Research on Crop Industry in Hot Zone to Promote Poverty Alleviation

—Taking the Mango Industry of Panzhihua as an Example

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Abstract: Dry and hot valley of Jinsha River is the development region of Mango Industry in China and Panzhihua is the core area of it. Mango industry has become the pillar industry of Panzhihua which improves the income of the rural areas and famers. The summary of Panzhihua's experiences benefit the other hot zones. It provides the ability for the poor people which can out of poverty steadily. The paper summarizes the status of Panzhihua's mango industrial poverty alleviation and analyzes its existing problems and influencing factors. It can be concluded that cultivating new agricultural management subjects, improving the construction of infrastructures and speeding up the process of industrial integration are conducive to improving the effectiveness of the tropical crops industrial poverty alleviation.

1. Introduction

With the promulgation and promotion of China's precise poverty alleviation policy, vigorously exploring the characteristic and advantageous industries in poverty-stricken areas has become the primary foothold of China's work in poverty alleviation [1]. The Jinsha River dry-hot valley area represented by Panzhihua is the most suitable area for the development of mango industry in the world with the highest latitude, the highest altitude, the latest maturity and the best quality. It is one of the five advantageous areas of mango industry in China [2]. Since the 1990s, Panzhihua has gradually explored late-maturing mango varieties. The production technology system suitable for the application of Jinsha River dry and hot valley area was established, and the brand and trademark with "Panzhihua" as the core was created. For poverty-stricken areas in Panzhihua, it is an important hematopoietic measure to precisely alleviate poverty by relying on mango industry with regional and scale advantages.

Since the birth of social division of labor, poverty has been plaguing the progress of human society [3]. In the 1990 World Development Report, the World Bank defined poverty as "poverty is a living condition that is difficult to reach the minimum standard of living" [4]. Foreign scholars' research on anti-poverty is set in the background of higher overall economic level of the country [5]. The "welfare economics anti-poverty theory" proposed by Fabian socialism and other schools believes that national income should be redistributed to achieve material transfer [6]. Marx and Engels believe that the root of poverty is the social system. Only by letting the proletariat replace the leading position of the bourgeoisie and establish a communist system can poverty be completely eliminated [7]. Domestic scholars' research on anti-poverty issues mainly includes poverty causes, poverty alleviation standards and anti-poverty measures. Specific to the research on industrial poverty alleviation, domestic scholars define industrial poverty alleviation as a means of poverty alleviation through the support of industries in poverty-stricken areas and increasing the total economic income of the region [8]. The government should play a good role as a service provider in industrial poverty alleviation and play a macro-control role in systems, finance and land [9]. The development focus should be focused on supporting local leading enterprises to build a benefit linkage mechanism of "enterprise + professional cooperatives + bases + poor households", and to promote the employment and entrepreneurship of poor households [10]. The research on hot zone crops mostly focuses on the management level and technical level, and proposes to improve its industrial structure and layout [11], improve its organizational level [12], and introduce advanced

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production technologies and facilities and other improvement measures [13]. Domestic scholars mentioned that the key factors affecting the development of mango industry in China include nature, market, technology and policies [14]. The main problems are the low level of modern mechanization [15] and the low degree of standardization [16]. It is suggested to strengthen the research and development of mango deep processing technology [17] and support leading enterprises to build mango standardization system [18].

In a word, although foreign exploration of anti-poverty does not have the material basis to be carried out in our country, it still has important reference value for our country's poverty eradication work. Domestic scholars have made sufficient and in-depth research on industrial poverty alleviation, but the number and content of researches linking tropical crop industry with anti-poverty are few and limited, and the research on tropical crop industry promoting poverty alleviation has not been raised to the system level for systematic research. Therefore, taking Panzhihua mango industry as an example, this paper analyses the mechanism, problems and influencing factors of promoting poverty alleviation of poor households in this area. It can provide a reference for the government to formulate industrial Poverty Alleviation Policies with the characteristics of hot areas. It is of great practical significance to improve the quantity and quality of poverty alleviation.

