

# CURRENT AND FUTURE MARKETS FOR COCONUT PRODUCTS IN CHINA

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## 1. Introduction

Coconut [*Coco nucifera* (*C. nucifera*) L.] is an important fruit tree in the world, with its many uses and it is often called the “tree of life”. The potential of market development and economic value are quite great. At present, the coconut has been cultivated all over the world, including Asia, Africa, Oceania and south America. However, the main coconut producer were Fiji, India, Indonesia, Kiribati, Malaysia, Marshall Islands, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Tonga, Vanuatu, and Vietnam. According to the FAO and APCC, the 18 coconut producing member countries of APCC accounting for over 90% of world coconut production and exports of coconut products and the largest coconut producing country is Indonesia (3.2 million hectare), followed by Philippines (2.66 million ha) and India (1.78 million hectare), the cultivated area of which accounting for over 73% of the world.

In China, Coconuts are mainly distributed in Hainan, Taiwan, Yunnan, Xshuangbanna and Estuaries of Yunnan, south and southeast of Guangdong, west of Guangxi province. And Hainan is the main coconut producing areas, accounting for over 99 % of cultivated area and coconut production. The cultivated area and the yield of Hainan is about 42 thousand hectare and 0.289 million tons, respectively, which accounting for 0.26 % of world’s cultivated area and 0.54 % of world’s production.

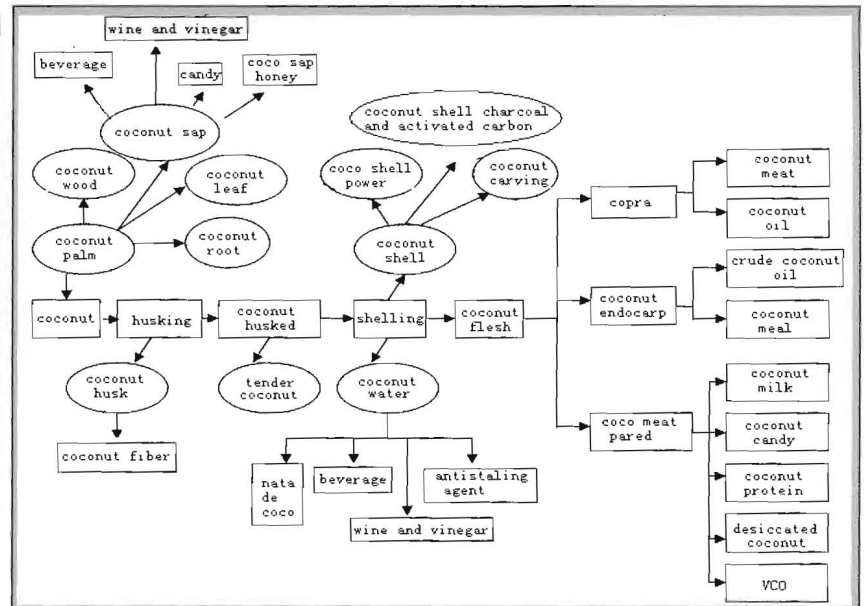


Fig.1. Comprehensive utilization technology of coconut in China

Coconut fruit in the wild is light, buoyant, and highly water resistant, and evolved to disperse significant distances via marine currents. The term “coconut” can refer to the entire coconut palm, the seed, or the fruit, which is not a botanical nut. The coconut palm is grown throughout the tropics for decoration, as well as for its many culinary and non-culinary uses. Virtually, every part of the coconut palm can be utilized by humans in some way. The coconut palm is perhaps the widest-grown palm in the world, and coconuts feature as one of the main sources of income for producing countries. For many years, tropical communities have used coconut oil in key areas of their lives, such as cooking, for medicinal purposes, and cosmetically for the hair and skin, etc. The benefits of coconut oil for health are countless and unparalleled.

Since the coconut yield is not so much in China, the comprehensive utilization of

coconut is relative high in order to saving materials, every part of coconut have been utilized. Coconut has been made into relevant products, including chemical materials, foods, cosmetics, medicines and boards, etc. There are more than 300 kinds of coconut products in the world, and more than 30 types, 200 varieties coconut product series can be produced in Hainan (Fig.1).

## 2. Coconut distributions in China

In China, there are 423,00 hectare coconut, 42258 hectare of Hainan province accounting 99% in China and small proportion in the total global coconut planting area. For a long time, coconut has become the symbol, and also the characteristic tourism product of Hainan province.

