



# Supply & Demand Analysis and Prospect on Dairy Industry in China

Dong Xiaoxia

China Dairy Magazine,  
Agricultural Information Institute of Chinese  
Academy of Agricultural Sciences (CAAS)





# 1. China Dairy Supply and Demand Balance Sheet (2000-2017)

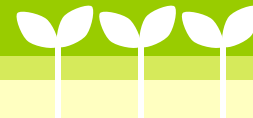
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Product volume</b>	<b>827</b>	<b>1025</b>	<b>1300</b>	<b>1746</b>	<b>2261</b>	<b>2753</b>	<b>3193</b>	<b>3525</b>	<b>3556</b>	<b>3519</b>	<b>3576</b>	<b>3658</b>	<b>3875</b>	<b>3650</b>	<b>3841</b>	<b>3870</b>	<b>3712</b>	<b>3655</b>
<b>Import volume</b>	<b>177</b>	<b>163</b>	<b>228</b>	<b>274</b>	<b>303</b>	<b>280</b>	<b>308</b>	<b>269</b>	<b>314</b>	<b>528</b>	<b>655</b>	<b>778</b>	<b>943</b>	<b>1267</b>	<b>1354</b>	<b>1093</b>	<b>1269</b>	<b>1437</b>
Total supply	1004	1189	1528	2020	2564	3033	3502	3794	3870	4059	4241	4445	4824	4919	5200	4996	4995	5092
Total demand	1064	1189	1528	2020	2564	3033	3502	3794	3870	4059	4241	4445	4824	4919	5200	4996	4995	5092
Consumption	1052	1181	1515	2010	2551	3013	3478	3728	3792	4036	4225	4425	4806	4907	5157	4971	4983	5084
Edible consumption	1003	1049	1409	1887	2088	2412	2885	3375	3415	3654	3766	4024	4391	4523	4740	4446	4467	4580
Feed consumption	46	56	70	92	118	143	165	182	190	185	187	191	195	184	193	194	180	177
Loss	25	31	39	52	68	83	96	106	107	106	107	110	116	109	115	117	120	111
Other consumption	3	75	36	31	344	457	428	171	187	197	272	211	221	199.6 6	224.5	214	216	216
<b>Export amount</b>	<b>12</b>	<b>8</b>	<b>13</b>	<b>11</b>	<b>13</b>	<b>21</b>	<b>24</b>	<b>66</b>	<b>66</b>	<b>13</b>	<b>7</b>	<b>15</b>	<b>14</b>	<b>7</b>	<b>12</b>	<b>8</b>	<b>7</b>	<b>8</b>

With 2008 as the dividing line, China's dairy production, imports and exports have undergone significant changes:

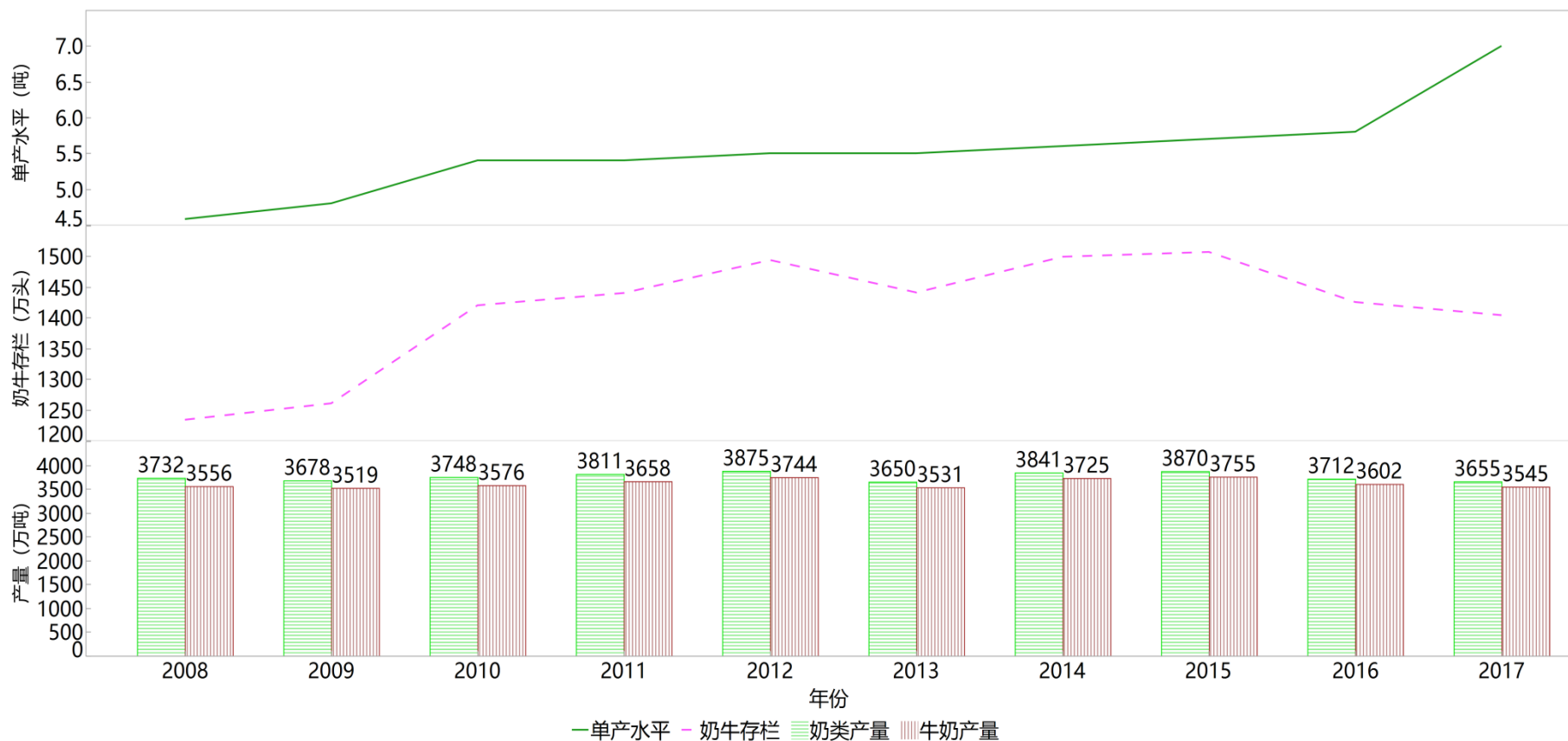
Production: from rapid growth to frequent fluctuations