2. Current Situation Analysis

2.1 General Situation of Panzhihua City

2.1.1 Situation of natural resources

Panzhihua City is a provincial city under the jurisdiction of Sichuan Province. It is the only prefecture-level city in the country named after the flower name. Located at the junction of Sichuan and Chongqing, the east and the north are bordered by the three counties of Huili, Dechang and Yanyuan in Liangshan Yi Autonomous Prefecture of Sichuan Province. The west and south sides are at the junction of Ninglang, Huaping and Yongren counties in Yunnan Province. It is 749 kilometers north of Chengdu and 351 kilometers south of Kunming. Panzhihua City belongs to the southern subtropical zone—a variety of climatic types in the north temperate zone, known as the “stereoclimate of the southern subtropical zone”. It has the characteristics of long summer, indistinct seasons, distinct dry and rainy seasons, large temperature difference between day and night, dry climate, concentrated rainfall, long sunshine, strong solar radiation, large evaporation, complex and diverse microclimate. The annual average temperature is the highest in Sichuan Province, with a frost-free period of more than 300 days. In terms of hydrological conditions, Jinsha River and Yalong River meet here, providing sufficient irrigation conditions.

2.1.2 Socio-economic situation

As of the end of 2015, the total registered population of Panzhihua City was 1,106,600, of which the agricultural population was 517,600 and the non-agricultural population was 589,900. The male population is 564,300 and the female population is 542,300. At the end of the year, the resident population was 1,232,500, and the urbanization rate was 64.74%. Panzhihua City is the closest point of Sichuan Province to South China, Southeast Asia along the border and coastal ports. It is an important transportation hub and commerce and trade distribution center for the “Sichuan Nanxiang Gateway”. The city's grade highway is 3131.99 kilometers, of which the expressway is 142.72 kilometers. In the whole year, 26.22 million passengers were transported by highway, 82.117 million kilometers were transported by passengers, 92.32 million tons were transported by goods and 5.22.72 million tons were transported by goods. According to the provincial statistics bureau, the city's Gross Regional Product (GDP) reached 92.518 billion yuan in 2015, an increase of 8.1%, higher than 0.2 percentage points in the province, ranking 14th in the province.

3. Development of Mango Industry in Panzhihua City

Panzhihua tropical crop mango industry has planted an area of 20400 hm2 with a yield of 82,000 tons, accounting for 66.8% of the total fruit area (30,533 hm2), 61.2% of the total dry-hot valley area of Jinsha River and 13.2% of the total area of the whole country. Panzhihua now has more than 300 mango varieties, basically covering the world's current top mango varieties. After nearly 20 years of rapid development, Panzhihua mango industry has spread over 38 of the 44 towns in the city. The mango industry in the city has been initially professionalized, and specialized services such as professional plant protection, professional fruit sales, and professional grafting are provided by professional service agencies (or individuals). The degree of organization has gradually improved. There are 13 leading enterprises in mango industrialization, nearly 100 mango professional cooperatives, and more than 200 mango planting enterprises. Panzhihua City has created a number of local mango brands, including Panzhihua, 26 Degree Orchard and Jinhe. Many of the trademarks have successfully registered international trademarks, obtained GAP certification, successfully applied for national agricultural product geographical indications, and obtained national agricultural product geographical indication registration protection.

4. Poverty Situation in Panzhihua City

According to the statistics of 2015, Panzhihua has 7,081 poor families and 26,773 people. Among them, there are 10216 people in Yanbian County, 9136 people in Miyi County and 7421 people in Renhe District. The incidence of rural poverty in the whole city was 3.61%, and the per capita net income of farmers in poverty-stricken areas was 8513 yuan. There is no collective economic income in 70 poverty-stricken villages in the city. More than 80% of the poor households are located in deep mountains, remote and alpine mountainous areas. As far as the causes of poverty are concerned, they include lack of funds, lack of technology, major diseases and backward transportation conditions. According to the data of accurate identification statistics, 46.3% of the poor people in Panzhihua City lack funds and technology. 32.7% were poor due to illness, 27.8% were behind traffic conditions, and 19.7% were out of labor. According to the "five batches" policy, a group of 5,787 households with 17,256 persons, a resettlement and resettlement, 1,322 households, 4,911 people, a low-income policy, a group of 1,540 households, 4,379 people, and a group of 1,163 medical aids were selected. 2,339 people, reconstruction after the disaster helped a group of 8 households and 30 people.