There are planting of coconut in Yunnan, Guangdong, Guangxi, and Taiwan. In Hainan, coconut is mainly distributed in

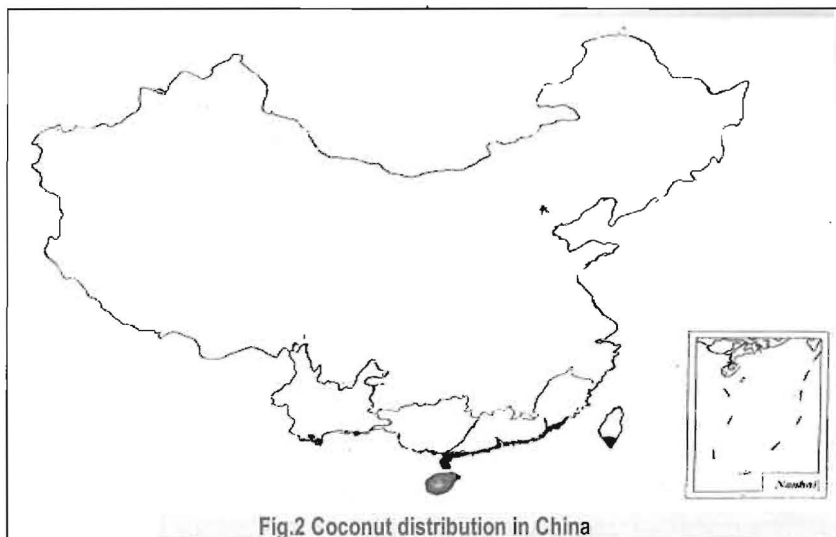


Fig.2 Coconut distribution in China

Wenchang city, the area is 34% of the total planting area in Hainan province (See Fig.2). Hence, Wenchang has the reputation of 'coconut hometown'. Next is Qionghai city and Lingshui, the proportion is 15% and 12%, respectively. There are also a small quantity of coconuts in Sanya, Haikou and the other cities (Fig.3).

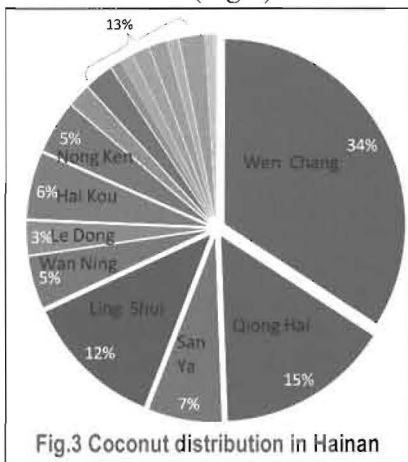


Fig.3 Coconut distribution in Hainan

### 3. Coconut varieties of China

Coconut cultivation in China has been two thousand years of history since Han dynasty. The main coconut variety planted in Hainan is Hainan Local Tall, which is accounting for 95% of the coconut cultivation area (See Table 1). And Wenye NO.2 (Yellow Dwarf), Wenye No.3 (Green Dwarf), and inter breed crossing (Hybrids) such as Wenye 78F1 are also planted in Hainan. Wenye 78F1 is a new variety developed by Coconut

Research Institute and has the feature of wind resistance, stress

Table 1. Coconut varieties of China (2010)

Variety	Average Yield (nuts/palm)	Percentage (%)
Local Tall	20-30	90
Yellow Dwarf	100-120	5
Green Dwarf	100-120	3
Hybrids	80-120	2

resistance.

### 4. Coconut production and imports from 2002-2012

The coconut yields in recent years are in the Table 2. The yield are about 260,000-325,000 tons every year, which could not meet the demands of coconut industry in China. According to the estimated of experts, the coconut demands of industry may be more than 2.5 billion

each year in Hainan. That means there are more than 2 billion coconuts need to be imported from the other countries. The coconut imports were less than 50,000 t each year from 2002-2007 (Fig.4). However, with the development of coconut processing industry, the coconut imports of China increased dramatically since 2008, which were more than one million tons each year.

### 5. Current market for coconut products in China

The growth of Hainan coconut industry can be divided into three stages. The first stage (Before 1986) called industrial formation stage, the coconut fruit access to market as a kind of tropical fruit for drinking. After the reform and opening up policy, and Hainan special economic zones established, coconut products sales outside the Hainan island increased constantly. The second stage (Between 1987-2006) called the industry development phase, marked by Coconut Palm Group (A famous enterprise in Hainan,) producing coconut juice, coconut industry had accessed into the field of production and processing, more than 200 varieties of coconut industry products emerged using coconuts as raw material. Coconut products were sold at home and abroad, and formed brand products of 'Coconut Palm Group (Yeshu)', 'Spring (Chunguang)', 'South (Nanguo)'.

