



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Developmental Strategies of Betel Nut Industry in Hainan Province

CHEN Jun*, HAN Xuan, LIU Li-yun, FENG Mei-li, LI Zhuan, QIN Hai-tang

Coconut Research Institute of China Academy of Tropical Agricultural Sciences, Wenchang 571339, China

Abstract The developmental status of the betel nut industry is introduced, including cultivation situation, processing and development situation, and consumer market situation. The result shows that the cultivation of betel nut in Hainan Province develops rapidly and the primary processing of betel nut has formed certain scale, but the deep processing of betel nut is backward. Except for the minor amount of the betel nuts consumed by Hainan Island, a large majority of the betel nuts are processed into dry fruit to sell to Hunan Province to reprocess. The problems exist in the development of betel nut industry in Hainan Province are analyzed, covering blind cultivation, extensive management, backward processing, lagged new product development and the single and concentrated consumer market. The strategic choice of developing the betel nut industry of Hainan Province is analyzed as well. Hainan Province should carry out the green, sustainable, diversified, cooperative and export-oriented industrial developmental strategy.

Key words Betel nut, Hainan Province, Industry, Developmental strategy, China

Betel nut (*Areca catechu* L.) belongs to palm tropical plant and is native to Malaysia. It is one of the important medicinal plants, for its seeds, peels and flowers can be used as Chinese medicine. It is a long history that China has introduced the betel nut. Hainan Province introduced the betel nut in over 1 500 years ago^[1]. Hainan Province and Taiwan are the home to betel nut. There are still a small amount of betel nut planted in Yunnan Province, Guangdong Province, Fujian Province and Guangxi Province^[2]. The output of the betel nut in Hainan Province accounts for 99% of the total output of betel nut in the Chinese mainland^[3]. Due to the strong resistance, wide adaptability, extensive management, low cost of cultivation and good economic profits, the cultivation of betel nut has developed rapidly in recent years and the cultivation acreage has expanded greatly, but the processing of it is relatively backward. The betel nut industry has become the second largest pillar industry of the Hainan agriculture second only to rubber industry with wide developmental prospects^[4]. In the research, the developmental situation of the betel nut industry is introduced, the problems in the development of Hainan betel nut industry are analyzed and the strategic choice of developing the Hainan betel nut industry is pointed out.

1 The developmental situation of betel nut industry in Hainan Province

1.1 The cultivation of betel nut in Hainan Province Hainan Province boasts unique natural conditions and it is the biggest province in mainland China which is suitable for producing

betel nut. According to the statistics, in 1952, the cultivation acreage of betel nut in Hainan Province was 1 053 hm² with the yield of 1 185 t, and in the following thirty years the cultivation acreage keeps from 1 000 to 1 600 hm²^[5]. The betel nut industry in Hainan Province has begun to develop stably since 1983 and in the middle of the 1990s; its development tempo has begun to accelerate^[6]. With the increasingly prosperous of chewing betel nut and the sales industry in Hunan Province, and the favorable macro industrial policies from our nation, the betel palm is listed in the Hainan economic forestry area by our nation and cultivation of betel nut has got rapid development with rapidly increased cultivation acreage and output. From 1970 to 2008, the growth trend of the acreage and yield of betel nut can be seen on Fig. 1^[7].

The cultivation of betel nut and the cultivation acreage of it in Hainan Province are increasing year by year^[8]. The materials from the *Hainan Statistical Yearbook* show that, in 1998, the cultivation acreage of betel nut in Hainan Province was 26 000 hm² and in 2008, the acreage has increased to 62 800 hm², 3.68 times more than that in 1998; in 1998, the yield of betel nut in Hainan Province was 27 700 t, and in 2008, it has increased to 116 500 t, 8.88 times more than that in 1998; at the same period, the per unit yield has increased by 46% (Table 1)^[7]. At present, the cultivation area of betel nut in Hainan Province moves to the advantaged areas gradually, which mainly distributed in the eastern Hainan, central Hainan and the mountainous areas in the southern Hainan Province, and concentrated in Qionghai, Qiongzong, Wanning, Tunan, Dingan, Sanya, Lingshui, Ledong, Baoting and some other cities or counties and some areas suitable for agriculture (Table 2)^[7]. The Hainan Agro-Reclamation Bureau plays an important role in the production of betel nut industry, and its cultivation acreage accounts for 20% of the total cultivation acreage of betel nut in Hainan Province. Currently, the annual gross output value of

