

Study on Modern Agricultural Development in Mountainous Areas of Xingwen County

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Abstract—This paper aims at analyzing favorite conditions of modern agricultural development in mountainous areas of Xingwen county and introducing the existing issues used field survey method. The results find Xingwen has the favorite conditions of modern agriculture development:(1)rich in natural and human resources;(2)convenient transportation; (3) good agricultural development trend;(4) significant performance of tourism development ;(5)government's importance. To improve it, the government should :(1)promote the organic integration of agriculture and rural tourism;(2)develop appreciate scale management ; (3) develop brand agriculture based on market demand.

Keywords—modern agriculture; agricultural development; Xingwen County

I. INTRODUCTION

Located in the mountainous area of South Sichuan Basin, Xingwen County of Yibin City (North latitude 28 04'- 28 27', East longitude 104 52'- 105 21') is in the junction of Yunnan Province, Guizhou Province, Sichuan Province and Chongqing City. It is adjacent to Xuyong County in Luzhou City in the southeast. It borders Weixin County, Zhaotong City, Yunnan Province in the south. It is adjacent to Gong County, Yibin City to the west. Its northwest is connected with Changning County, Yibin City. It is bordered by Jiang'an County of Yibin City and Naxi District of Luzhou City in the north. Xingwen County covers an area of 1373.17 square kilometers, with a length of 47 kilometers from east to west and a width of 43 kilometers from north to south. Xianfeng Mountain uplift in the central and southern part of the county, dividing the whole county into North and South flanks. The northern is low in the north and high in the south, with an altitude of 275.6 M to 1795.1 M. On the contrary, the southern end is high in the north and low in the south, with an altitude of 1795.1 M to 501 M. The whole County consists of four types of landforms: plain, hill, low mountain and moderately high mountains. The last ten years saw Xingwen county experienced rapid speed development in modern agricultural. The growth rates of gross agricultural production were respectively 3.7%, 4.3%, 4.1%, 4.1%, 4.4%, 4.5%, 2.0%, 4.9% from 2008 to 2018. Meanwhile, the per capita disposable income of rural residents is respectively 4068 Yuan, 4402 Yuan, 5577 Yuan, 6735 Yuan, 7728 Yuan, 8778 Yuan, 9808 Yuan, 10795 Yuan, 11826 Yuan and 12920 Yuan. The industrial structure of the regional national economy has been continuously optimized. In 2017, the added value of the primary industry, the secondary industry

and the tertiary industry were respectively 2.02 billion Yuan, 3.38 billion Yuan and 4.42 billion Yuan. Although Xingwen County has made remarkable achievements in the development of modern agriculture in the past few decades, on one hand, it is far away from the central city because of its geographical location and relatively backward social and economic development; on the other hand, because it is located in the Women Mountains, the use of agricultural machinery is restricted by geographical conditions, and the means of production are relatively primitive; on the other hand, Xingwen County is located in the Wumeng Mountains. Additionally, Because of the small scale of agricultural production and operation, there is still a lack of channels for traditional agriculture to enter the modern market. As far as the research results are concerned, although there are many literatures on the development of modern agriculture, there are few literatures on the systematic study of modern agriculture in Xingwen County. Therefore, on the basis of the existing research results, this paper analyses the favorable conditions and the realistic issues of modern agriculture development in Xingwen County then put forward relevant policy recommendations. This paper unfolds as follows: section II reviews the existed literatures to introduce some viewpoints of the similar topics on modern agricultural development. Section III analyses the favorable conditions for mountainous areas modern agricultural development in Xingwen county. Section IV explores the realistic problems of that. Section V puts forwards some policy suggestions. The last section draws conclusion.

