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# Comparative Analysis of the Purchase Price of Raw Milk in the World

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**Abstract** This paper selects 20 countries from the major dairy producing continents such as Oceania, the Americas, Europe and Asia, for the comparative analysis of the purchase price of raw milk in the world. Based on the summarization of general features of the world raw milk prices, this paper elaborates the fluctuations in the purchase price of raw milk in Oceania, the Americas, Europe and Asia, respectively, and carries out the comparative study of the gap between the domestic purchase price of raw milk and the world purchase price of raw milk.

**Key words** Raw milk, Purchase price, Comparative analysis

Dairy industry is an important part of modern agriculture, especially modern animal husbandry, and the countries in the world all attach great importance to the development of dairy industry. The level of development of dairy industry is an important symbol for the level of modern agriculture, especially modern animal husbandry in the developed countries, and the countries with developed animal husbandry have developed dairy industry. According to statistics, the milk production of Germany, France, Britain and other developed European countries accounts for more than 75% of total production of major livestock products (meat, eggs, milk); the milk proportion in the United States, New Zealand and Australia is more than 60% (New Zealand over 90%). Currently, the output value of dairy industry in Europe, America and Oceania accounts for about one third of total output value of animal husbandry. The purchase price of raw milk is a major issue for dairy economy, related to the trend and the overall situation of dairy industry development. Only when the purchase price of raw milk is in line with economic laws of dairy industry development can it promote dairy industry development<sup>[1]</sup>. Milk prices are the fulcrum of interest lever of dairy farmers and dairy business. It is necessary to fully take into account the interests of both, to make the lever achieve balance, and ensure stable development of dairy industry<sup>[2]</sup>. In 2010, the purchase price of raw milk in China began to exceed the world milk prices, which was a historic turning point<sup>[3]</sup>. In order to solve the contradictions of "low milk prices harming milk farmers but high milk prices harming milk businesses" concerning the domestic purchase price of raw milk, it is necessary to know the current situation and changes of the purchase price of raw milk in the world, which is essential to the setting and adjustment of China's purchase price of raw milk.

## 1 Overview of the world price of raw milk

### 1.1 The purchase price of raw milk is the highest in Asia

The purchase price of raw milk in major Asian countries is significantly higher than that in other regions of the world. As can be seen from Table 1, the average purchase price of raw milk in the major Asian countries was 4.61 yuan per kilogram from January to September 2012, 1.75 times that in Oceania, 1.75 times that in the Americas and 1.58 times that in Europe, respectively. And this phenomenon shows a tendency to expand, along with the continuing rise in price of raw milk in major Asian countries. In 2010, the purchase price of raw milk in Asia was 1.29 times that in Oceania (1.68 times in 2011, 1.75 times in 2012).

Table 1 The purchase price of raw milk in various continents

Unit: yuan/kg

	Oceania	The Americas	Europe	Asia
2010	3.29	2.52	2.83	4.23
2011	2.65	2.93	3.17	4.46
January to September 2012	2.64	2.63	2.91	4.61

Source: The data of Holstein Farmer.

**1.2 The global purchase price of raw milk undergoes fluctuation** Due to the impact of Oceania drought, economic crisis in Europe, the U. S. dollar exchange rate fluctuations and other factors, the global purchase price of raw milk has experienced frequent fluctuations in recent years. As can be seen from Table 1, the purchase price of raw milk continued to grow in Asia, and the average purchase price in 2012 increased by 8.98% over 2010; the purchase price of raw milk continued to decline in Oceania, and the average purchase price in 2012 decreased by 19.76% over 2010; the trend of fluctuations in the purchase price of raw milk in the Americas is in line with that in Europe, showing a undulating state.

**1.3 The purchase price of raw milk in Oceania is significantly lowered** Oceania and the Americas are two major dairy production bases in hemispheres. A special pricing mechanism is implemented in the acquisition of raw milk in the United States. The

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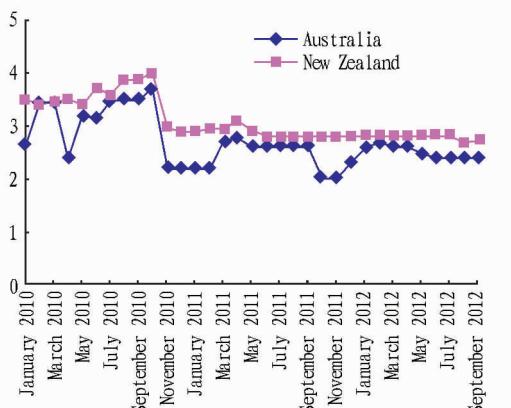
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purchase price of raw milk in the Americas has long been at relatively low level in the world. In recent years, Australia and New Zealand implement share dividends, and the acquisition base price of raw milk is decreased significantly in Oceania. In 2011, the purchase price of raw milk in Oceania was 2.65 yuan per kg, a decrease of 19.45% compared with 2010, lower than the price level of the Americas, so it became the world's region with the lowest price of raw milk. From January to September in 2012, the purchase price of raw milk continued to remain low in Oceania, basically the same as the purchase price of raw milk in the Americas.

