

Study on Agricultural Development in Torrid Region of Southwest China-A Case Study of Yunnan: Take Yunnan as an Example

Jianling Qi¹, Li Ding² and Hui Zhang²

¹College of Economics and Management, Yunnan Agricultural University, Kunming 650201, China;

²Institute of Scientific and Technical Information, CATAS 571700, China.

Abstract. The southwestern hotspot has superior climate and biological resources, and the resource advantages of the Yunnan hotspot are particularly obvious. This paper takes the Yunnan Torrid Region as the research object, and analyzes the current situation and existing problems. It is proposed that the development of time difference agriculture, ecological agriculture, brand agriculture, science and technology agriculture, and export-oriented agriculture are the future directions of agricultural development in the southwestern Torrid Region.

Keywords: Southwestern; Torrid Region; Characteristic agriculture.

1. Basic Situation of Agricultural Development in Yunnan Torrid Region

1.1 Basic Overview of the Yunnan Hot Zone

1.1.1 Regional Distribution

The total area of Yunnan Torrid Region is 81,100 km², accounting for 21.9% of the province's land area and 16.9% of the total national Torrid Region. Including Yunnan Province, there are two climate types in the north and south sub Torrid Region, involving 16 prefectures and 85 counties in the province, mainly distributed in the Lancang River, Jinsha River, Nujiang River, Red River, Nanpan river and Irrawaddy rivers. The tributary of the Taping River and the Longjiang River Basin is a low-heat valley below 1400m above sea level. It belongs to the north tropical area of 7740km². The land is relatively concentrated and becomes the main part of the hot zone of the province. The area belonging to the southern subtropical zone is 73,000km² and the land is scattered. Not concentrated, called the Yunnan Torrid Region enclave.

1.1.2 Climate Situation

The light, heat and water in the Torrid Region of Yunnan are enough. The total annual thermal radiation is 118.3-152.8kcal/cm²; the annual average temperature is between 17.5-23.7°C, and the accumulated temperature is 3700-7200°C. No typhoon hazard throughout the year is very beneficial for most tropical crops to survive the winter. The annual precipitation is 630.0-2245.1mm, and the precipitation in most areas is more than 1000mm. Light, heat and water are very beneficial to the growth of most tropical crops.

1.1.3 Plant Resources

There are about 10,000 species of higher plants in the colorful areas of plant resources in Yunnan Torrid Region, of which there are more than 5,000 species in Xishuangbanna. There are about 160 kinds of oils and fats, 56 kinds with oil content of 30% or more; about 120 kinds of spices, more than 10 kinds have been developed, and Herb vanilla, *Cananga odorata*, *Michelia alba* and cassia oil are all precious spices; There are more than 100 species, such as Chinese alpine rush, bombax, bamboo, and agave americana, which are good raw materials for building materials, paper making, and cable making. More than 50 kinds of medicinal materials are listed in the Pharmacopoeia, which is the most abundant medicinal plant resources in China. First, Yunnan devilpepper, *Mayterus Hookeri* Loes, and Chinese yew are the special medicines for extracting blood pressure and treating cancer; there are about 50 kinds of starches, and cassava and konjac can be used as raw materials for food and industry, also can be treated as a medicine and health product; there are more than 100 kinds of timbers, among

which precious species include Hung Hom, Yunnan Dendrobium, Parashorea chinensis, group of flowers, homalium cochinchinense.

1.1.4 Industry Status

The hot zone is a unique treasure land of Yunnan Province. As early as the early 1950s, it established a group of state-owned agricultural farms that developed natural rubber. It is the second largest natural rubber production base in China. In recent years, the production scale of tea, sugar cane, tropical fruits and spices has occupied an important position in the country. According to statistics, in 2014, the province's coffee planting area was 1.87 million mu, with an area and output accounting for 99% of the country, ranking first in the country; tropical fruit area of 90,800 hectares, accounting for 42.8% of the province's fruit area, accounting for the province's fruit 47.9% of production. Banana planting area and output increased by a large margin. The annual banana planting area reached 1.65 million mu, making it the second largest banana producing area in China.