5. Analysis of Existing Problems

5.1 Imperfect Infrastructure

More than 80% of the poverty alleviation targets in Panzhihua City are located in deep, remote and cold mountain areas, and the infrastructure of water conservancy, communications and roads is relatively weak. Mango production still depends on the original way of artificial irrigation, which results in a series of problems, such as time-consuming, high labor cost and low intensiveness. Although signal network coverage can be achieved in poor households, communication quality is interrupted when it is low. Only a very small number of poor households use smartphones or computers, which seriously affects the timeliness of information control in the development of the mango industry. The poor villages in Panzhihua City have all implemented the basic requirements for road hardening to the village. The rate of hardening to the household and hardening to the field is low. It affects the convenience, mechanization and modernization of mango's external transportation.

5.2 Inadequate Cultivation of Business Entities

Mango industry in poverty-stricken villages of Panzhihua City is relatively small in terms of total amount of main business entities and generally smaller in terms of scale of operation. The

main body of business is still poor households, supplemented by professional cooperatives. There are a small number of leading enterprises, while family farms, major professional households and other main bodies are still in the embryonic stage, without substantial benefits. Leading enterprises have set higher thresholds for driving poor households to develop mango industry, and poor households are discouraged from cooperation because of their previous investment. It is difficult to realize the good wishes of increasing the income of poor households by means of the “leading enterprise + poor households” interest linkage mechanism. In addition, although some agricultural cooperatives have absorbed the participation of poor households, they have not been able to organize their production and production normally, and they have the mentality of taking funds for poverty alleviation.

5.3 The Process of Industrial Convergence Lags Behind

The integration of mango planting industry and other industries in Panzhihua City is slow and lacks the strength to compete with other regions at present. As far as the degree of integration with the second industry is concerned, most of them are in the stage of non-processing or initial processing, and the mango intensive processing industry is not large-scale and trend. In terms of the degree of integration with the tertiary industry, Panzhihua mango is still mainly sold offline. The rural e-commerce platform lacks systematic, unified and normative, and there are many cases where the Panzhihua mango brand is distributed in multiple platforms. Product quality is uneven, and consumers have difficulty making choices and buying accurately. It is extremely rare to use the mango theme to develop a leisure agriculture case that integrates sightseeing, picking and experience. It fails to fully grasp the cultural heritage of Panzhihua mango to create a competitive advantage in the rural tourism market.

6. Analysis of Influencing Factors

6.1 Natural Factors

Agriculture is a highly dependent industry on the natural environment, so natural conditions play an important role in the production of crops in hot areas. The location of industrial poverty alleviation projects is usually located in remote poverty-stricken areas, which often have good natural conditions for the development of agricultural industry. The market competitiveness of its ecological and organic agricultural products is relatively strong, but the lack of rational development and risk prevention and control has become an important factor restricting the development of agricultural industry in poor areas. After analyzing the climate, soil, hydrology and other conditions in poverty-stricken areas, the types and layout of crops should be rationally planned. It is conducive to increasing the total crop yield in the region, optimizing the quality of agricultural products in the region, and building agricultural product brands in the region. In turn, the purpose of increasing the income of village collectives and poor households is achieved. Due to geographical location and other reasons, the incidence of natural disasters in most poor areas is relatively high. Effective risk prevention and control mechanisms and measures before development will help to greatly control the economic losses of poor households.