## 2 Characteristics of raw milk prices in Oceania

**2.1 New Zealand** There is little administrative intervention in the purchase price of raw milk in New Zealand, depending on the fluctuations in the prices of main dairy products in the international market and exchange rate in New Zealand. Fonterra is an important participant in the New Zealand dairy industry, and the amount of milk it purchases accounts for 92% of New Zealand's total milk production. And its price is the benchmark purchase price of raw milk in New Zealand<sup>[4]</sup>. In recent years, the purchase price of raw milk in New Zealand takes October 2010 as a watershed, that is, the price before this period kept a rising trend but subsequently remained low. Before October 2010, the purchase price of raw milk in New Zealand was maintained at 3.4–4 yuan per kilogram. In November 2010, the purchase price of raw milk in New Zealand was 2.95 yuan per kg, a decline of 26.25%. From then to May 2011, the purchase price of raw milk hovered between 2.9 and 3.1 yuan per kg. Since June 2011, the purchase price of raw milk in New Zealand had remained unchanged for 13 consecutive months. It can be seen from Fig. 1 that in September 2012, the purchase price of raw milk in New Zealand was 2.7 yuan per kilogram, significantly lower than the price level before October 2010.



Source: The data of Holstein Farmer.

Note: The price in the figure is the purchase base price of raw milk in New Zealand and Australia, share dividends not included.

**Fig.1 The purchase price of raw milk in Australia and New Zealand**

**2.2 Australia** Overall, the purchase price of raw milk in Australia is less than in New Zealand, and the price stability is also

not as good as that in New Zealand. From January to September 2012, the purchase price of raw milk in Australia was 2.51 yuan per kg, and in the same period, the purchase price of raw milk in New Zealand was 2.78 yuan per kg. In 2011, the purchase price of raw milk in Australia was far less than in New Zealand, and the average purchase price of raw milk in Australia was 2.43 yuan per kg, 15.33% lower than the level of New Zealand in the same period (2.87 yuan). In addition, it can be seen that before September 2011, the trend of the purchase price of raw milk in Australia was very similar to that in New Zealand, and the recent volatility is relatively more frequent.

## 3 Characteristics of raw milk prices in the Americas

**3.1 The United States** U. S. Dairy Price Stabilization Act promotes the market stability of the U. S. dairy industry, and the U. S. purchase price of raw milk is strictly managed and controlled by the government. The purchase price of raw milk is based on the lowest price in federal statutes. Therefore, from the purchase price of raw milk, the purchase price of raw milk in the United States has been relatively low. In 2010, the U. S. purchase price of raw milk was 2.4 yuan per kilogram, in the second position among the 20 countries monitored (from low to high). In 2011, the U. S. purchase price of raw milk was 2.77 yuan per kilogram, ranking third in the 20 countries monitored (from low to high). From January to September 2012, the U. S. average price of raw milk was 2.53 yuan per kilogram, ranking fourth in the 20 countries monitored (from low to high). Meanwhile, it can be seen from Table 2 that the standard deviation of fluctuations in the U. S. purchase price of raw milk was 0.26, and the standard deviation of fluctuations in the Brazil purchase price of raw milk was 0.34, indicating that in recent years, the fluctuations in the U. S. purchase price of raw milk are smaller than in the Brazil purchase price of raw milk.

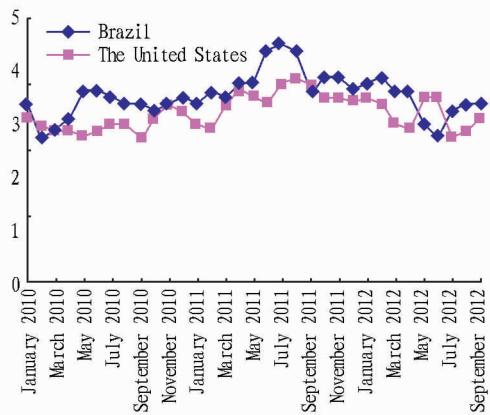
**Table 2 Basic statistics of the purchase price of raw milk in the United States and Brazil**

	Mean	Standard deviation	Minimum	Maximum
Brazil	2.84	0.34	2.18	3.60
The United States	2.59	0.26	2.20	3.10

Source: My calculation.

