

# Practice and Exploration of the Development of Economic Industries under the Forests in Chengde

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**Abstract:** *The advantages of forest resources in Chengde provide a diversified material foundation for the development of understory economic industries. This article conducts a survey and research on the current development status of the understory economic industry in Chengde, summarizes the development model and experience of the understory economic industry, points out the problems in the development process, proposes rational countermeasures and suggestions, and provides reference for promoting high-quality development of forestry and building a strong forestry city.*

**Keywords:** *Forestry economy, Industrial development, Practice and exploration*

## 1. Introduction

Chengde is the functional area for water conservation in the Beijing Tianjin Hebei region, the ecological and environmental support area for the coordinated development of the Beijing Tianjin Hebei region, and the birthplace of the Saihanba spirit. It is known as the "Green Lung of North China". In recent years, under the strong leadership of the Municipal Party Committee and Government, Chengde Forestry has adhered to the guiding ideology of ecological civilization, closely focused on implementing the important instructions of General Secretaries inspection of Chengde, deeply practiced the "Two Mountains" theory, vigorously promoted the spirit of Saihanba, and based on the development positioning of "three districts and two cities", fully promoted the high-quality development of forestry and grassland work. Through years of effort, the ecological environment in the city has undergone earth shaking changes. The total area of forest land in the city is 35.56 million mu, accounting for 35.7% of the province and 32% of the Beijing Tianjin Hebei region; The forest coverage rate is 60.03%, which is 36 percentage points higher than the national average and 25 percentage points higher than the provincial average; The forest volume is 102 million cubic meters, accounting for 58% of the province and 50.5% of the Beijing Tianjin Hebei region. The advantages in resources provide a diversified material foundation for the development of the understory economy. The development of the understory economy has shown a good trend of stability and progress, and a large number of typical examples have emerged to achieve "ecological beauty, industrial prosperity, and peoples prosperity" through the development of the understory economy. However, there are also some problems in the development process that require continuous exploration and innovation of the development model and mechanism of the understory economy, in order to promote the development of the understory economy to a new level.

### 1.1 The current development status of understory economic industries

The city develops the advantage of the economic industry under the forest.

First, significant resource advantages. Chengde has abundant forest resources, with a total forest area of 35.56 million mu in the city, accounting for 35.7% of the province and 32% of the Beijing Tianjin Hebei region; The forest coverage rate is 60.03%, which is 36 percentage points higher than the national average and 25 percentage points higher than the provincial average; The forest volume is 102 million cubic meters, accounting for 58% of the province and 50.5% of the Beijing Tianjin Hebei region. This provides a diversified material foundation for the development of the understory economy. Utilizing the advantages of forest resources to develop understory farming, wild resource collection and processing, and forest landscape utilization as the main content of understory economy can not only expand food sources, but also transform resource advantages into economic advantages, making practical efforts to promote high-quality development of forestry and build a strong forestry city.

Second, the industrial foundation is solid. As of 2022, the city's understory economic development area is 4.45 million mu, with a total output value of 220 million yuan. There are mainly forest medicine economy based on authentic Chinese medicinal materials such as *Scutellaria baicalensis*, *Atractylodes macrocephala*, and *Chaihu*, forest vegetable forest grain economy based on radish, cabbage, and small grains, and forest mushroom economy based on shiitake mushrooms, *Ganoderma lucidum*, and black fungus. Luanping County is the county with the best development of understory economic industry. The total area of understory economic breeding in the county has reached 22600 acres, with a total output value of 23 million yuan. The number of farmers engaged in understory economic breeding has reached 1300, with a total income of 4.96 million yuan. Rated as a national demonstration base for understory economy.

Again, the market prospects are broad. The development of the understory economic industry relies on forest resources and has the characteristics of ecological organic. It conforms to the concept of green consumption and has broad market prospects. Taking understory farming as an example, understory farming mainly involves free range farming of chickens, pigs, cows, sheep, and bees. Meat, eggs, milk, and honey have a good taste and high nutrition, and their sales prices are higher than market prices. They are highly welcomed and loved by consumers, and the market is in short supply. Fengning County has a beekeeping area of 10000 mu and a livestock breeding area of 8200 mu, with a direct economic benefit of 43 million yuan, driving the income increase of over 1000 local farmers.

