Consumption Status and Trends of Palm Oil in China

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Introduction

1. Palm oil's share in vegetable oil consumption
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1. Palm oil's share in vegetable oil consumption

Fig. 1  Consumption of palm oil for food and non-food uses over years
Fig. 2  Palm oil's share in vegetable oil consumption in China
2. Palm oil's consumption fields

- Fried foods (chips, Fried chicken, Traditional Chinese fried foods) 5%
- Instant noodles 20%
- Specialty fats 30%
- Others 20%
- Cooking oil (for blending and mixing) 25%

Fig. 3 Palm oil's shares in different consumption fields
Consumption status

1. Palm oil for cooking

2. Palm oil for specialty fats

3. Palm oil for frying
1. Palm oil for cooking

- In recent years, the annual import volume of palm oil is around 6 million tons. Except palm oil for specific purposes such as instant noodles, biscuits and baking industry, specialty fats and oil chemical industry, about 2 million tons of palm oil disappeared.

- It is estimated that they are mostly used for cooking oil or mixed with other vegetable oils.
The output of China's edible blend oil reached 2.38 million tons in 2011, an increase of 21.1% over 2010, accounting for 46.9% compared with small package edible oil of 5.07 million tons, and became the oil species with the highest market share.

Fig. 4 The annual output of blend oil
Fig. 5 The distribution of blend oil species in 2011
2. Palm oil for specialty fats

- The production capacity of specialty fats in China increased rapidly, among which margarine, shortening, and cocoa butter substitute accounted for the largest proportion. The amount of specialty fats except frying oil was only 0.15 million tons in 1996, increased to 0.3 million tons in 2001, and to more than 1 million tons in 2008.

- The gross output value was over 15 billion yuan, the overall increase rate was faster than that of edible oil itself, and it was also one of the most profitable products in edible oil processing fields.
The processing capacity of domestic enterprises accounted for about 15%
Fig. 6 The major specialty fat enterprises and their market shares
Palm oil is the most commonly used base oil for specialty fats

- All kinds of palm oil products replacing hydrogenated oils become major base oils for specialty fats
- Palm oil accounts for 30-50% in recipe on average, and margarine, shortening industry consume 0.25-0.40 million tons of palm oil per year

Fig. 7 The application of margarine and shortening and their market shares
In 2011, the yield of **ice cream** was 3.5 million tons, the sales volume was 79 billion yuan, and low-and-medium products accounted for more than 60%. The products had 5-6% oil content, most of which were 42 degree palm oil, and the industry consumed about 0.11 million tons of palm oil.

The annual output of **biscuits** was about 6 million tons in China. **Biscuits** consume much palm oil which is in bulk and not recorded in specialty fats, generally. The consumption of palm oil in biscuits increased from 0.97 million tons in 2008 to 1.16 million tons in 2011. The annual average growth rate was about 9%.
China's annual imports of palm kernel oil were 0.6-0.7 million tons, mainly for daily-use chemical industry.

About 1/3 of the imported palm kernel oil was used for specialty fats. They are mainly cocoa butter substitute, powdered oil and whipped cream.

The amounts of palm oil used for cocoa butter substitute, powdered oil and whipped cream in 2011/10 kt.

Fig. 8 The amounts of palm oil used for cocoa butter substitute, powdered oil and whipped cream.
3. Plam oil for frying

- Instant noodle
- Fried chicken
- Potato snack food
- Shrimp, squid roll and traditional snacks
1. Instant noodle

- Instant noodle has become the world's second largest convenient staple food, just behind bread.

- China is the world's biggest instant noodle production and consumption country, the output accounts for more than 51% of the world, 50 billion packages, 55.7 billion yuan.

- Fried instant noodles accounted for more than 90% of total instant noodles, and non-fried instant noodles accounted for a small proportion.
Almost all oils used in instant noodles are palm oil

The consumption of palm oil in instant noodle market remained at 0.85-1 million tons after 2004

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**Fig. 9** Production and sales of instant noodles, and consumption of palm oil
The brands of large enterprises of instant noodles have been established in the market.

Fig. 10 The output proportion of the largest 10 instant noodle enterprises

- Master Kong
- White Elephant Group
- Jinmailang
- Zhuhai Huafeng
- Uni-presedent
- Jinfeng Group
- Smetana
- Helan Jiaozuo
- Zhengzhou Guohua
- Palm oil in instant noodles was mainly used for frying, followed by using as oil in ingredient package.
- 33 degree palm oil can be used for frying. When temperature is slightly lower, 24 degree palm oil is also added. Generally, antioxidants are not used.
- Palm oil content in instant noodles is 18-20%.
- The palm oil content in ingredient package is around 20%.
2. Fried Chicken

- The number of KFC stores in China achieves 4,000
- Keshi and McDonald have about 2,000 and 1,500 stores in China, respectively
- Pre-processed meat products such as chicken balls, chicken feet, chicken wings and other traditional Chinese hot pot foodstuff are usually pretreated by frying with palm stearin (more than 50 degrees)
- The consumption of palm oil for chicken frying is about 70,000-80,000 tons
3. Potato snack food

- The rapid developing potato snack foods in Chinese market are fresh cut potato chips, composite chips and frozen French fries.
- The output of potato chips: 0.16 million tons in 2005; 0.4 million tons in 2011, annual growth rate approximately 25%.
- Total domestic sales is 18 billion yuan in 2011.
- 24 degree palm oil and palm olein are used. No antioxidants.
- Annual consumption of palm oil is 0.10 million tons.
Potato chips

Fried fresh-cut potato chips:

