

China's dairy sector Part 2: Dairy product consumption patterns

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Editor's Note: This is the second of a two-part series on the dairy industry in China. The first segment on the current status and future prospects of China's dairy industry appeared in the March 2018 issue of *Feedstuffs*.

CHINA'S per capita fluid milk consumption was 17.3 kg in 2013, less than fluid milk consumption in the U.S. (73.9 kg), Canada (77.3 kg), Japan (31.1 kg), New Zealand (99.9 kg) and England (105.4 kg).

In China's rural areas, per capita consumption is even lower, standing at less than 10 kg. As the Chinese government promotes the urbanization process, per capita consumption is expected to grow as more rural residents move to cities.

China's dairy consumer group demographics and product structure have been changing. The distribution of consumer ages has undergone a change. Young people, instead of children and the elderly, have gradually become a major consumer group. At present, the proportion of pasteurized milk is no more than 30%, which is less than ultra-high temperature pasteurized milk.

Milk quality, safety

The Ministry of Agriculture of the People's Republic of China collected nearly 178,000 raw milk samples from dairy farms, milk collection stations and the entire transportation chain from 2009 through 2016.

Analyses included protein, fat, total bacterial counts (TBC), somatic cell counts, aflatoxin M1 and banned additives, e.g., melamine, beta-lactamase, leather hydrolysates and so forth. The data showed that no raw milk samples contained banned additives during these five years.

Data monitoring for milk composition in 2016 found 3.22% crude protein, 3.81% fat, TBC of 250,000 colony forming units (CFUs) per milliliter, average

somatic cell counts of 592,000/mL and aflatoxin M1 at 0.055 µg/kg ("Report of China Dairy Quality," 2016). In China, the national standard levels of milk protein, fat and TBC are 2.8%, 3.1% and 2,000,000 CFUs, respectively. There were 0.63% and 0.61% raw milk samples below the national standard level for milk protein and fat, respectively. The TBC in raw milk decreased 2.6-fold in 2016 compared to 2013 (Table).

Dairy processing industry

After consolidation and reorganization of China's dairy processing industry over seven years, the number of dairy processing enterprises has been reduced. However, production capacity and revenue have increased. In 2016, there were 627 certified dairy product processing companies (CDPPC), including 103 baby formula milk powder companies. In 2016, total CDPPC numbers decreased by 157

compared to 2010; however, production capacity increased 8.3 million metric tons. Total CDPPC assets and profits in 2016 were \$23 billion and \$2.2 billion (U.S.), respectively.

Large dairy product enterprises (e.g., Mengniu, Yili, Shanghai Bright, Modern Farming) continue to integrate the milk production and processing chain. The objective of the integration is to improve dairy product quality. Some enterprises have established the "two hours" system. This means that dairy products are completely processed within two hours of leaving the farm and, in the case of infant formula, within eight hours of leaving the farm.

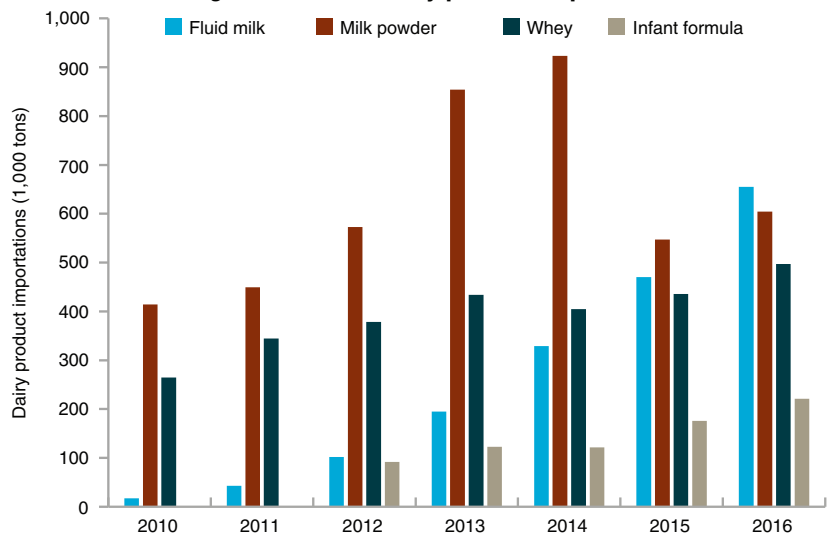
This integration has helped many dairy enterprises achieve great success. For example, the Chinese government recognizes MONDE SELECTION awards, with Modern Dairy winning the Gold Quality Award in 2014, 2015, 2016 and 2017, Firmus winning the Quality