Received: October 18, 2010 Accepted: November 8, 2010
Supported by the Hainan Key Scientific and Technological Project (090138) and National Engineering Center of Tropical Crops.
* Corresponding author. E-mail: chenjun.junchen@yahoo.com

the betel nut industries in Hainan Province has surpassed two billion yuan. Besides, there are still over half of the total betel palm has not entered the period of bearing fruits, so there is still great room for increasing the yield. In addition, in recent years, the profits from cultivating betel nut have been increasing, so it can be predicted that in the future years the cultivation acreage of betel nut will increase stably. Thus, there is great

potential for developing betel nut industry of Henan Province. Developing betel nut industry of Hainan Province is of great significance in promoting rural economic development in the tropical areas of Hainan Province, increasing farmers' income in the tropical areas of Henan Province and pushing forward the new village construction in the tropical area of Hainan Province.

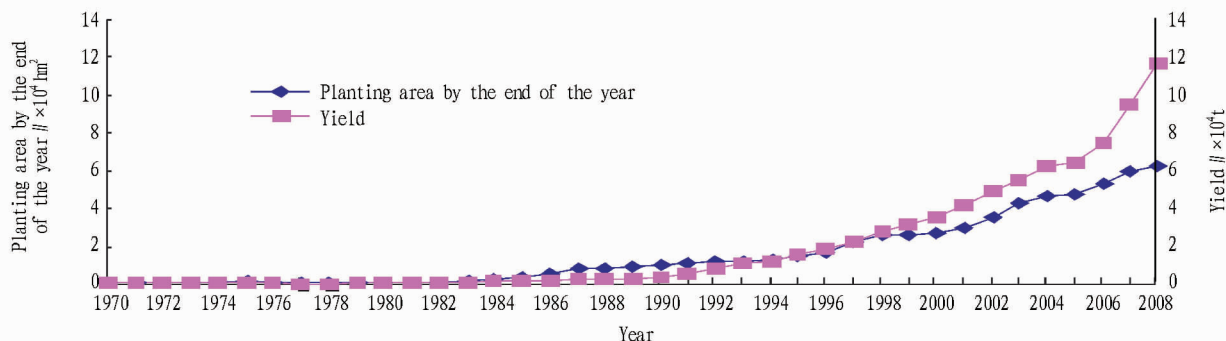


Fig. 1 Growth trend of the cultivation acreage and yield of betel nut in Hainan from 1970 to 2008

Table 1 Cultivation and harvest of betel nut in Hainan from 1998 to 2008

Year	Cultivation area $\times 10^4 \text{ hm}^2$	Harvest area $\times 10^4 \text{ hm}^2$	Yield $\times 10^4 \text{ t}$	Per unit area yield// t/hm^2
1998	2.60	1.09	2.77	2.54
1999	2.62	1.13	3.21	2.84
2000	2.69	1.26	3.56	2.83
2001	2.99	1.39	4.19	3.01
2002	3.51	1.53	4.98	3.25
2003	4.29	1.66	5.50	3.31
2004	4.67	1.85	6.28	3.39
2005	4.77	2.08	6.43	3.09
2006	5.31	2.33	7.48	3.21
2007	5.98	2.69	9.54	3.55
2008	6.28	3.13	11.65	3.72

nut, then with the sharp increase of the consumer market in Hunan Province, the industrial processing pattern has changed greatly, the dry betel nut which is originally processed for medical use or be transformed to dry betel nut for eating. In the middle of 1990s, the techniques for processing betel nut in Hainan Province are the same to that in Hunan Province, and their processing industries start nearly simultaneously^[3]. However, the Henan Province has reformed and perfected the industrial management system, besides, the Hunan government has provided many preferential policies for developing betel nut industry, so in the recent decade, the betel nut industry in Hunan Province has obtained rapid progress, which has far surpassed the Hainan Province, and has basically monopolized the betel nut processing industry of edible betel nut in Chinese mainland market. However, the processing industry of betel nut in Hainan Province still stays in the primary stage. When it comes to the harvest season, the family-owned factories in Qionghai, Dingan, Tunchang and some other counties will process the fruits. They process the fresh betel nut and boil the meat of them and then bake them into dry betel nut. These dry betel nuts will be sent to manufactures in Hunan Province to further process, and then they will be changed into edible chunk of betel nut. More than 99% of the fresh betel nuts or dry betel nuts will be sent to Hunan Province to be further processed into the chewing betel nut chunk^[9]. As for Hainan Province, it has gradually retreat to the base of supplying the raw betel nut for Hunan Province.