1.2 Characteristics of Agricultural Development in Yunnan Torrid Region

In 2014, the province's tropical economic crops planted a total area of 31.12 million mu, becoming the second largest Torrid Region province in the country. Yunnan's rubber and coffee planting area and output rank first in the country, and sugar cane, tea area and output rank second in the country. Exports of fruits and vegetables surpassed tobacco and became the first and second largest export agricultural products in Yunnan Province. After years of development, Yunnan Torrid Region agriculture has the following characteristics:

1.2.1 Combination of Mountains and Dams, Common Development of Food Economy

Agricultural development in Yunnan Torrid Region has long been concentrated in dam areas, and is dominated by food crops [1]. In recent years, some major economic crops in the hot zone, such as sugar cane, coffee, and fruit, have developed into mountainous areas, forming a development model in which the combination of mountain and dam and grain and economic crops go hand in hand.

1.2.2 Development and Operation to Scale, Group, and Industrialization

At present, the development and management methods of Torrid Regions have basically changed. Tea, sugar cane, fruit, coffee, spices, etc. have all built large-scale commodity production bases, and established group companies such as natural rubber and coffee, which have changed the previous planting, processing and sales. The situation of disjointedness basically forms the pattern of integration of agriculture, industry and trade.

1.2.3 Agricultural Products Start from the Beginning and the Deep Processing

In the planned economy period, Yunnan's hot-worked products were mainly based on sales of raw materials, and failed to obtain better benefits through processing value-added. In the past 10 years, the primary and deep processing enterprises of some major hot zone products have been established, and the development and processing of new series of products has also started.

1.2.4 The Development of Characteristics has become the Direction of Agriculture in the Hot Zone

The development of agriculture in Yunnan Torrid Region relies on the characteristics of resources, builds around characteristic agriculture, strengthens foreign cooperation, actively introduces foreign and foreign capital and technical talents, and takes product production, processing and brand building into the focus of agricultural development in the hot zone, thus accelerating heat. The transformation of the regional agricultural development mode.

1.2.5 Great Agricultural Potential in Yunnan Torrid Region

There is great potential for agricultural development in Yunnan Torrid Region. The area suitable for the development of rubber, coffee, shellac and tropical fruits is 1 million hectares. In terms of climate and biological resources, it has not been fully and rationally utilized, especially the

comprehensive utilization of resources and agricultural products. The potential for deep processing is great.

2. Problems in Agricultural Development in Yunnan Torrid Region

2.1 The Resources are Large and the Development is Small

The Yunnan Torrid Region is rich in plant resources. The technical base of agricultural products processing in Yunnan's hot regions is backward. Due to backward technology, outdated equipment, lack of comprehensive utilization, high cost and low quality, various hot agricultural products that have been produced in Yunnan for many years can only be sold as raw materials and primary products. The low value of products and the low development of hot agricultural products are important reasons why Yunnan has been in a state of abundant resources and economic backwardness for a long time.

2.2 The Number of Well-Known Brands is Insufficient, and the Brand Awareness is Poor

The number of leading enterprises in the production of agricultural products in Torrid Regions of Yunnan Province is relatively small, mainly based on small-scale production and management. There are not many brands that enjoy high popularity and scale in the domestic market, and the brand sharing awareness is poor. Farmers and other brands create brand work. It is difficult to coordinate, and it is difficult to form a well-known brand sharing mechanism. Local governments have not adequately supervised agricultural product brands [2-3]. First, the relevant government departments have not enough protection for the domain name brand, especially for some long-established local specialty product brands. Secondly, the crackdown on counterfeit brand-name behavior is not enough. Third, the self-protection of the brand as the main body of the agricultural enterprise. Awareness is not strong, and some companies are unable to maintain the brand even because of shortage of funds.

2.3 Resource Advantages are Obvious, Product Competitiveness is Weak

Due to the superior conditions of light, heat and water, the supply of agricultural products in the Yunnan Torrid Region is enough, and most of the crop products are scarce and unique compared to the mainland market. For example: rubber, coconut, coffee, tea, etc. The level of agricultural product processing technology is not high, mainly reflected in more rough processing and less finishing; more primary products, deeper value-added products with less added value; more low-end products, less high-grade products; The use of high-tech is less, resulting in the "three lows" phenomenon, namely low processing conversion rate, low processing level and low processing added value. Most companies lack the ability to independently research and develop products, the application of new technologies and new technologies is low, the product quality is low, and the market competitiveness is weak.

2.4 Torrid Region has High Visibility and Low Economic Benefits of Tropical Crops

Yunnan's Torrid Region resources are mainly concentrated in Xishuangbanna, Dehong, Lincang, Pu'er, Honghe and Wenshan in southwestern Yunnan. The land area of Yunnan's hot zone is 81,100 square kilometers, accounting for about 20% of the province's land area. Tourism in the Torrid Region of Yunnan is relatively developed. Pu'er and Xishuangbanna are relatively famous tourist areas. However, the effect of improving the economic benefits of hot work is not obvious, and there is no effective realization of the three industries to promote production. Only the virtuous circle of tourism and agriculture can realize the comprehensive benefits of regional development, that is, economic, ecological and social benefits, and can achieve double win situation fundamentally, transforming the hot zone with high visibility and hot economic benefits.

