1,214	1,140	1,072	1,048	1,060	1,060
Taiwan	23	25	26	29	33	34
Ukraine	194	198	197	184	192	204
Total Foreign	12,763	12,779	12,981	13,237	13,318	13,407
United States	4,786	4,839	4,977	5,152	5,353	5,440
Total	17,549	17,618	17,958	18,389	18,671	18,847

Cheese Trade: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Total Exports						
Argentina	54	51	56	43	55	70
Australia	163	163	151	170	166	170
Belarus	136	140	167	183	210	210
European Union	768	787	721	719	820	825
New Zealand	306	277	278	327	345	340
Others	111	107	68	56	63	58
Total Foreign	1,538	1,525	1,441	1,498	1,659	1,673
United States	260	316	368	317	280	286
Total	1,798	1,841	1,809	1,815	1,939	1,959
Total Imports						
Australia	75	69	80	89	100	110
Japan	235	236	232	249	255	260
Korea, South	78	85	97	112	110	120
Mexico	89	103	99	116	125	130
Russia	449	463	349	216	235	235
Others	202	205	201	181	223	206
Total Foreign	1,128	1,161	1,058	963	1,048	1,061
United States	122	113	127	157	163	166
Total	1,250	1,274	1,185	1,120	1,211	1,227

Butter Production and Consumption: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Production						
Algeria	0	0	0	0	0	0
Argentina	58	60	52	50	45	50
Australia	119	117	125	120	110	112
Belarus	113	99	107	113	120	125
Brazil	81	83	85	83	82	84
Canada	98	95	88	91	95	100
European Union	2,100	2,100	2,250	2,335	2,370	2,365
India	4,525	4,745	4,887	5,035	5,200	5,400
Japan	69	68	61	65	67	65
Mexico	190	190	192	195	205	210
New Zealand	527	535	580	600	580	575
Russia	216	219	252	260	245	245
Taiwan	0	0	0	0	0	0
Ukraine	88	93	115	103	105	106
Total Foreign	8,184	8,404	8,794	9,050	9,224	9,437
United States	843	845	842	843	865	890
Total	9,027	9,249	9,636	9,893	10,089	10,327
Domestic Consumption						
Algeria	0	0	0	0	0	0
Argentina	38	41	38	41	40	42
Australia	82	85	89	95	100	104
Belarus	59	49	53	43	44	49
Brazil	88	87	80	84	87	90
Canada	99	102	99	106	114	115
European Union	2,027	2,031	2,162	2,141	2,152	2,150
India	4,525	4,735	4,876	5,030	5,194	5,395
Japan	77	72	75	77	77	77
Mexico	226	234	221	228	249	252
New Zealand	21	22	22	22	24	25
Russia	340	357	376	350	337	332
Taiwan	20	19	22	25	21	22
Ukraine	96	100	116	97	96	96
Total Foreign	7,698	7,934	8,229	8,339	8,535	8,749
United States	792	782	794	836	870	940
Total	8,490	8,716	9,023	9,175	9,405	9,689

Butter Trade: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Total Imports						
Russia	124	140	137	90	90	90
Mexico	37	50	37	43	60	62
Australia	21	21	23	23	22	25
Taiwan	20	19	22	25	21	22
European Union	52	44	52	27	21	20
Canada	8	7	11	17	25	18
Japan	10	4	11	16	13	12
Brazil	8	5	1	2	5	6
India	8	1	1	4	4	5
New Zealand	0	1	1	1	2	1
Ukraine	8	14	11	1	1	1
Algeria	0	0	0	0	0	0
Argentina	0	1	0	0	0	0
Belarus	0	0	1	0	0	0
Total Foreign	296	307	308	249	264	262
United States	17	12	22	39	50	50
Total	313	319	330	288	314	312
Total Exports						
New Zealand	506	508	560	552	565	570
European Union	121	122	142	192	235	240
Belarus	54	50	55	70	76	76
Australia	54	50	44	35	35	45
Mexico	1	6	8	10	16	20
Ukraine	0	3	5	11	11	12
India	8	10	10	9	9	10
Argentina	21	19	14	9	5	8
Russia	2	2	4	3	4	3
Canada	1	4	2	1	1	1
Algeria	0	0	0	0	0	0
Brazil	1	1	6	1	0	0
Japan	0	0	0	0	0	0
Taiwan	0	0	0	0	0	0
Total Foreign	769	775	850	893	957	985
United States	47	93	74	23	34	21
Total	816	868	924	916	991	1,006

Nonfat Dry Milk Production and Consumption: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Production						
Australia	235	215	205	266	235	240
Brazil	141	151	154	155	153	157
European Union	1,270	1,250	1,550	1,715	1,785	1,700
India	450	490	520	540	540	570
New Zealand	404	404	415	410	400	410
Others	586	585	621	658	651	652
Total Foreign	3,086	3,095	3,465	3,744	3,764	3,729
United States	973	956	1,047	1,029	1,020	1,050
Total	4,059	4,051	4,512	4,773	4,784	4,779
Total Dom. Consumption						
China	225	289	300	244	220	220
European Union	802	848	887	987	891	978
India	425	400	446	492	534	560
Indonesia	205	222	215	202	204	209
Mexico	291	253	258	314	334	344
Others	978	1,052	1,028	1,064	1,122	1,142
Total Foreign	2,926	3,064	3,134	3,303	3,305	3,453
United States	523	424	458	487	444	457
Total	3,449	3,488	3,592	3,790	3,749	3,910