**3.2 Brazil** Brazil's raw milk price trend is consistent with that of the United States. As can be seen from Fig. 2, the purchase price of raw milk in Brazil is slightly higher than in the United States. From January 2010 to September 2012, the average purchase price of raw milk in Brazil was 2.83 yuan per kg, an increase of 8.85% compared to the U. S. purchase price of raw milk (2.60 yuan). They are two major dairy industry countries in the Americas. The trend of change in the purchase price of raw milk in Brazil is very similar to that in the United States. In general, the fluctuation in the purchase price of raw milk in Brazil lags behind that in the United States by one month in the same period, that is, after one month of fluctuation in the purchase price of raw milk in the United States, there will be fluctuation in the purchase price of raw milk in Brazil in the same direction, and the volatility

is similar.

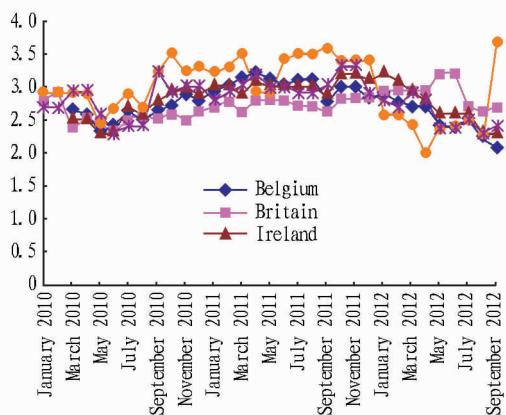


Source: The data of Holstein Farmer.

**Fig. 2 The trend of raw milk prices in the United States and Brazil**

#### 4 Characteristics of raw milk prices in Europe

**4.1 Western Europe** The major dairy producing countries in Western Europe include Belgium, Britain, Ireland, the Netherlands and France. According to Fig. 3, it can be seen that except the Netherlands, the purchase price of raw milk in the above four countries is very close, and the volatility trends are basically the same. From January 2010 to September 2012, the average purchase price of raw milk in Belgium, Britain, Ireland, the Netherlands and France was 2.74 yuan per kg, 2.72 yuan per kg, 2.82 yuan per kg, 2.98 yuan per kg, and 2.80 yuan per kg. The purchase price of raw milk is the highest in the Netherlands among the five countries, and the fluctuation is also the largest, with the standard deviation of 0.43, twice that of Britain (Table 3).



Source: The data of Holstein Farmer.

**Fig. 3 The trend of raw milk prices in the Western European countries**

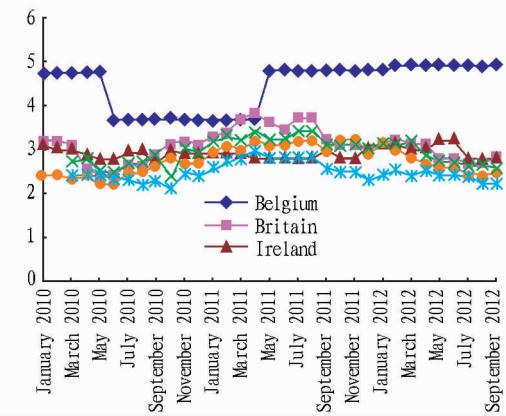
**4.2 Other regions** Other major dairy producing countries in Europe include Denmark, Sweden, Norway, Poland, Germany, and Italy. As can be seen from Fig. 4, apart from Norway, the trend of change in the purchase price of raw milk is basically the same in Poland, Denmark, Germany, Sweden and Italy. The purchase price of raw milk in Norway is significantly higher than in

other countries. From January to September 2012, the average purchase price of raw milk in Norway was 4.89 yuan per kilogram. In the same period, the average purchase price of raw milk in Poland, Denmark, Germany, Sweden and Italy was 2.39 yuan per kilogram, 2.83 yuan per kilogram, 2.69 yuan per kilogram, 2.92 yuan per kilogram, and 3.00 yuan per kilogram, respectively.