Import: from slow growth to explosive growth

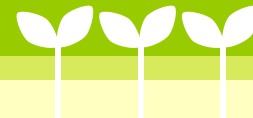
Exports: dropping from rapid growth to a lower level.



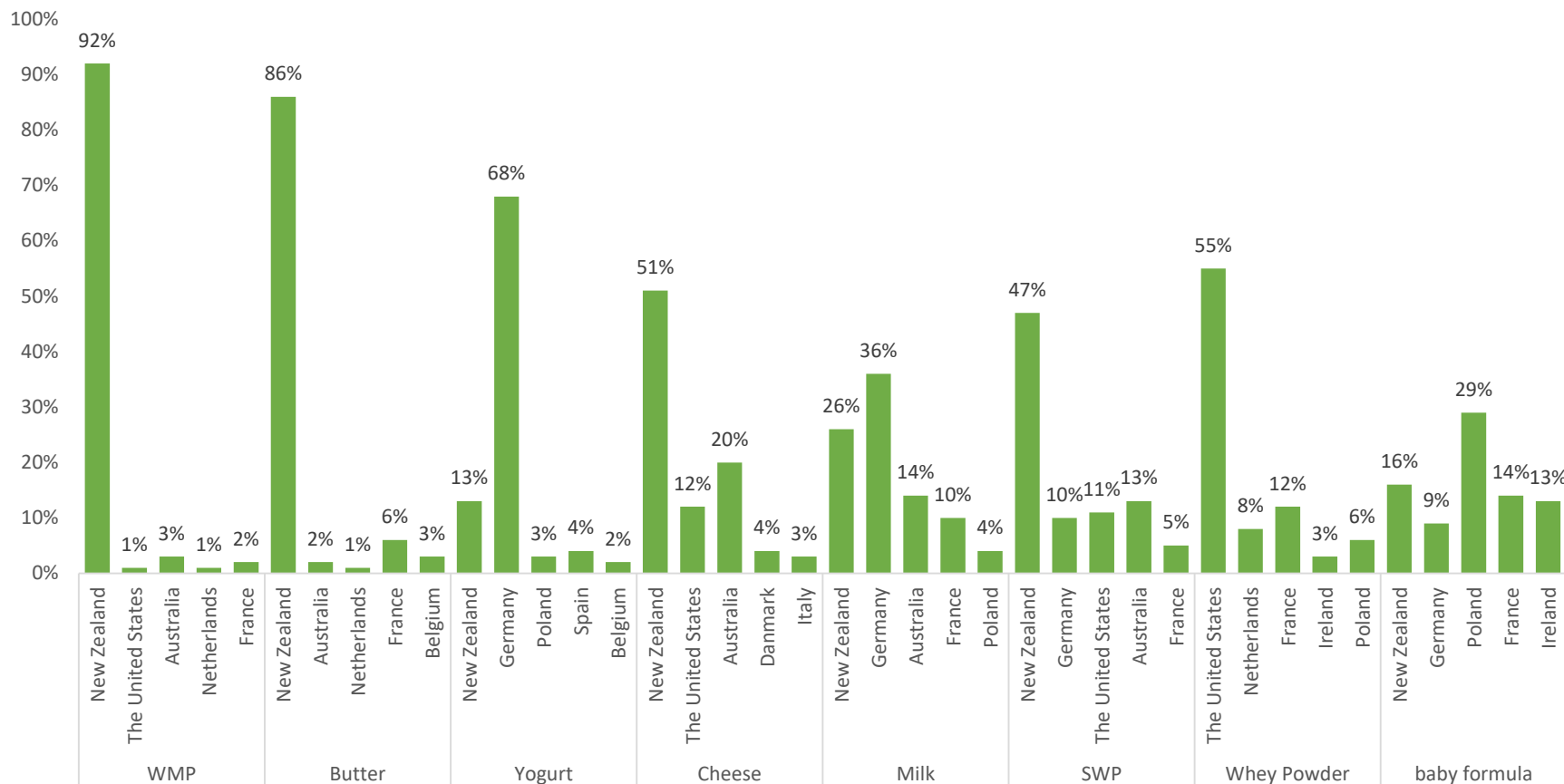
## 2. Adjustment of China's Dairy Production Fluctuations in the Past 10 Years