Nonfat Dry Milk Trade: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Total Imports						
Mexico	236	198	203	259	280	290
Indonesia	205	225	215	205	205	210
China	168	235	253	200	180	180
Philippines	106	113	95	100	190	180
Algeria	112	120	168	136	105	120
Russia	96	131	103	120	120	120
Brazil	33	24	23	35	35	35
Japan	32	32	43	53	35	32
Taiwan	21	21	23	25	25	26
Korea, South	19	20	21	21	19	20
Chile	10	7	5	10	14	10
Canada	3	3	6	3	4	5
New Zealand	5	5	4	5	5	5
European Union	2	5	2	3	4	3
Argentina	0	0	0	0	0	0
Australia	3	5	6	10	8	0
Belarus	1	1	3	0	0	0
India	14	0	1	0	0	0
Ukraine	3	2	1	0	0	0
Total Foreign	1,069	1,147	1,175	1,185	1,229	1,236
United States	2	1	3	2	1	0
Total	1,071	1,148	1,178	1,187	1,230	1,236
Total Exports						
European Union	520	407	648	686	560	675
New Zealand	390	392	383	411	450	425
Australia	168	119	164	201	170	180
Belarus	76	96	92	122	112	108
Canada	10	13	13	14	25	40
Ukraine	26	12	28	35	37	38
Argentina	14	25	22	24	24	26
India	37	130	61	18	16	25
Chile	4	0	2	1	2	2
Russia	0	3	3	2	1	2
Indonesia	1	1	1	2	1	1
Mexico	0	0	0	0	1	1
Algeria	0	0	0	0	0	0
Brazil	0	0	0	0	0	0
China	0	0	2	1	0	0
Japan	0	0	0	0	0	0
Korea, South	0	0	0	0	0	0
Philippines	12	6	5	0	0	0
Taiwan	0	0	0	0	0	0
Total Foreign	1,258	1,204	1,424	1,517	1,399	1,523
United States	444	555	544	560	569	604
Total	1,702	1,759	1,968	2,077	1,968	2,127

Whole Milk Powder Production And Consumption: Summary For Selected Countries

1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Production						
Argentina	281	277	258	252	218	222
Brazil	531	549	612	610	545	595
China	1,160	1,200	1,350	1,617	1,375	1,400
European Union	669	667	720	710	710	720
New Zealand	1,273	1,300	1,460	1,380	1,350	1,360
Others	560	555	545	494	459	467
Total Foreign	4,474	4,548	4,945	5,063	4,657	4,764
United States	26	33	47	49	43	45
Total	4,500	4,581	4,992	5,112	4,700	4,809
Total Dom. Consumption						
Algeria	185	170	180	215	218	219
Brazil	602	600	603	628	650	629
China	1,547	1,746	1,845	1,910	1,938	1,977
European Union	286	296	331	314	326	316
Mexico	154	156	151	151	148	150
Others	698	673	651	708	532	508
Total Foreign	3,472	3,641	3,761	3,926	3,812	3,799
United States	24	24	28	47	42	38
Total	3,496	3,665	3,789	3,973	3,854	3,837

Whole Milk Powder Trade: Summary For Selected Countries
1,000 Metric Tons

	2012	2013	2014	2015	2016	2017 Dec
Total Imports						
Afghanistan	0	0	0	0	0	0
Algeria	188	142	204	225	220	210
Argentina	0	0	0	0	0	0
Australia	9	8	9	11	15	20
Brazil	71	54	30	59	120	55
Chile	6	8	4	7	7	7
China	406	619	671	347	395	450
European Union	3	3	1	4	6	6
Indonesia	56	50	53	51	53	55
Mexico	9	11	7	7	12	13
New Zealand	1	1	1	7	5	5
Philippines	35	29	20	17	20	25
Russia	28	44	36	38	44	44
Taiwan	31	31	33	34	31	32
Venezuela	201	170	134	195	50	25
Others	2	1	0	0	0	0
Total Foreign	1,046	1,171	1,203	1,002	978	947
United States	10	7	7	9	15	10
Total	1,056	1,178	1,210	1,011	993	957
Total Exports						
Afghanistan	0	0	0	0	0	0
Algeria	0	0	0	0	0	0
Argentina	201	182	144	138	130	132
Australia	109	96	81	65	65	70
Belarus	33	46	31	38	32	27
Brazil	0	3	39	41	15	21
Chile	15	19	21	6	6	6
China	9	3	6	4	3	2
European Union	386	374	390	400	390	410
Indonesia	0	0	0	0	0	0
Mexico	5	5	6	11	20	20
New Zealand	1,261	1,291	1,423	1,380	1,315	1,380
Philippines	21	13	8	21	25	19
Russia	2	1	1	2	1	2
Ukraine	1	1	2	2	2	2
Others	0	0	0	0	0	0
Total Foreign	2,043	2,034	2,152	2,108	2,004	2,091
United States	12	16	18	17	15	16
Total	2,055	2,050	2,170	2,125	2,019	2,107