II. LITERATURE REVIEW

Agriculture is the foundation of national economy. The transformation from traditional agriculture to modern agriculture is a common problem faced by developing countries. Therefore, the development of modern agriculture has always been a hot issue in the field of agricultural economic management. A large number of scholars have made extensive and in-depth discussions on how to realize modern agriculture. Wang (2014) provided a thorough review of the empirical literature on contract farming in both developed and developing countries, using China as a special case of the latter. And the findings showed that empirical studies consistently support the positive contribution of contract farming to production and supply chain efficiency. The findings also showed that most empirical studies identify a positive and significant effect of contract farming on farmer welfare, yet are

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often unable to reach consistent conclusions as to significant correlates of contract participation. Xu (1998) estimated productive efficiency for Chinese hybrid and conventional rice production with a dual stochastic frontier efficiency decomposition model used. The results showed that significant differences in technical and allocative efficiency between conventional and hybrid rice production, and indicate significant regional efficiency differences in hybrid rice production, but not in conventional rice production. Asfaw (2012) evaluated the potential impact of adoption of improved legume technologies on rural household welfare measured by consumption expenditure in rural Ethiopia and Tanzania. The results revealed that adoption of improved agricultural technologies has a significant positive impact consumption expenditure in rural Ethiopia and Tanzania. The results confirmed the potential role of technology adoption in improving rural household welfare as higher consumption expenditure from improved technologies translate into lower poverty, higher food security and greater ability to withstand risk. Emerick(2014) used a randomized experiment in India to show that improved technology enhances agricultural productivity by crowding in modern inputs and cultivation practices and the findings showed that a large share of the expected gains from the technology comes from crowding in of other investments. Lundborg(1990) analyzed a salient feature of the coexistence of traditional and modern agricultural techniques during economic development with a three-sector, two-commodity general equilibrium model specified and the results showed that a labor subsidy does not have an unambiguously decreasing effect on unemployment under any factor intensity assumptions while a tax on the urban labor force lowers unemployment and raises welfare. Obviously, the above literature provides useful reference for us to carry out this research but there are few literatures introduces the favorable conditions of mountainous areas modern agricultural development and the existing problems of that are also few documented. In view of this, this paper aims at exploring the favorable conditions and realistic problems then bringing forth policy suggestion on mountainous areas modern agricultural development in Xingwen county.

III. THE FAVORABLE CONDITIONS FOR MOUNTAINOUS AREAS MODERN AGRICULTURAL DEVELOPMENT IN XINGWEN COUNTY

A. Rich in Both Natural and Humen Resources

On one hand, Xingwen County has a large per capita land area with 4.28 mu in 2018. Crop planting area was 52,606 hectares, an increase of 2,917 hectares over the previous year, including 39 513 hectares of grain crops and 13093 hectares of cash crops. The annual total grain output was 239.826 million tons, a decrease of 0.2% over 438 tons in the previous year while oil production reached 6820 tons, an increase of 5.9%. The output of melons and fruits was 2146 tons, an increase of 9.9%. On the other hand, Xingwen County is located in the subtropical humid climate zone, with mild climate, abundant rainfall, long frost-free period, distinct seasons. Its terrain is complex with the elevation varied greatly and stereoscopic climate varied significantly. Additionally, there are 19 rivers in Xingwen County, with a total length of 313.98 km. These

rivers all belong to the Yangtze River system. They merge respectively into Nanguang River, Changning River and Yongning River and finally flow into the Yangtze River. There are 1 river which basin area is more than 500 square kilometers, namely Gusong River; and there are four rivers which basin area between 100 and 500 square kilometers, respectively Yan River, Jianwu River, Jianjiang River and Shahe River; while there are five rivers which basin area from 50 to 100 square kilometers with Bolu River, Desheng River, Luoyan River, Jiuqing River and Didong River (upstream) named respectively. Nine rivers are below 50 square kilometers respectively with a total basin area of 1427 square kilometers. Xingwen County is also rich in animal and plant resources. The areas of forest-related industrial lands such as planting trees and forest products processing are 1.089 million mu. The forest area is 1.025 million mu, and the forest coverage rate is 51.39%. There are various types of Geology and geomorphology in Xingwen County. Soil types vary greatly in different areas, and the soil layer is relatively thin. Soil in most karst geomorphological areas is acidic. Selenium-rich soils in the central and southern regions account for 51.8% of the total land area of the county. Finally, there are abundant labor resources, the total population of the county was 386,700, of which 241,600 were in rural areas in 2017. The above items supply advantages for development modern agriculture in Xingwen county.