Changes in milk quality and safety in China

	2011	2012	2013	2014	2015	2016
Milk crude protein (%)	3.14	3.16	3.15	3.16	3.14	3.22
Milk fat (%)	3.61	3.59	3.69	3.69	3.69	3.81
TBC (10,000 CFUs/mL)	ND	ND	64.6	62.7	46.7	25.0
Somatic cell counts (10,000/mL)	ND	ND	ND	ND	ND	59.2
Aflatoxin M1 (µg/kg)	ND	ND	ND	0.040	0.037	0.055

ND = no data.

Changes in China's dairy product importations



Source: China Dairy Statistical Summary, China Dairy Assn. (2017).

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Award in 2015, 2016 and 2017 and Junlebao certified as A+ for the BRC Food Technical Standard for 2015.

Globalization

Following China's economic reforms, especially since joining the World Trade Organization, the China-Australia free trade agreement and many others were signed. International communication has become more open and frequent, higher level and wider ranging.

In international trade, China's dairy importations have increased significantly. In 2016, China's imports of all types of dairy products totaled about 1.96 mmt, accounting for 6.5% of domestic milk production and representing a 2.6-fold increase compared to 2010. That total comprised 655,036 tons of fluid milk, including raw milk and yogurt; 604,209 tons of packaged milk powder; 221,326 tons of infant formula; 20,013 tons of condensed milk; 97,177 tons of cheese; 81,865 tons of butter, and 497,340 tons of whey (Figure).

For fluid milk, 73% of imports were from Germany, New Zealand and France. For packaged milk powder, 83% of imports were from New Zealand.

However, China exported only 30,815 tons of dairy products in 2016 ("China Dairy Statistical Summary," 2017).

Challenges, future

Since 2014, raw milk prices in China

have been low mainly because of an increasing milk supply. The average raw milk price was about 62 cents (U.S.)/kg in 2014 and 53 cents/kg for 2015, which is greater than the international price. The main reasons for the low prices are increased domestic production, international imports and a decrease in consumer demand. China's raw milk production and processed dairy product industry will be under great price pressure from the international market.

A large number of dairy cows in China need high-quality forages, especially alfalfa hay and corn silage. In 2016, production of alfalfa hay and corn silage totaled 2.1 mmt and 35 mmt, respectively. Meanwhile, imports of alfalfa hay totaled 1.38 mmt — a five-fold increase from 2011. Imported alfalfa hay comprised 65.7% of local production. Large amounts of high-quality forages were required, but the supply was insufficient.

Currently, the Chinese dairy industry is at an important turning point. The process is similar for all industries. Despite the pressures, China is still optimistic about the future for its dairy industry.

China's dairy industry was recognized as important to realizing a healthy and strong China. The milk production target is 410 mmt, which will be an increase of 4 mmt ("Planning of National Dairy Industry Development from 2016 to 2020").

In 2015, China's average consumption of fluid milk per capita was 18.7 kg ("China Dairy Statistical Summary," 2017), which is considerably less than that in England (102.3 kg), Australia (106.9 kg),

the U.S. (69.7 kg) and Japan (30.4 kg).

As concepts are changing regarding the structure of the Chinese diet, from grains and meat to vegetables and milk, dairy product consumption will increase. Due to an adjustment of the policy that a family can have two children instead of only one, total consumption of food, especially formula, will increase in the future.

The Chinese government adopted a series of laws, regulations and standards and a variety of policies to support dairy industry development. Policies such as standardized large-scale dairy (cell) construction projects, revitalization of alfalfa development, dairy cattle genetic subsidy, dairy herd improvement and "Planning of National Dairy Industry Development from 2016 to 2020" play an important role in supporting the development of China's dairy industry.

The China Excellent Milk Program is being carried out in the dairy industry and includes labeling products for excellent milk, grading raw milk, improving milk processing and evaluating excellent milk products. The program links the chain from production to consumer and provides power for production and processing by promoting consumption.

Acknowledgements: This study was supported by the Special Fund for Agroscientific Research in the Public Interest (201403071), Agricultural Science & Technology Innovation Program (ASTIP-IAS12), Modern Agro-Industry Technology Research System of China (CARS-36). ■