**Table 3 Basic statistics of the purchase price of raw milk in the major Western European countries**

	Mean	Standard deviation	Minimum	Maximum
Belgium	2.74	0.25	2.3	3.2
Britain	2.72	0.21	2.3	3.2
Ireland	2.82	0.26	2.3	3.2
The Netherlands	2.98	0.43	2.0	3.6
France	2.80	0.27	2.3	3.3

Source: The data of Holstein Farmer.



Source: The data of Holstein Farmer.

**Fig. 4 The trend of change in raw milk prices in other European countries**

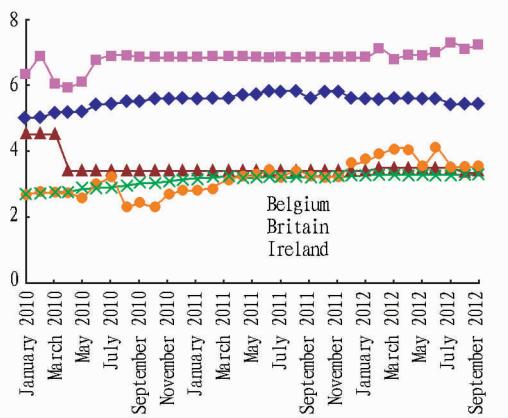
#### 5 Characteristics of raw milk prices in Asia

**5.1 Japan** Japan is Asia's country with the highest purchase price of raw milk, and also the country with the highest purchase price of raw milk in the world. Since January 2010, except May 2010 (5.9 yuan per kg), the purchase price of raw milk in other months has been more than 6 yuan per kilogram on the average, and since June 2010, it has been maintained at 6.8 – 6.9 yuan per kilogram. In 2012, the purchase price of raw milk in Japan broke through 7 yuan per kg, and reached 7.2 yuan per kg in September.

**5.2 South Korea** South Korea is also the Asian country with the high purchase price of raw milk, and the purchase price of raw milk is very smooth in South Korea. Since 2010, the purchase price of raw milk in South Korea has been maintained at 5 – 5.8 yuan per kilogram. Before 2011, the difference in the purchase price of raw milk between South Korea and Japan was maintained at 1.2 yuan per kilogram. Since 2012, the gap has been widening. From July to September 2012, this gap was expanded to 1.7 – 1.9 yuan per kilogram.

**5.3 Other countries** The purchase price of raw milk in Israel and Vietnam is basically at the same level in the Asian regions.

From January 2010 to September 2012, the average purchase price of raw milk was 3.51 yuan per kilogram in Israel; since 2010, the purchase price of raw milk in Israel has been very stable. From April 2010 to January 2012, the purchase price of raw milk in Israel was maintained at 3.4 yuan per kilogram. There are frequent fluctuations in the Vietnam's purchase price of raw milk. Before August 2011, the purchase price of raw milk in Vietnam was lower than that in Israel, but after December 2011, the purchase price of raw milk in Vietnam was higher than that in Israel. From January to September 2012, the average purchase price of raw milk in Vietnam was 3.77 yuan per kilogram, 9.59% higher than that in Israel (3.44 yuan per kilogram).



Source: The data of Holstein Farmer.

**Fig. 5 The trend of change in the raw milk prices in major Asian countries**

## 6 Comparison of the purchase price of raw milk between China and other countries in the world

**6.1 Compared with other Asian countries, the domestic price of raw milk remains low** In recent years, the purchase price of raw milk has experienced a slight increase in China. From January 2010 to October 2012, the purchase price of raw milk in

10 major producing provinces (regions) was 3.11 yuan per kilogram, and from January to October 2012, the average price was 3.28 yuan per kilogram. Compared with other Asian countries, the domestic price of raw milk remains low, and the average level of the purchase price of raw milk is not only significantly lower than in Japan, South Korea, Israel and other countries with scarce resource endowments and high economic level, but also lower than in Vietnam with low economic level.

**6.2 Compared with the countries in other continents, the domestic purchase price of raw milk is relatively high** Compared with Oceania, the Americas, Europe and other continents, the domestic purchase price of raw milk is relatively high. Among the 15 countries selected from Oceania, the Americas and Europe, except Norway with the purchase price of raw milk of 4.89 yuan per kg, higher than the purchase price of raw milk in China, the purchase price of raw milk in other 14 countries is significantly lower than the purchase price of raw milk in China. The average purchase price of raw milk in China is 0.38 yuan per kilogram higher than the purchase price of countries in Oceania, the Americas and Europe. This conclusion is basically consistent with the existing finding that the domestic purchase price of raw milk is relatively high in the world<sup>[5]</sup>.

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