2.5 The Overall Development Level of Leading Enterprises is not High, and the Industry is Weak.

The competition in today's agriculture is not only the competition of individual products, but also the competition of the entire industrial system integrating production, processing, sales and technology. Cultivating leading enterprises is the key to promoting the enterprise management of agricultural industries. Leading enterprises in agricultural industrialization management have the task of opening markets, technological innovation, stimulating farmers and promoting regional economic development. At present, the agricultural industrialization operation in Yunnan Torrid Region is still in its infancy, and the overall strength of leading enterprises is still not strong. First, most leading companies are small. Lack of large-scale brand-name enterprises or enterprise groups with strong market competitiveness. Due to lack of funds and backward technology, it is difficult for smaller leading enterprises to form lasting and strong financial and technical support for most farmers within the integration. Second, the management level is low and the self-accumulation ability is poor. Most of the leading enterprises are developed through the reform of township enterprises and the transformation of individual and private enterprises. They lack advanced management concepts, and their own financing channels are small, which is highly dependent on the government. Third, the market is not developing enough. At present, the market development of leading enterprises is mainly concentrated in the domestic market, and there are few export-oriented enterprises that can stably occupy foreign markets.

3. Countermeasures for Agricultural Development in Torrid Region of Yunnan

3.1 Highlight the Regional Characteristics of the Tropical Region and Vigorously Develop Time Difference Agriculture

Located in the southwestern plateau of China, Yunnan Province is in the subtropical high-pressure belt of the northern hemisphere, with warm climate and abundant rainfall. At an altitude of 800 meters below sea level, there is no frost and snow throughout the year, with a typical tropical rainforest climate and a monsoon forest climate. The temperature difference between day and night in mountainous areas is relatively large, and the use of the formation and accumulation of self-materials in plants is of special significance for cash crops. The Torrid Region of Yunnan are basically frost-free throughout the year. Compared with other regions in the same latitude, the natural conditions are unique [4]. The climatic characteristics of Yunnan are conducive to giving play to comparative advantages by using climatic resources and the mainland's anti-seasonal development of time-lag agriculture.

3.2 Develop Ecological Advantages and Develop Green Agriculture

Vigorously develop high-quality and safe agricultural products, guided by green consumption, form a quality and safety guarantee system for agricultural products from farm to table, and promote the market competitiveness of agricultural products with green safety.

First, we should establish and improve the green agricultural standardization system in the tropical region, including the environmental standards of production areas, production technology standards, post-production processing and packaging standards, etc., to increase the contribution rate of scientific and technological achievements to green agriculture, increase the output level of green agriculture, and ensure green Agricultural products are of good quality and safety. Second, do a good job in the construction of green agricultural demonstration zones and summarize the practical experience of green agriculture. With the existing input, we will increase and improve the green agricultural experiment and demonstration content, and achieve the goal of integrating resources, aggregating strength, concentrating technology, improving results, and achieving win-win results. Finally, strengthen the key technologies of green agriculture, and focus on breaking through the technical difficulties that restrict the development of green agriculture. The first is to breed high-yield, high-quality, safe, and highly resistant new varieties of animals and plants.

3.3 Strengthen the Quality of Agricultural Products and Build Torrid Region Agricultural Brand

The ecological environment is the basis for ensuring the quality of agricultural products, and quality is the basis of brand agriculture. To build Torrid Region agricultural brand, we should first establish a brand awareness and change the phenomenon that only heavy product production ignores brand building. In fact, the government should support and guide. The government should continue to pay attention to brand agriculture, increase support, play a good role in planning, capital investment, technology support, and building a publicity platform, and incorporate brand agricultural planning into the overall planning of local economic and social development. Brand agriculture's near, medium, and long-term development plans, gradient advancement, and orderly development. Finally, we should try our best to build and protect local agricultural product brands, do a good job in registering trademarks of origin, and ensure that brands are shared and shared by everyone.