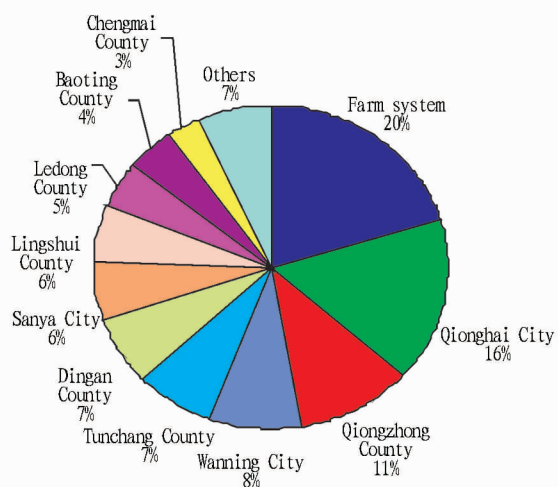


Fig. 2 Cultivation area distribution of betel nut in Hainan in 2008

1.2 The developmental situation of betel nut processing industry in Hainan Province The betel nut processing industry in Hainan Province basically still stays in the primary stage. Before 1990s, the betel nuts are often processed into dry betel

The cultivation of Hainan betel nut industry develops rapidly and the primary processing industry of Hainan betel nut industry has formed certain scale, but the industry of further processing betel nut is relatively backward. At present, there are three big and medium-sized processing factories for processing the edible betel nut food, and the planned annual production capacity is 22 000 t, but the actual processing capacity is less than 8 000 t per year. The capacity of processing the betel nut in the primary stage is more than 70 000 t, 90% of the total out-

put of the fresh betel nut^[9]. At the same time, the famous further processed products of betel nut, which have been developed with certain scale, are betel nut tooth paste only. The modern medical research illustrates that the betel nut contains various kinds of nutrition elements and many beneficial components which are necessary for human. The betel nut has the unique functions in smoothing stomach, digesting food and eliminating phlegm. The medical value of betel nut has been widely accepted, however, the technology on researching and developing betel nut is poor, so the potential medical value of betel nut has not been fully displayed. The betel nut which is used for medicine and toothpaste is less than 1% of the total output^[10]. The value of the processed betel nut is often added four or five times than the fresh betel nut, but as a result of the backward development of the further processing industry, the gross industrial output value of the betel nut industry in Hainan Province is less than 50% of that in Henan Province. In view of the low further processing degree, the problems of intensive processing, fully expanding the medical use market of betel nut and developing the high-level products have become the important issues that need solving so as to realize the cut-cross development of betel nut industry of Hainan Province.

1.3 The consumer market of Hainan Betel nut Before the 1990s, the betel nuts produced in Hainan Province were mainly used as medicine and food for people in the island. After the 1990s, with the rapid expansion of the consumption market of betel nut in Hunan Province, Hainan Province has become the main consumption market of Hainan betel nut. Hunan Province mainly purchases the dry betel nut from Hainan Province as the materials for processing into edible betel nut. The second consumption market of betel nut is the local market, part of the residents in the island eat the common fresh betel nut. The third consumption market is the national market, which mainly purchases the dry betel nut for medical use. The market can only consume a small amount of betel nuts and many of the medical betel nuts are processed many times by using the residual nuts. In addition, small amount of betel nuts are exported to overseas market. It can be seen that a large majority of dry betel nuts are sold to Hunan to be further processed.

2 The problems in the development of betel nut industry in Hainan Province

At present, the cultivation and primary processing of betel nut industry in Hainan Province has formed certain scale. But on the whole, there still some problems such as blind cultivation, extensive management, backward processing, lagged development of new products, single market and so on.