Table 2. Coconut production of China from 2002-2012

Year	Harvest Area/10 <sup>3</sup> hectare		Coconut /10 <sup>3</sup> t	
	China	Asean	China	Asean
2002	27.2	6469.7	277.8	33624.0
2003	28.0	6525.2	275.7	34465.8
2004	28.4	6575.7	291.5	34829.5
2005	29.0	6573.3	271.0	37062.7
2006	28.8	6542.2	260.2	35937.3
2007	29.6	6818.6	270.6	38321.7
2008	29.8	6803.3	596.2	36967.1
2009	30.7	6826.2	274.2	38119.0
2010	31.0	7089.8	305.0	36993.4
2011	33.0	7064.4	324.5	36040.6

The third stage (After 2007)

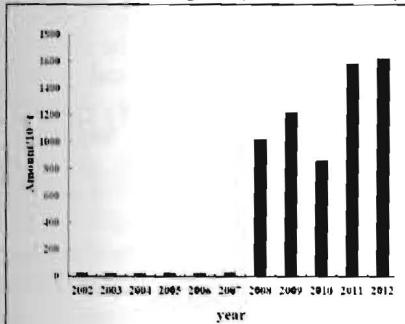


Fig. 4 Coconut imports of China from 2002-2012

called high-level industry stage. Coconut entered the stage of deep processing products. But so far, the coconut industry has not formed the climate, many fields are still blank. Therefore, up to now, the situation of Hainan coconut industry was as follows:

- a) On a smaller scale production enterprise.
- b) Product technology content is low.
- c) Industry scale effect has not been fully played out.
- d) Value chain is short result in limited contribution to regional economic growth.

In view of this, the development point of Hainan coconut industry should focus on the extension of industry value chain on the basis of resource integration, and the regional economic and social benefit maximization as the goal.

From the point of view of processing coconut products, Hainan coconut products have three series at present. The first is food series. There are some famous enterprises such as Yeshu, Nanguo, Chunguang, Yezilang, Tianji, Yeshijie and so on. Their products mainly focus on Coconut powder, Coconut milk coffee, Coconut milk, Coconut slice, Coconut candy, Coconut cake, Nata de coco, and Tender coconut, etc. The second is non-food series. Give priority to with individual workshops production. Main products are Coconut fiber cultivation medium, Coconut fiber mat, Door mat, Flower basket, Coconut fiber net, Coconut fiber rope, Non-edible coconut oil, Coconut shell carbon, and Activated carbon. The third is

handicraft series. Main products including Furniture, Tableware, Stationery, Wall painting, Coconut bag, Waist belt, Hanging drop, Headwear, Bracelet, Necklace, Key ring, Aeolian bells, Candlestick, Clock, Light tools, and Picture frame.

Because of the small enterprise scale, the level of the coconut products processing is low, and a surplus of coconut processing capacity emerged. Coconut industry development in Hainan is relatively lagging behind. The followings were often happened: Only a small part of the coconuts were deeply processed or sold outside the island. Most of the coconuts were sold as fresh fruit for drinking water by local people, and the price is very low. According to markets General in the production peak season the price is 2.3-2.8 yuan/per coconut, and in the off-season 1.5~2.3 yuan/per coconut.

According to experts estimated, Hainan coconut processing proportion accounted for only 30%, loss about 16%, the coconuts thrown away after being drunk accounted for 40 % (Fig. 5). It is visible that the resource waste is fairly serious, which affected the improvement of farmer's income and rural economic development, and restricted the development of regional economy.

In China, there are more than 300 coconut processing enterprises and the output value were more than 5 billion each year. In 2010, we did an investigation among 52 Coconut processing enterprises of Hainan. The result is that 45 private enterprises had become the main forces of coconut industry in Hainan province. Among the 52

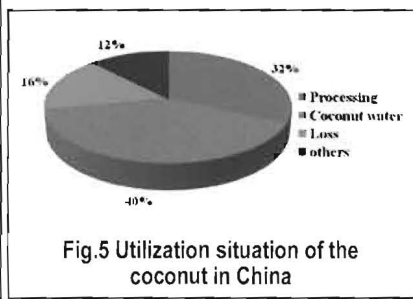


Fig.5 Utilization situation of the coconut in China

Enterprise	Quantity
Comprehensive processing	52
Coconut meat processing	28
Coconut husk processing	18
Coconut shell processing	7
Coconut water processing	2
Profitable	44

enterprises, there were 28 of them using the coconut meat and coconut endocarp, 18 enterprises using coconut garment, 7 enterprises using coconut shells, and 2 enterprises using coconut water (Table 3).

From the point of view of benefit, 47 comprehensive utilization of the enterprises in 52 were Profitable except 5 of them in 2010. The output value were up to 960 million yuan, and profit 23 million yuan, tax 43 million yuan, and solved the employment of 5000 people.