B. Convenient Transportation

As mentioned above, Xingwen County is located in the junction of Yunnan province, Guizhou province, Sichuan province and Chongqing city. It is only 300 kilometers or 3-4 hours' drive from Chongqing city or Chengdu city. It is only 100 kilometers or 1.5 hours' drive from Yibin city or Luzhou city. So, the traffic in Xingwen county is very convenient. With the construction of Chengdu-Guiyang high-speed railway, Chongqing-Kunming high-speed railway and Chengdu-Kunming high-speed railway (all of these high-speed railways pass through Xingwen and have parking stations) during the 13th Five-Year Plan period, Xingwen County will become an important transportation node connecting Chengdu city, Guiyang city, Kunming city and Chongqing municipality directly under the Central Government so as that Xingwen county will be integrated into Chengdu-Guiyang one-hour economic circle. This provides a very favorable external environment for the development of agricultural industry and the expansion of tourist market in Xingwen County. At the same time, Yixu Expressway colludes with five popular tourist attractions, namely, Xingwenshihai, Bowangshan, Zhuhai, Lizhuang Ancient Town and Qidonggou, which provides a broad market space for the development of rural tourism in Xingwen County. In a word, been formed a comprehensive transportation network, Xingwen County has a high traffic accessibility including national, county, Township and village roads. The roads are interwoven vertically and horizontally so the communication between nodes is convenient. Agricultural products are not easy to preserve. The more developed traffic conditions provide convenient transportation for the development of modern agriculture in Xingwen County. Agricultural products produced in Xingwen County can easily

be transported to such large consumer markets as Chengdu, Chongqing, Guiyang and Kunming.

C. Good Agricultural Development Trend

On one hand, as mentioned above, Xingwen County is rich in agricultural natural and human resources, which laid a solid foundation for modern agriculture development. On the other hand, in the past 10 years, characteristic agriculture in Xingwen County has developed rapidly. The characteristics of agricultural industry, such as black-bone chicken, bamboo shoots, kiwifruit, selenium-rich rice, flue-cured tobacco and silkworm mulberry, have initially formed. Xingwen County has successfully built the famous regional agricultural products brand of "eating in Shihai" and 15 pollution-free agricultural products, green food, organic agricultural products and geographical indications of agricultural products, and 2 Sichuan famous brands has been cultivated. Mountain black-bone chicken and bamboo shoots are listed as national geographical indications protection products. In the past five years, Xingwen County has nurtured 462 new type of agricultural management entities, such as leading enterprises and farmers' professional cooperatives. "Shi Hai Potato Products Farmer's Cooperative" was awarded the national model farmer's cooperative organization, and "Xiangshan Kiwifruit Professional Cooperative Union" was awarded the "National Excellent Farmer's Cooperative". Xingwen County has successfully established "Key County of Modern Forestry in Sichuan Province" and three demonstration zones of "10,000 mu forest and 100 million yuan output value" demonstration zones". In 2018, Xingwen County built two 10,000 Mu agricultural industry demonstration zones and one 10,000 Mu grain and economy composite demonstration base, and grain production has achieved steady growth for five consecutive years.