Milk Production: 36.55 million tons in 2017, dropped by 2.1% from 2008;  
Scale: In 2017, the proportion of dairy farms with more than 100 heads was 56%,  
increasing 36 percentage points over 2008;  
Yield: increased from 48,000 tons in 2008 to 70,000 tons in 2017.



### 3. Dairy Imports Continued to Hit New Highs

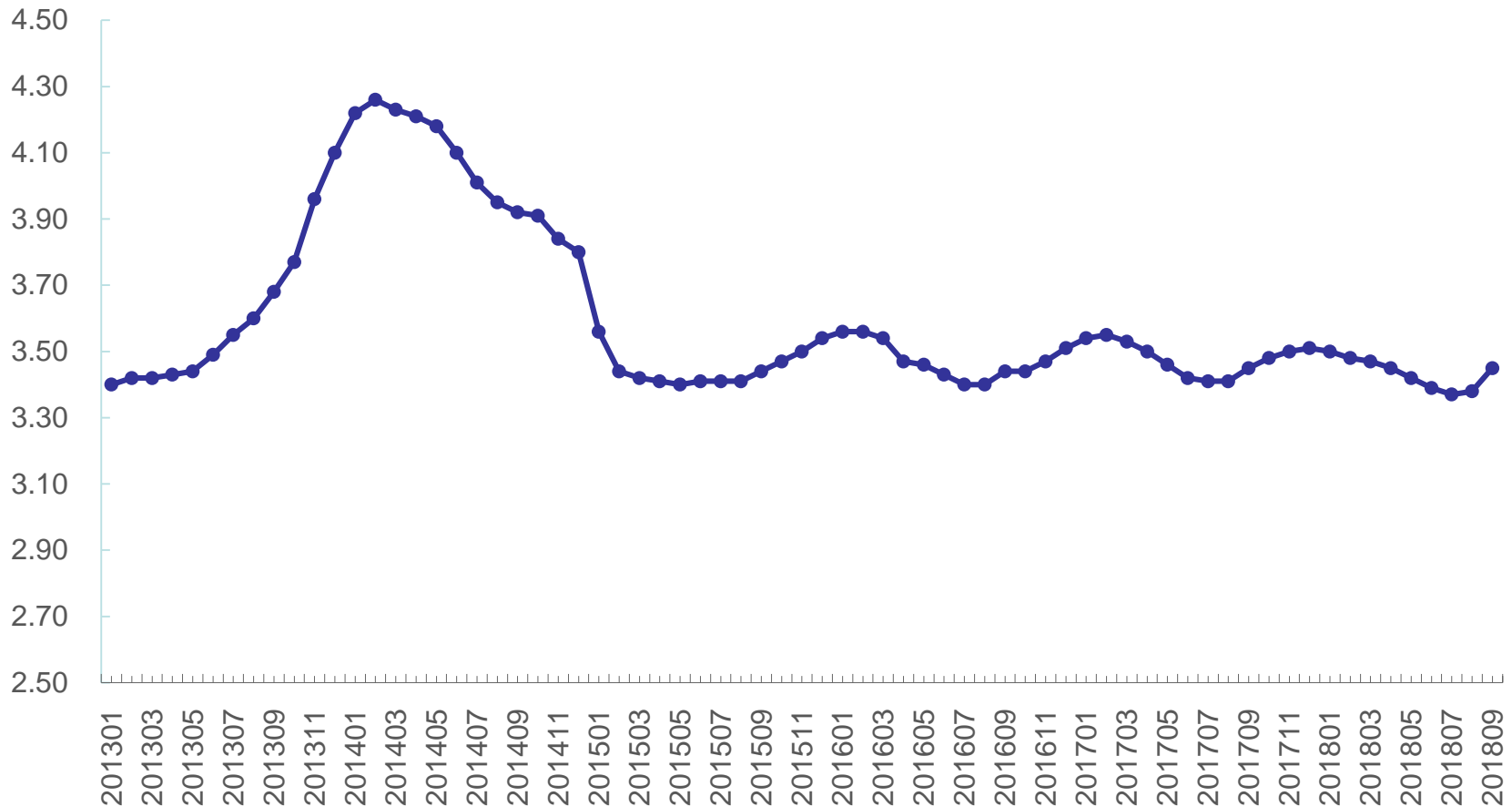


In 2017, China's total imports of dairy products was 2.45 million tons, equivalent to 14.27 million tons of raw milk, 4.5 times that of 2008. New Zealand is the most important importer. 92% of whole milk powder is imported from New Zealand, 47% of skim milk powder is imported from New Zealand, 86% of butter is imported from New Zealand, 55% of milk whey powder is imported from the United States, and 36% of fresh milk is imported from Germany.