2.1 Blind cultivation and extensive management In terms of cultivating betel nut, there are many individual peasant households who cultivate betel nut for its modest requirements of natural situations and soil conditions, but cultivation forms are extensive. The phenomenon of "giving priority to cultivation and harvest rather than management" is widely existed, which lead to the short period of harvest and the decrease of the quantity of the yield. At the same time, driven by economic in-

terests, the cultivation is blind in Hainan Province and the acreage of cultivating betel nut expands blindly. In particular, some people plant the betel palm in mountain slopes, which has induced the soil erosion and some other ecological problems. In addition, the plant diseases have caused great losses to the development of betel nut industry. In recent years, the yellows of betel nut appear in each area of Hainan Province, and the disease is spreading. At present, more than 2 666.67 hm² of the areas have been inflected by the yellows^[9]. The yield of the inflected plants will decrease 70% to 80% usually, and in some heavily infected areas, a large area of the plants may die. However, until now, there is no good way to cure the disease, so the betel nut production will be gravely threatened if the protection measures have not been carried out timely and targeted^[8].

2.2 Backward processing and lagged development of new products The processing industry of betel nut in Hainan Province is backward, the processing technique is simple and the products are single. The main products are dry betel nut and many of them are produced by family-owned factories, so their quality is hard to be guaranteed. Medical experts think that chewing betel nut will cause the oral sub mucosa fibrosis, which is the main reason that causes the oral cancer^[10]. It can be seen that the traditional way of eating betel nuts is unsanitary and has the risk of cancer. At the same time, the research and development of new betel nut products are seriously existed and power for supporting the sustainable development of the betel nut industry is insufficient. Especially, Hainan Province is weak in terms of extracting the effective elements of betel nut, further processing and expanding the industrial scale, as well as in fully tapping the medical use of betel nut.

2.3 The consumption market is single As a result of the single and over concentrated market, the market price of the Hainan betel nut is greatly affected by the market demand of Hunan Province. In the peak time, the price can achieve 20 yuan per kilogram, but in the low market, the price is less than 2 yuan per kilogram, so Hainan Province does not have big say in determining the prices. The prices of the betel nut directly affect the farmers' enthusiasm for cultivating and managing the betel nut cultivation, so the frequent fluctuation of the prices of betel nut does not conducive to the sustainable and healthy development of betel nut industry of Hainan Province. At present, the consumption market of edible betel nut goes close to saturation, but there are still half of the areas' betel palm has not enter the period of bearing fruits, so if we do not actively open new consumption market, the supply of betel nut will be bigger than the demand.

3 The strategic development of betel nut industry in Hainan Province

It can be seen that, the long-term development of betel nut industry in Hainan Province faces many problems. So in order to realize the healthy and sustainable development of betel nut industry, we should plan the industry scientifically and formulate reasonable industrial policies and long-term developmental strategy.

3.1 Green and sustainable development strategies The betel industry in Hainan Province must break through the traditional thought patterns of cultivating and processing; apply scientific cultivation management system and product processing technique; take green and sustainable development path. To develop the betel nut industry, the relations between betel nut cultivation and ecological protection should be handled well firstly. We want to get profits as well as maintain beautiful natural landscapes. We can not develop the cultivation of betel nut at the cost of ecological environment. Secondly, the government should improve the traditional technique, intensify the research and development of new products; promote the upgrade of traditional betel nut industry and make the betel nut products more scientific and safe.

3.2 The developmental strategies of multiple and diversified products The processing industry of betel nut in Hainan Province is backward and the products are simple with low grade, and the industry is limited only in traditional food consumption market, which lead to the insufficient strength of further developing the betel nut industry of Hainan Province. At present, the further processing market of Hainan betel nut industry in China is mainly monopolized by Hunan Province, but there are great potential for the further processing of the comprehensive use of betel nut and digging the medical use of betel nut. The first thing of solving the problems of Hainan betel nut industry is to take the market as the guiding, science and technology as the root to improve the competence of researching and developing the products, strengthen the transformation of scientific and technological achievements; explore the betel nut products with further processing and open high-level consumption market.