D. Significant Performance of Tourism Development

In order to promote the development of tourism, Xingwen County, on the one hand, focuses on improving the soft power of tourism, on the other hand, on improving the hardware facilities of tourism. The implementation of many policies to promote the development of tourism has made the tourism industry in Xingwen County develop vigorously in recent years. In order to develop the industry, planning must go ahead. Hence, Xingwen County has compiled the Overall Planning for Tourism Development of Xingwen County and the Overall Planning for Shihai National Geopark of Xingwen County, which play a very important role in guiding the development of tourism industry. The service quality of a number of rural tourist attractions, such as Huayuan Bank, Eco-Wang Zhuang and Fengming Villa, has been gradually improved, and "Sichuan Eco-tourism Demonstration Area" and "Sichuan Rural Tourism Demonstration County" have been successfully established. Miao nationality's Huashan Festival "Southwest folk song competition" and "Dam High piling Festival" feature rural tourism brand is becoming more and more famous. "Sichuan Xingwen pig Festival", "Xingwen County mountain bone chicken Culture Festival", "Xianfeng bamboo shoots Festival" and other "Xingwen twelve Festival" series of characteristics festival will stimulate the vitality of rural tourism. The number of tourists and their income have

increased for five consecutive years. In 2016, 44.23 million tourists were received, which is 2.31 times as many as in 2011, with an average annual increase of 18.2%. The total tourism income of 6.374 billion yuan is 2.87 times as much as that of 2011, with an average annual increase of 23.5%. The rapid development of tourism provides an important opportunity for the development of modern service industry and rural tourism in Xingwen County.

E. Government Attaches Importance to the Development of Modern Agriculture

Agriculture is the basic industry of a country, with large investment, slow effect and high risk. These characteristics of agriculture determine that agricultural development must be supported by funds and policies from government. Over the past five years, in order to promote agriculture development, the local government of Xingwen County has made a lot of investment. Firstly, the development of modern agricultural industry has been planned in detail and the infrastructure, production mode, agribusinesses of production and management have been modernized according to the planning. Secondly, the government of Xingwen County has upgraded the existing plantations and aquaculture farms, re-utilized the abandoned land according to local conditions, and encouraged farmers to grow traditional Chinese medicines, special vegetables and special agricultural products. Finally, the government upgraded rural tourist attractions including Fengming Villa, Eco-Wang Villa and connected adjacent high-quality tourism resources. Moreover, the government transformed and optimized the style and features of farm houses so that they can be used as folk hotels. The rural tourism industry has been developed by combining agriculture and tourism.

IV. REALISTIC PROBLEMS EXISTING IN THE DEVELOPMENT OF MODERN AGRICULTURAL INDUSTRY IN XINGWEN COUNTY

A. Low Development Degree of Rural Industrial Integration

First, the industry scale is small. Although there are some foundations for the special industries such as black-bone chicken, bamboo shoots and selenium-rich rice, the industry scale is small and its distribution is relatively scattered, and the integration of resources is not achieved. Because of the small scale, it is difficult to concentrate on the development of agricultural characteristic industries, and agriculture lacks scale effect. This is also not conducive to the development of landscape agriculture. Second, production, processing, marketing and trade are out of line. The cultivation, processing, logistics, marketing, consumption and leisure agriculture development of agricultural products are basically separated. The industrial chain and value chain of major agricultural products such as grain and oil are not fully realized. Third, the lack of innovation in agricultural industry makes it difficult to fundamentally improve the integration of primary, secondary and tertiary industries.

B. Weak Driving Force of the New Types of Agribusiness

Firstly, the foundation of cultivation new types of agribusiness is not so good because high-quality rural young

and middle-aged labor force has been transferred to secondary and tertiary industries in large quantities, leaving agriculture for development. This has led to the following characteristics of agricultural labor force in Xingwen County: (1) weak physical strength and not fully competent for production operations; (2) poor modern agricultural production capacity so it is difficult to quickly master advanced scientific production techniques; (3) low risk prevention and control ability so it is difficult to quickly respond to emergencies in production. Secondly, the new types of agribusiness accumulate less and their base scale is small. This results in loose link between them and household farmers. Thirdly, there are insufficient scientific and technological personnel so service system is imperfect. And owing to lower incomes, few people is willing to work at agricultural science and technology extension department.