## 4. Milk Prices run counter to the International Milk Prices



In 2016-2017, in the rebound season of international market prices, China's raw milk prices did not rise, but it continued to fall. Specifically, it fell to a five-year low in July 2017.





## 5. Overview of China's Dairy Industry in 2018

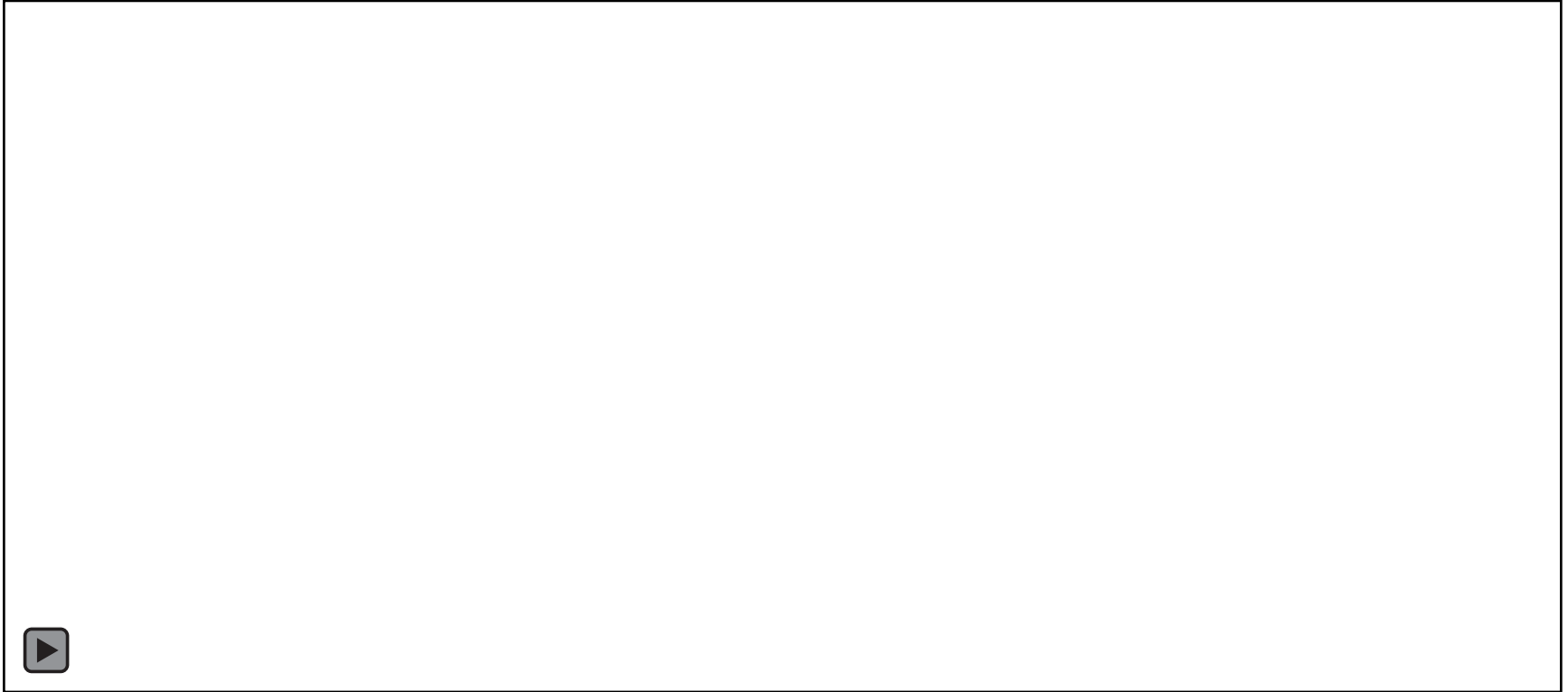
	Quantity				Amount			
	August	Year-on-year%	January to August	Year-on-year%	August	Year-on-year%	January to August	Year-on-year%
<b>Dairy products</b>	23.57	1.3	179.92	7.8	9.53	8.2	68.02	18.2
<b>Dry dairy products</b>	17.39	6.2	135.94	8.5	8.63	9.4	61.98	18.8
Infant milking	3.11	11.8	20.12	15.9	4.41	14.7	29.99	27.8
Milk powder	6.52	5.0	58.66	5.0	2.09	9.2	18.01	8.3
Whey	4.72	4.7	38.31	8.1	0.55	-15.6	4.19	-8.4
Cheese	1.21	4.2	7.62	-3.5	0.56	-0.7	3.61	1.1
Cream	1.60	6.3	9.58	35.2	0.98	12.2	5.89	61.7
Condensed milk	0.24	10.6	1.65	1.4	0.04	7.4	0.30	3.3
<b>Liquid milk</b>	6.18	-10.4	43.98	5.5	0.90	-2.3	6.04	11.8
Fresh milk	5.89	-10.0	41.89	5.4	0.85	-1.0	5.63	12.2
Yogurt	0.29	-18.0	2.09	6.0	0.05	-18.5	0.41	6.8