Finally, the development momentum is good. According to incomplete statistics, there is one national level demonstration base for understory economy and eight farmer cooperatives for understory economy in the city. There are 209000 people working in the understory economy, accounting for 13% of the rural workforce. The average annual income of households participating in understory farming and breeding is about 12000 yuan higher than that of households not participating. The average annual income of households participating in forest landscape utilization is about 18000 yuan higher than that of households not participating. Among them, Luanping County vigorously develops standardized planting bases for traditional Chinese medicine and seed and seedling breeding bases. The county has newly developed 3150 acres of traditional Chinese medicine bases, with over 100 varieties of traditional Chinese medicine and 15 brands created. It has been rated as a major county in the provinces *Scutellaria baicalensis* industry. Weichang County is rich in wild resources, with a focus on developing understory collection, mainly including wild mushrooms, mountain vegetables, hazelnuts, and natural golden lotus flowers. The area of wild mushroom collection forest is about 2 million mu, with a production value of 20 million yuan; 330000 mu of hazelnut forest, with an output value of 30 million yuan; The natural golden lotus has an area of about 150000 acres and an annual output value of about 50 million yuan.

The main models for developing understory economy in our city.

(1) Forest and poultry mode. Planting grass under the forest or preserving natural grass, raising poultry such as chickens, ducks, and geese to form a natural "oxygen bar", with cool ventilation under the forest, which is conducive to the growth of poultry. Poultry eat grass and insects, and feces can be used as fertilizer. The meat and eggs produced under the forest belong to green and pollution-free food.

(2) Forest animal model. Mainly raising livestock such as cows, sheep, pigs, and rabbits under the forest. Forest farming solves the problem of no or limited space for raising cattle and sheep in households. It not only provides a good living environment for livestock, but also benefits their growth and increases the added value of products such as meat and milk.

(3) Forest vegetable mode. Planting vegetables under the forest, mainly radishes, cabbage, scallions, garlic, chili peppers, cabbage, and other vegetables, typically earns an annual income of around 2000 yuan per acre.

(4) Forest mushroom pattern. Edible mushrooms have high environmental requirements, with shaded and well ventilated forests, which are very suitable for their growth. The material substrate for harvesting edible mushrooms is organic fertilizer, which is then used in forests.

(5) Forest medicine mode. Planting Chinese medicinal materials under the forest mainly includes *Scutellaria baicalensis*, *Atractylodes macrocephala*, Chaihu, etc. The natural conditions are no different from those in the wild, and the management is not complicated. The annual income per mu is generally around 3000 yuan.

(6) Forest bee mode. Under the forest beekeeping has the characteristics of low investment, high income, short cycle, fast effectiveness, and low risk. The annual income is generally around 2200 yuan.

(7) Forest grain mode. Planting grain crops under the forest is suitable for developing this model in young forests. Young forests have less shading and will not affect crop growth. This model mainly focuses on planting grain crops such as foxtail millet, beans, and potatoes.

## **2. Problems in the development of understory economic industries**

(1) Lack of financial support. Compared to agricultural development, understory development is more difficult, costly, and requires more continuous investment. For example, the current preferential policy introduced by Luanping County is to provide a subsidy of 1000 yuan per acre for the development of more than 20 acres of traditional Chinese medicine planting bases in non basic farmland (excluding old orchards) and non natural forests; For concentrated and contiguous development of seedling breeding bases covering more than 20 acres, a subsidy of 2000 yuan per acre will be provided. Without other financial support policies, it is difficult to start with high standards, expand and strengthen.

(2) Difficulty in forest land transfer. With the comprehensive implementation of rural forest rights reform, forest land in mountainous areas has been divided into thousands of households, making it very difficult to transfer forest land. Influenced by old ideas and unable to keep up with subsidies, some forest farmers would rather abandon the land than transfer it, which has become the biggest bottleneck restricting the rapid development of the understory industry.