- Sales, about 40 billion
- Major producers: Lay's, Oishi, Orion, Angel
Potato chips

Fried Potato Chips:

- Sales, approximately 10 billion
- Top 5 producers: Daly, Lay's, Panpan, Oishi and The Little Prince

![Bar chart showing sales of top 5 fried potato chips producers in 2011](chart.png)

**Fig. 11** Sales of top 5 fried potato chips producers in 2011
Potato chips

Baked potato chips (biscuit crisps):

- Sales, about 4 billion
- The number of biscuit crisps companies reached a hundred in its peak period. Currently, the two giants were formed: the northern Le Bar, output about 500 million yuan in 2011; Anhui Qiaqia food advocates "non-fried, more healthy", annual output 400 million yuan in 2010
French Fries

- Frozen french fries: 50,000 tons in 2005, 113,000 tons in 2010, annual growth rate 17%; 170,000 tons in 2011, growth rate 47.8%, much higher than that in previous years, showing high growth rate

![Annual processing capacity of frozen French fries from 2005-2011](chart)

Fig. 12  Annual processing capacity of frozen frenchfries from 2005-2011
French Fries

- The high growth of frozen french fries is due to the increasing demand from nearly ten thousand western fast food shops and high-end hotels in China, and even some supermarkets started selling frozen French fries. Though small in number, but a new point

- The production and sales of frozen French fries will continue to increase in next few years, the recent demand is 230,000 tons or more

- The capacity of Simplot, McCain, Landunxumei, Hong Kong Taimei will reach 255,000 tons in next two years
French Fries

- The capacity distribution of major enterprises

Fig. 13 Shares of processing enterprises of frozen French fries in 2011
French Fries

- The consumption of French fries accounts for 12% - 15%. Half is used in the factory (fried before freezing in the production line), and half is used in the food stores.

- After the incident of "French fries oil" in 2006, people began to question frying oils. Palm oil has become increasingly common for French fries.

- The frying oil is usually 42 degree palm oil.
4. Shrimp crackers, Squid rolls, Shrimp slices

- Shrimp crackers, squid rolls, shrimp slices: popular in rural areas, the main producers: Fujian Qinquin, Panpan food. The annual output is nearly 100,000 tons

- 24-42 degree palm oils is generally used and the consumption is 30,000-50,000 tons per year
5. Chinese traditional snacks

- Chinese traditional snacks: fritters, fried dough twist, fried dumpling, pies, deep-fried dough cake, crispy rice, skin peanuts, candied fritter, fried spring rolls, fried fish, popcorn, etc.

- Characteristics: varieties, manual workshops, breakfast shop, small business, but gradually showing the trends of the scale of production

- Soybean and cottonseed oil are widely used, but palm oil has great potential

- Golden wheat and COFCO developed special butter with palm oil/palm kernel oil for popcorn, increasing blasting rate of corn, uneasy to stick pan
Trends and Challenges

1. Trends

2. Challenges
Trend 1: Growing demand for domestic edible oil should rely on palm oil

- It is expected that China's palm oil import will increase by 6% per year in the next few years, to reach 7.95 million tons in 2015.
- The consumption will be more than 10.5 million tons in 2020, gradually approaching soybean oil.
Trend 2: Processing technology continues to improve, more and more palm oil products will appear

- Small/medium package palm oil products were successfully developed, the oil companies are expected to follow, and the market share will increase.

- The annual consumption of edible oil in China's catering industry reaches 6-8 million tons, of which edible oil with disposable packaging is only 6-8 million tons, edible oil with recyclable packaging barrels is about 4 million tons, edible oil without packaging is 1.4 million tons.

- Cancellation of bulk oil in catering industry has been implemented, edible oil with disposable medium package (the main component is palm oil) will become the main restaurant oil, and will account for nearly 50%.
Trend 3: Convenience food production will strongly drive the consumption demand for palm oil

- By 2015, the output of China's convenience food industry will reach 530 billion, an annual increase of 30% on average.

- Sale target of instant noodles is 100 billion yuan in 2015, there is a large potential for palm oil in the instant noodle industry.
Trend 4: Potential safety hazard of trans fatty acids and genetically modified food will effectively promote the demand for palm oil

- The consumption of selectively hydrogenated oils in margarine, shortening is decreasing

![Bar chart](image)

Fig. 15 The consumption of hydrogenated oils in specialty fats
Trend 5: Palm oil in the food industry becomes widely used, and special type of palm oil is being developed

- With the development of fractionation technology, industrialization of traditional food, acceleration of the process of industrialization of staple food and prosperity of food and beverage industry, palm oil in food processing will be more widely used.
- Palm oil products will be tailored based on the demands of downstream food industry, the number of subdivided palm oil products for different food categories will be increased.
Challenge 1: Edible oil quality standards are not perfect

- Edible oil quality standards are not perfect and palm oil adulteration is serious.
- Palm oil standard system should be strengthened. GB 15680-2009 only includes palm oils with 33 degree, 24 degree, 19.5 degree, 44 degree as edible oil.
- PMF and more low melting soft fat products are excluded from national standard, which does not match production status and restricts the promotion of fractionation products.
Challenge 2: Potential risks of 3-MCPD esters, polyglycerol esters

- Refined vegetable oil (including palm oil) contains a certain level of 3-MCPD esters, polyglycerol esters
- In Feb 5-6 2009, the International Life Sciences Institute Europe (ILSI Europe) conference identified 3-MCPD esters as new potential risk factor for vegetable oil
- In September 2009, the incident of Japan's Kao "Econa" oil indicated it was a substantial impact on oil industry
- Infant formula manufacturers have started to control 3-MCPD esters in the oil