China Agriculture and Rural Affairs Ministry monitoring data: at the end of August, the number of dairy cows fell by 6.3% year-on-year; the cumulative production of raw milk from January to August increased by 1.98% year-on-year;

Statistics of the General Administration of Customs of China: The total import of dairy products from January to August was 1.8 million tons, up 7.8% year-on-year.



## 6. Model Framework: CAMES Partial Equilibrium Model



Based on the above historical data, the study used the partial equilibrium model (CAMES model) to predict the supply and demand status of Chinese dairy products in the next 10 years.





# Important Technical Parameters In the Model

Supply Price Elasticity	Demand Income Elasticity	Main Dairy Product Discount Parameters
<b>0.1</b>	<b>Citizens: 0.3</b>	<b>Fresh milk: 1: 1</b>
	<b>Rural resident: 0.4</b>	<b>Yogurt: 1: 1</b>
		<b>Milk powder: 1: 8</b>
		<b>Cream: 1: 8</b>
		<b>Cheese: 1: 10</b>
		<b>Whey powder: 1: 8.8</b>

**Source of the parameters of the discount: the medium-term review mechanism of Annex 3 of the China-Singapore Free Trade Agreement.**







## 7. China Dairy Supply and Demand Balance Sheet (2018-2027 )

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>Product volume</b>	3630	3739	3870	3947	4026	4107	4189	4252	4316	4380
<b>Import volume</b>	1617	1680	1732	1807	1882	1905	1918	1955	1971	1986
Total supply	5247	5419	5602	5754	5908	6012	6107	6207	6286	6366
Total demand	5247	5419	5602	5754	5908	6012	6107	6207	6286	6366
Consumption	5242	5414	5597	5749	5903	6007	6102	6202	6281	6361
Edible consumption	4746	4904	5070	5213	5358	5452	5544	5638	5710	5786
Feed consumption	176	181	188	191	195	199	203	206	209	210
Loss	110	113	117	120	122	125	119	120	122	124
Other consumption	210	215	222	225	229	232	235	238	240	240
<b>Export amount</b>	5	5	5	5	5	5	5	5	5	5

Based on the above technical parameters and model simulation results, we created the China dairy supply and demand balance table from 2018 to 2027. It is projected that the production, import and consumption will increase steadily.





## 8. Production Outlook: Positive Policies Boost the Development of China Dairy Industry



The Chinese government attaches great importance to the development of the dairy industry. In 2018, Vice Premier Hu Chunhua has investigated the dairy industry for three times in Hebei, Heilongjiang and Inner Mongolia.