3.4 Improve the Overall Quality of Agricultural Laborers and Vigorously Develop Scientific and Technological Agriculture in the Torrid Region

Scientific and technological innovation is a powerful driving force and important support for promoting agricultural industrialization. Efforts should be made to accelerate the pace of agricultural science and technology innovation, focus on agricultural industrialization and industrial upgrading, adjust the direction and focus of agricultural scientific research, further popularize advanced and applicable technologies in all aspects of industrialized management, strengthen the development of scientific and technological innovation support for modern agriculture, and make scientific and technological progress. The contribution rate in the development of agricultural industrialization has been significantly improved. Leading enterprises should build the main body of agricultural science and technology innovation by taking the road of combining production, education and research or self-organizing research and development institutions. The practical agricultural technology is assembled and matched to improve the technology's occupancy rate and household rate.

The key to accelerating the construction of modern agriculture is to improve the scientific and cultural quality of farmers. Vigorously strengthen training for agricultural managers and new farmers in the Torrid Region [5]. At this stage, on the one hand, it is necessary to train the city and county agricultural system management personnel, to update the development concept with the concept of modern agriculture and industrialization, and to improve management capabilities; on the other hand, according to the development trend of the industry, cultivate a group of characteristics with the times and understand A new type of peasant and a leader who is rich in theory, management, and good management.

3.5 Give Full Play to Geographical Advantages and Vigorously Develop Export-Oriented Cooperative Agriculture

With the promotion of the "Belt and Road", Yunnan has gradually become the forefront of reform and opening and plays an important role between China and ASEAN. China and ASEAN countries have common goals for realizing agricultural modernization. We must accelerate the implementation of the agricultural "going out" strategy, strengthen the construction of agricultural export bases, promote the development of export-oriented agriculture, accelerate the construction of agricultural export production bases, and expand the characteristics of Yunnan Province. Export of high-quality agricultural products such as agricultural products and livestock products. Vigorously cultivate and develop export-oriented agricultural intermediary service organizations. Actively expand diversified markets and strive to expand agricultural exports. Further strengthen the links with international agricultural, financial organizations, multilateral and bilateral government organizations, and relevant state ministries, create favorable conditions to increase farmers' income, and promote rural development. There are many places where they can learn from each other and learn from each other [6-7]. At the same time, due to the different geographical locations of the two sides, the climate difference is large, and the specific areas of agriculture are clearly differentiated, which provides a natural basis for agricultural cooperation between the two sides, and agricultural cooperation is

complementary. Accelerating the completion of agricultural products from the trade zone, agricultural cooperation will have much to do.

3.6 Give Full Play to Humanistic Advantages and Build Health Agriculture

The goal of health agriculture is to transform traditional "physical agriculture" into creative agriculture of "smart, happy, aesthetic, and experiential". Health agriculture has built a multi-level panoramic industrial chain, innovated the agricultural development model, enhanced the added value of agricultural products, and played more functions in agriculture.

There are many ethnic minorities in the Torrid Region of Yunnan, and their cultures are diverse. They are very attractive to domestic and foreign tourists from all aspects of culture, religion, diet and customs. The typical "slow life" approach of people in the tropics is a good way to treat the general anxiety of Chinese urban populations. By continuously improving infrastructure and improving service levels, there is much to be done in the southwestern tropical region.

References

- [1]. Liu Guanghua, Luo Xinping. Thoughts on the Development of Modern Agriculture in the Tropical Region of Yunnan. *Chinese Agricultural Science Bulletin*, Vol. 12 (2007) No. 14, p. 231-236.
- [2]. Li Yongqin, Qi Jianling. Carefully design and promote the development of agricultural science in the tropical region. *Yunnan Daily*, 12.07. 2016, p. 21-25.
- [3]. Yang Weili. Research on Agricultural Structure Adjustment in Hainan. (Hainan Normal University, 2008), p.23-27.
- [4]. Zhang De, Duan Yu Tang et al. Promoting the industrialization of fruit industry in Torrid Region of Yunnan by relying on agricultural science and technology. *Yunnan Agricultural Science and Technology*, Vol. 25 (2007) No. 11, p. 239-243.
- [5]. Mao Jingyou. Research on Agricultural Structure Adjustment in Henan Province (Zhengzhou University, 2007). p. 56-57.
- [6]. DAI Xiaoxia. Research on the Status Quo and Countermeasures of Brand Agriculture Development in Fujian Province. *Taiwan Agricultural Exploration*, Vol. 4 (2010) No. 15, p.142-144.
- [7]. Geng Shengji. Development and Utilization of Tropical Plant Resources in Yunnan Province. *Natural Resources*, Vol. 2 (1982) No. 3, p.75-78.