3.3 The cooperative and win-win industrial developmental strategy The cultivation and management skill of Taiwan betel nut industry is high, so if Hainan Province cooperates with Taiwan, then the cultivation management level of betel nut industry in Hainan will be further improved. Hainan Province and Hunan Province monopolize the raw material market of betel nut and the further processing market respectively, so the overall processing level of Hainan Province would be improved if it strengthens the cooperation with Hunan Province. It can be seen that greater coordination and cooperation with Taiwan and Hunan Province is necessary for rapidly lifting the overall competitiveness of betel nut industry in Hainan Province.

3.4 The export-oriented developmental strategy The betel nut in Hainan Province has high quantity of output and high quality. Comparing with that in the Southeast Asia, the betel nut of Hainan Province not only has the obvious advantages of soft fiber and high elasticity, but also contents high alkaloid, which are competitive in the international market. At present, about more than half of all the betel palm in Hainan has not enter the period of yielding fruits. Under such cases that the traditional food consumption market of betel nut is in the saturation state, but there are great potential of production capability, as the same time, the high-grade market of the medical value of betel nut has not been opened, it is of great significance for

Hainan Province to positively open the overseas consumption market relying on the advantages of its betel nut such as high yield, low costs and high quality.

4 Conclusions

The cultivation of betel nut in Hainan Province develops rapidly and the primary processing of edible betel nut has formed certain scale, but the further processing industry is backward, the consumption market is simple and concentrated, and the market prices fluctuate frequently. At present, the consumption market of edible betel nut in Hainan Province approaches saturation and another new consumption markets have not been explored. Meanwhile, there are still half of the betel palm has not enter the yielding period, so blind explanation of the cultivation area of Hainan Province is irrational. The first and foremost thing of developing the betel nut industry in Hainan Province is to intensify the cultivation management; realize the high and stable yield of betel nut; accelerate the development and research of new products and positively open the high-grade consumption market at the same time of further expanding the traditional consumption market. Hainan Province boasts the distinctive natural resources and the betel nut of it has high yield, low costs and high quality, so the relevant departments should attach great attention to the coordinating development of cultivation, processing, researching and marketing of betel nut industry; positive explore the overseas and high-grade consumption market; fully tap the potential of the betel nut industry in Hainan Province.

References

- [1] TAN LH. The present situation, problems and countermeasures of betel nut production in Hainan Province [J]. Journal of Hainan University: Natural Science, 2006, 24(1): 55–59. (in Chinese).
- [2] CHEN LQ. Cultivation and current situation of betel nut industry in China [J]. Anhui Agriculture, 2007(22): 60–64. (in Chinese).
- [3] DENG XC. Analysis of the causes of the arecanut industrial situations in Hainan and their countermeasures [J]. Chinese Journal of Tropical Agriculture, 2008, 28(3): 47–50. (in Chinese).
- [4] YE YC. Sustainable developmental ideas of betel nut industry in Hainan Province [J]. China Tropical Agriculture, 2007(3): 12–13. (in Chinese).
- [5] YAN XX, WANG ZN, WANG JR. An analysis on current situation of betel nut industry in Hainan Province [J]. China Tropical Agriculture, 2006(3): 12–13. (in Chinese).
- [6] DENG XC. The study on the optimization of *Areca catechu* L. industrial chain in Hainan Province [D]. Wuhan: Huazhong Agricultural University, 2008. (in Chinese).
- [7] National Bureau of Statistics of China. Hainan statistical yearbook [M]. Beijing: China Statistics Press, 1971–2009. (in Chinese).
- [8] HE ZG. Problems and suggestions on the development of *Areca* in Hainan Province [J]. Anhui Agricultural Science Bulletin, 2007, 13(13): 109–110. (in Chinese).
- [9] Network of People's Government of Hainan Province. Recommendations of Hainan Provincial Department of Agriculture on solving problems of betel nut's production and marketing [EB/OL]. (2008–09–08) <http://www.hainan.gov.cn/data/news/2008/09/58472/>. (in Chinese).
- [10] ZHAO GX, YUE JW, ZHANG GY. Research and developmental status of betel nut and the market prospects [J]. China Tropical Agriculture, 2006(6): 17–19. (in Chinese).