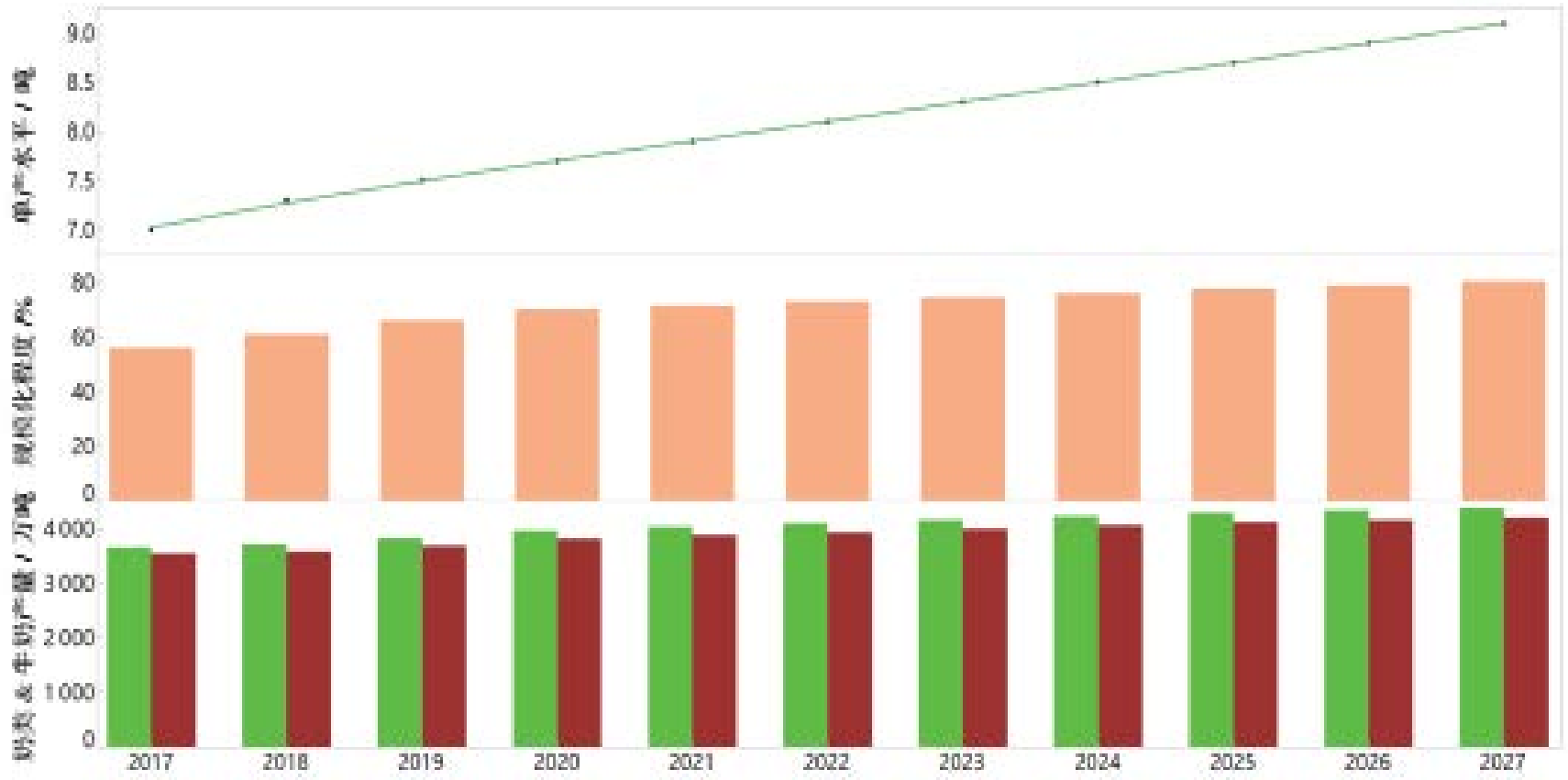
In June 2018, the State Council issued the "Opinions on Promoting the Revitalization of Dairy Industry to Ensure the Quality and Safety of Dairy Products"



In September 2018, the Chinese dairy industry D20 summit has reached a consensus among dairy enterprises that China's dairy industry development will enter into another "golden decade."



# In the next 10 years, China's dairy industry will change from adjustment period to a steady growth period



In 2027, the proportion of large-scale breeding of more than 100 cows will reach 80%, the yield per unit is expected to be 9 tons, and the output of milk is 43.8 million tons. The average annual growth rate of milk production in the next 10 years is expected to be 1.8%, which is significantly higher than the average annual growth rate of 0.4% in the past 10 years.





# 9. Consumption Outlook: Dairy Consumption will Continue to Grow Rapidly



The “Student Drinking Milk Program”, “China Well-Off Milk Action” and “Cheese Campus Promotion Campaign” will continue to promote the growth of China’s dairy consumption.



In 2018, the strategy of "revitalization of the countryside"

◆ The optimization of the consumption structure of 250-300 million middle-class consumers and the upgrading of rural residents' consumption under the rural revitalization strategy will be the main driving force for China's dairy industry consumption;

◆ It is estimated that China's per capita dairy consumption will be 40.5 kg in 2027, up 22% from 2017; the total consumption of dairy products will be 63.61 million tons, up 25% from 2017, with an average annual growth rate of 3.2%, which maintain the same as the past 10 years.