5.1. Trade competition index in China

Besides coconut fruit, there are coconut oil, coconut copra, food copra, coconut fiber and coconut biscuit in coconut products international trade. This article chose the coconut fruit international trade situation to analysis trade competition index between China and 5 main coconut producing countries from 2001-2010 (Table 4). Compare to the 5 main coconut producing countries, China does not have international competitiveness in coconut industry.

All the trade competition index of China were less than zero from 2001-2010, which indicated poor international competitiveness. Since 2008 years, this kind of situation had improved, the TC values were increased from -0.98 increased to -0.1 but still less than zero. Compared with ASEAN countries, the international competitiveness of coconut

**Table 4. Trade competition index between China and main coconut producing country from 2001-2010**

Country	Year						
	2001	2002	2003	2004	2005	2006	2007
China	-0.98	-0.98	-0.97	-0.97	-0.96	-0.99	-0.99
Indonesia	0.99	0.96	0.97	0.97	0.99	0.87	0.97
Philippine	0.82	1.00	0.90	1.00	0.99	0.98	1.00
Malaysia	0.94	0.44	0.24	0.10	-0.05	-0.21	-0.41
Thailand	1.00	1.00	1.00	0.99	0.99	0.90	0.98
Vietnam	1.00	1.00	1.00	1.00	1.00	1.00	1.00

industry in China can be said to be at a disadvantage. Among 5 ASEAN countries, the trade competition index of Malaysia showed a lower negative since 2005, the others showed a greater international competitiveness. (TC index keep in 1.0, indicates the country has enough coconut for domestic consumption and exports).

## 6. Future markets of coconut products

Coconut is a kind of less investment, extensive management, small risk, long growth cycle, wide application of economic crops. The comprehensive utilization ratio of coconut is very high, the coconut fatty and protein content is 60%-70% and 8%, respectively. The nutritional value is very high. The coconut can be eaten directly, and also can be processed to copra, coconut juice, coconut milk powder, concentrated coconut milk, coconut protein, coconut jam, desiccated coconut, coconut silk and natural coconut oil soap, hair oil and so on. Coconut oil is the main products made from coconut, its digestion coefficient of up to 99.3%, higher than Sesame oil, peanut oil, rapeseed oil, butter and cream. Coconut water can be also made as yeast fermentation raw material and alcoholic beverage. Coconut inflorescence sap can be made into fruit wine, distilled vinegar, vinegar beverage. Coconut fiber can be made into mattress, carpet, fishing nets, broom and sacks. Coconut shell can be processed to coconut

carving, activated carbon. Coconut wood can be processed to furniture and building materials. In recent years, coconut economic added value has been increased with the increase of the deep processing of coconut. The coconut demands in China are greater than supply, more than 80% of the need to be imported each year. Every year, China imports a lot of coconuts from Vietnam, and Philippines to meet domestic demand. Imports were from 39,600 tons to 166,100 tons from 2000-2010, raised more than three times in 10 years. In addition, China imports about 150,000 tons coconut oil every year to meet the domestic market.

To sum up, a long time in the future, Coconut products market in China is still mainly traditional processing industry (food-series and non-food series). The new product will be the improvement and upgrade of the traditional food, follow the health, nutrition, and professional direction. The coconut functional food, coconut milk, coconut oil, activated carbon will burst a lot of potential. So, the coconut products in future will be prosperous.

## 7. Problem in coconut processing in China

### 7.1. Limited Hainan coconut breeding industry

Hainan coconut breeding industry scale is small. Coconut breeding industry started relatively late and lack of scale seedling base, limited seedling number. The seedling quality is uneven. Farmers in

varieties of coconut seedling lack enough understanding, which restricted the speed of the coconut trees replacement and new development. Coconut farmers affected deeply by the traditional planting concept, they did not know much or low approval ratings about several better characteristics and good market prospects coconut varieties so that affected the planting promotion of these varieties.

### 7.2 Limited coconut planting area

Coconut planting area in our country is limited. In 2013 the total coconut planting area in China is 423,000 hectares, 42,258 hectares of which are in Hainan province accounting for 99% of total coconut planting area. From an economic point of view, compared to the other tropical cash crop, coconut economy is lower so that it is not suitable for large-scale intensive management.

### 7.3 Lower processing ability and level

From the perspective of coconut processing industry, the coconut processing products type was single, the byproduct of raw materials comprehensive utilization rate and value-added products were low. The overall strength of Hainan coconut products processing enterprise is not high. Almost of every part of coconut was utilized due to the limitation of raw material supply. Compare with coconut, coconut shell, and coconut water at abroad, coconut processing and comprehensive utilization degree in Hainan were higher. However, most of Hainan coconut processing enterprises can only make primary products except coconut food. So, the coconut product added value was not high, and was difficult to scale development.

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