C. Poor Allocation Of factors of Production in Urban and Rural Areas

Firstly, urban and rural markets are separated with obvious dual characteristics so the flow of urban and rural resources is not smooth. Dual market not only restricts the normal circulation of material, capital, manpower and information between industry and agriculture, but also makes it impossible for all kinds of resources to flow freely between urban and rural areas according to the law of market economy. Secondly, the degree of marketization between urban and rural areas is quite different, and the market system of production factors in rural areas is not perfect. The degree of marketization in rural areas is much lower than that in urban areas, and the market quantity is small while the market management is not good. This results in incomplete market function. Moreover, the information between urban and rural areas is blocked. Especially the factor market system is not perfect. Thirdly, the transaction cost of farmers' participation in the market is high so the transaction efficiency is low, and the scope and depth of participation in the division of labor are still insufficient.

V. POLICY SUGGESTION ON DEVELOPING MODERN AGRICULTURE IN XINGWEN COUNTY

A. To Promote the Organic Integration of Agriculture and Rural Tourism

The local government should actively expand the boundaries of the connotation and extension of agriculture and rural tourism. On one hand, the government should further consolidate the basis of rural tourism development by accelerating the ecological agriculture development and new rural construction. On the other hand, the government should make full use of Xingwen World Geopark (Bowangshan Scenic Area) to improve the quality and efficiency of ecological agriculture development. Geoparks and ecological agriculture should be symbiotically coupled, mutually supportive and coordinated development. Thirdly, the local government should break down the sectoral barriers to promote the organic integration of tourism and agriculture in order to form a comprehensive tourism development pattern.

B. To Develop Appropriate Scale Management

The local government should gradually guide the moderate scale management, with the special agricultural industries such as vegetables, Chinese medicinal materials, flowers and seedlings, beef cattle, pigs and black-bone chickens as carriers, market demand should be guided when the moderate scale management develop. On one hand, appropriate scale management can provide agricultural landscape for rural tourism development. On the other hand, it can also improve the quality and efficiency of agricultural industry and promote the integration of agriculture and tourism. In short, the government should guide the moderate scale management of agricultural industry through comprehensive means such as taxation, finance and credit to extend the agricultural industry chain, promote agricultural industrialization and increase the added value of agricultural products.

C. To Develop Brand Agriculture based on Market Demand

The government should make full use of the advantages of green nature in Xingwen County and vigorously develop characteristic industries to meet the needs of upgrading agricultural products consumption. New industries such as leisure agriculture, rural e-commerce and rural tourism should be developed to expand the value chain of agricultural industry chain. Functional agricultural products such as Se-rich rice, traditional Chinese medicine should be fully developed. In short, the government should focus on the market demand for product function positioning and develop characteristic superior agricultural products brand.

VI. CONCLUSION

Xingwen county not only has favorable conditions for mountainous areas modern agricultural development, but also meet some problems. In order to encourage mountainous areas modern agricultural to develop, the local government should do as follows: (1) to promote the organic integration of agriculture and rural tourism; (2) to develop appreciate scale management and (3) to develop brand agriculture based on market demand.

REFERENCES

- [1] Xu, X. , & Jeffrey, S. R. . (1998). Efficiency and technical progress in traditional and modern agriculture: evidence from rice production in china. *Agricultural Economics*, 18(2), 157-165.
- [2] Wang, H. H. , Wang, Y. , & Delgado, M. S. . (2014). The transition to modern agriculture: contract farming in developing economies. *American Journal of Agricultural Economics*, 96(5), 1257-1271.
- [3] Asfaw, S. , Shiferaw, B. , Simtowe, F. , & Lipper, L. . (2012). Impact of modern agricultural technologies on smallholder welfare: evidence from tanzania and ethiopia. *Food Policy*, 37(3), 283-295.
- [4] Emerick, K. , De Janvry, A. , Sadoulet, E. , & Dar, M. H. . (2016). Technological innovations, downside risk, and the modernization of agriculture. *American Economic Review*, 106(6), 1537-1561.
- [5] Lundborg, P. (1990). Rural-urban migration and the transition from traditional to modern agriculture. *Journal of Development Economics*, 33(2), 287-307.