6.2 Policy Factors

At present, the development of poverty-stricken village industry mainly depends on the government's macro-control. The types and strategic layout of the main pillar industries in the village are stipulated by the government's policies. There is a high correlation between the effectiveness of industrial poverty alleviation and government decision-making. Due to the limitation of poor households'own conditions, industrial poverty alleviation can not play its greatest role by relying solely on the individual strength of poor households. After relying on government policy support, it can broaden the channels for attracting investment, adjust the restrictions on mortgage loans for poor households, and improve and improve the microfinance mechanism. It can effectively solve the financial problems in the development of poor households' industries. At the

same time, the requirements for infrastructure construction such as roads and information networks in the poverty alleviation policy. It lays a solid material foundation for the development of production, sales and transportation in the industrial chain of poverty-stricken areas.

6.3 Operating Subject Factor

The main factors mentioned here are more emphasis on the quality of the main body than on the quantity of the main body. The main business entities of industrial development in poor villages are mainly divided into three categories: individual poor households, professional cooperatives driven by capable people and leading enterprises. In the open market environment, product varieties, production methods, marketing means and other aspects of renewal speed is faster. Poor households often find it difficult to accept and use new things due to the limitations of their growing environment, and they also lack basic risk awareness and market awareness. Improving the operating ability of poor households directly affects the results of their industrial development. Professional cooperatives driven by capable people are a common business entity in the industrial development of poverty-stricken villages. The representative of the competent person who has the overall concept, open consciousness and management ability in the village takes the lead. Effectively organize scattered poor households for large-scale production. The ability of these capable representatives can affect the level of income that cooperatives bring to poor households. Leading enterprises often play a leading role in the development of poor village industries, occupying an active position in the interest linkage mechanism composed of cooperatives and poor households. Therefore, the decision-making of leading enterprises has a certain indirect impact on the level of industrial development and the income level of poor households.

7. Countermeasures and Suggestions

7.1 Strengthening the Cultivation of New Business Entities

New business entities are the backbone of industrial development and an important role in linking poor households with the market. We should steadily improve the total amount of new business entities in poverty-stricken villages in Panzhihua City, while improving their quality, and guide leading enterprises to reduce the threshold of cooperation among poor households. Considering the actual situation of poor households, we should rationally adjust their driving policies, and timely withdraw enterprises that lack social responsibility and refuse to help poor households from the list. For potential stock companies willing to undertake social responsibility, give priority support to funds, land, infrastructure and other aspects. Encourage professional cooperatives to formulate management rules and regulations to regulate their operation mode, and guide the family farms, large-scale breeding households and other entities to move closer to the enterprise. Training to improve the awareness of poverty alleviation cooperation and management capabilities of the heads of new business entities.

7.2 Perfecting Infrastructure Construction

Infrastructure construction is the starting point of industrial development in poverty-stricken areas. Policy support should be strengthened for the access of poor villages in Panzhihua and the hardening of roads in Tongtian. Strengthen the construction of break roads, network roads and extension roads. And improve the coverage of rural roads and traffic security capacity. Strengthen the construction of farmland irrigation and water conservancy while grasping the drinking water safety project. Actively integrate water conservancy projects in poverty-stricken areas into national, provincial and municipal water conservancy plans, and eligible for priority inclusion in annual investment plans. Accelerate the implementation of the "Broadband Village" and "4G Network" projects, achieve full coverage of all poor village telecommunications networks and the Internet, and ensure that the signal network is used 24 hours a day.

7.3 Accelerating the Process of Industrial Integration

Panzhihua Municipal Government may invite experts and scholars from institutions of higher

learning and scientific research institutions to provide training and guidance to grass-roots cadres and practitioners, so as to enhance the understanding of industrial integration among relevant personnel. Organize operators to go to other advanced areas of industrial integration and development to learn their development model, management experience, marketing methods, etc. We should improve the relevant supporting policies in finance, taxation, land, finance, insurance, science and technology, electricity and other fields, and form a policy support and service support system. With the help of high-tech breakthrough resource constraints, the development of mango deep processing industry to increase its added value. In-depth development of "Internet +", encourage mango sales to the rural e-commerce model, standardize the quality and pricing, after-sales service standards and procedures of various brands of mango. The Pantai City Mango brand has occupied a major share of the online market, thereby stabilizing the income sources of poor households.

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