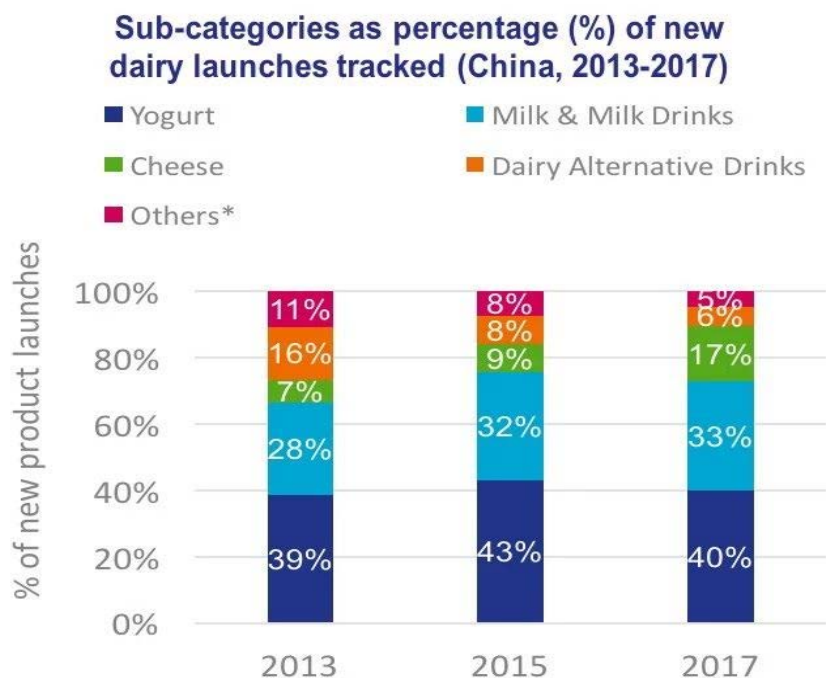




# In the next 10 years, consumption will upgrade and structural optimization will be carried out simultaneously

**Trend 1: The proportion of low-temperature dairy consumption will increase significantly**

**Trend 2: Dry dairy products such as cheese will be a new growth point**



Data Sources: Innova Market Insights

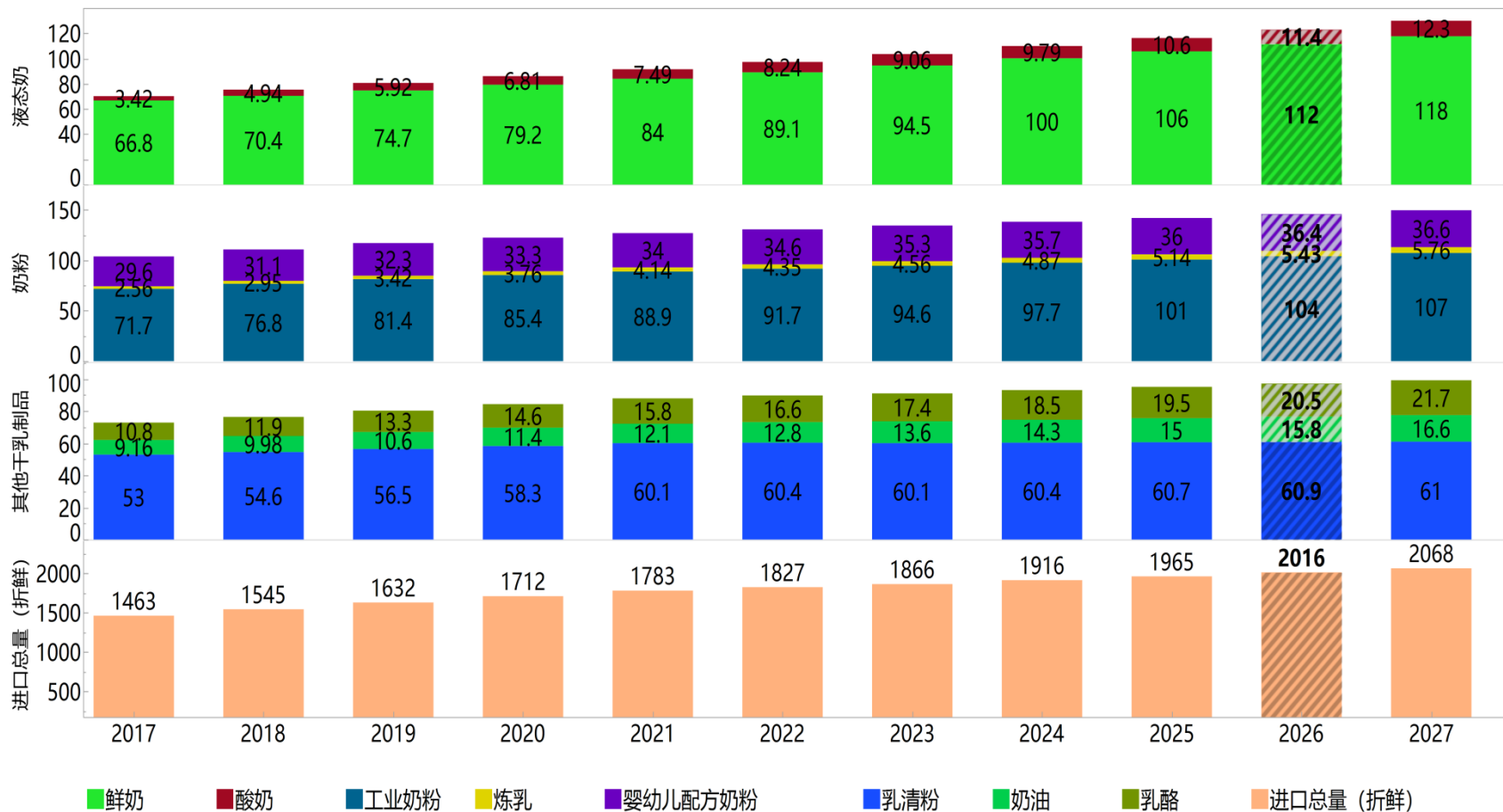


**From 2013-2017, the proportion of cheese in China's dairy products increased from 7% to 17%.**

**Among the new cheese products marketed in 2017, 24% were for children.**



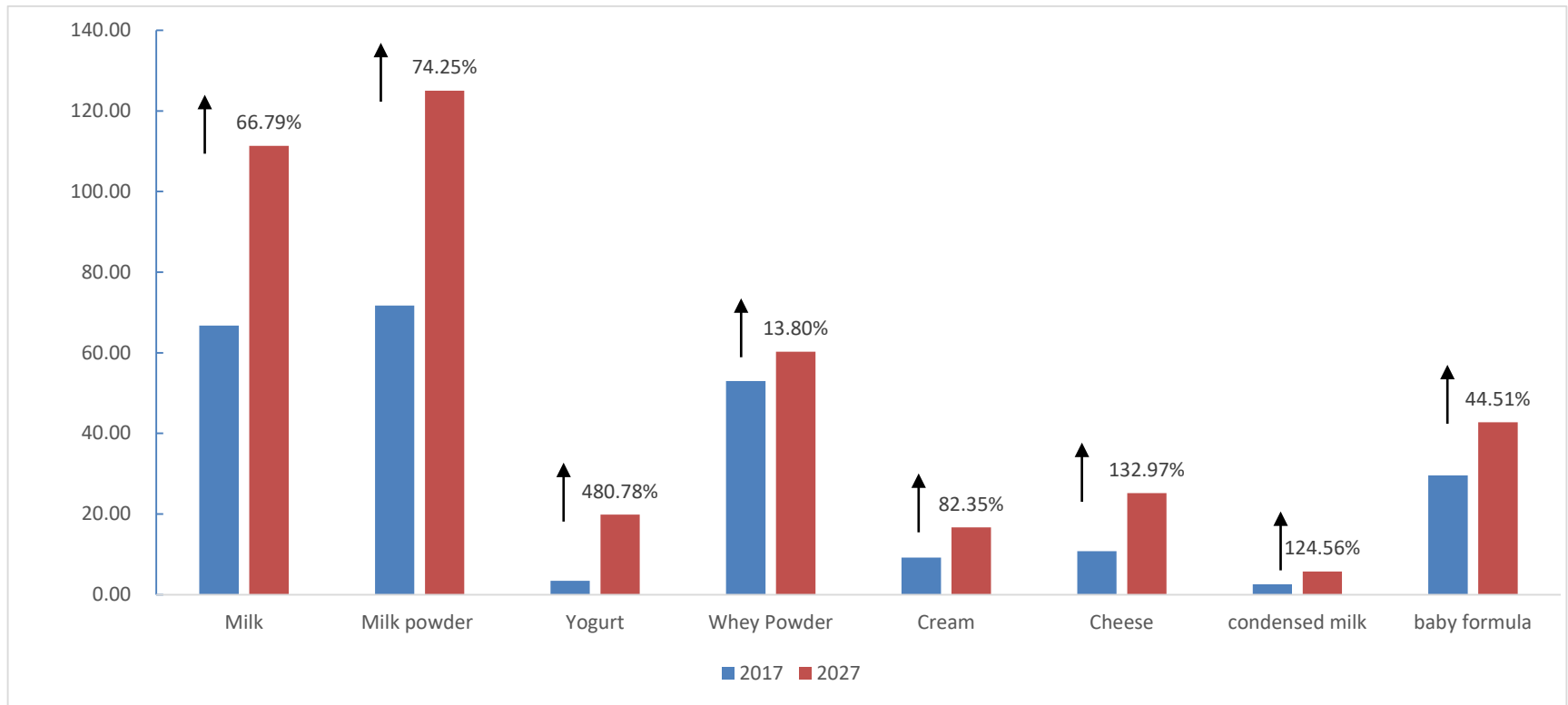
# 10. Trade Outlook: Demand and Differences in Price will Continue to Drive the Increase of Imports



In 2027, dairy products import was 19.8 million tons (equivalent to raw milk), an increase of 38% over 2017. The average annual growth rate was 3.3%, which was significantly lower than the 18.3% level in the past 10 years.

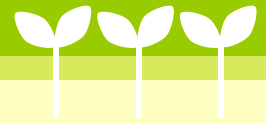


In the next 10 years, all kinds of dairy products will grow significantly



Milk powder will remain as China's leading imported dairy products in 2027, with an estimated 1.45 million tons, up 74% from 2017. Liquid milk imports 1.31 million tons, an increase of 87% over 2017; Cheese imports 250,000 tones, 2.3 times higher than in 2017.





Thanks for your attention !