(3) The level of industrialization is low. At present, the development level and model of the understory economic industry in various counties and districts of our city are almost the same, and the development advantages are not obvious. A modern industrial system that integrates production,

processing, and sales has not yet been truly formed. Without leading enterprises with strong processing capabilities and advanced supporting facilities, it is impossible to maintain long-term sustainability, and there is no professional wholesale market. The problem of difficult sales has not been fundamentally solved, and the comprehensive benefits of the circulation and processing links cannot be obtained.

(4) Weak technological support. Most of the understory industries in our city continue to use traditional planting and breeding methods, with extensive management, relying on natural harvesting, manual operation, low mechanization and modernization, and unable to achieve high-yield, efficient, and high-end development. The grassroots forestry technology promotion system is also not sound, with a shortage of technical personnel and insufficient mastery of scientific planting and breeding techniques. At the same time, there is a lack of cooperation with universities and colleges both inside and outside the province, which makes it difficult to effectively apply new technologies and products to industrial development.

(5) The security system is lagged behind. The development of understory economic industries has its own characteristics, such as high investment, long cycle, and slow effectiveness, requiring continuous efforts. At the same time, there are various risks in the development process, which are affected by factors such as seedling quality, weather conditions, pests and diseases, and market price fluctuations. At present, there are no corresponding policies to ensure the development of the understory economy, so the enthusiasm of forest farmers is not high.

### **3. Countermeasures and suggestions for the development of underforest economy and industry**

(1) Improve support policies. One is to further increase financial support, effectively integrate agricultural projects and funds, and tilt towards the understory economy. Make full use of existing resources, strengthen the link between financial and tax policies and forest property mortgage, strictly implement tax and fee preferential policies, and open up a "green channel". Actively expand financing channels and guide credit institutions to provide financial support to leading enterprises, cooperatives, and large-scale farmers in the understory economy. The second is to develop a series of effective and actionable policies and measures around various aspects of the understory economic industry, from production to sales, including funds, taxes, land transfer, technical services, etc., to comprehensively promote the development of the understory economic industry.

(2) Scientifically formulate plans. Scientific planning of industrial development direction, scale, regional distribution, infrastructure support, brand building, and other contents. Each county adheres to the principle of "adapting measures to local conditions, highlighting characteristics, optimizing stock, and expanding increment", focuses on developing understory economic products with local characteristic advantages, plans and constructs understory economic demonstration parks, and drives the enthusiasm of understory economic development through demonstration. At the same time, the plan should highlight the construction of the industrial chain, making deep processing of understory products the central link, encouraging leading enterprises to expand into the fields of deep processing of products and forest tourism, and promoting the development of understory economic industries to improve quality and efficiency.

(3) Optimize industrial layout. One is to implement single product breakthroughs based on advantages, guide each county and district to leverage their unique advantages, and implement differentiated development. Focus on laying out advantageous single products such as understory Chinese medicinal materials, forest fungi, forest poultry, forest livestock, and forest bees, and build a

development pattern of one county, one characteristic, and one brand. The second is to optimize the overall layout and industrial structure of the understory economy, build an industrial development layout that combines points, lines, and surfaces such as industrial zones, industrial zones, and industrial demonstration points, and construct multiple composite development models such as "forest+bacteria+medicine" and "forest+medicine" to enhance the comprehensive benefits of the understory economy. The third is to cultivate leading enterprises. Appropriately tilt towards leading enterprises in terms of funding, land, technology, infrastructure, and other elements of guarantee. Leading enterprises will drive the development of specialized, standardized, large-scale, and intensive production and operation entities such as forest farmers, family forest farms, and cooperatives, forming a complete industrial chain of understory economy.

(4) Increase technological support. One is to actively establish strategic cooperation mechanisms with major universities, institutions, and other forestry research institutions through political and academic cooperation, college enterprise cooperation, etc., build research and development platforms, strengthen cooperation around seed cultivation, technological innovation, achievement promotion, scientific and technological training, information sharing, personnel exchange, etc., and strengthen scientific and technological support. Secondly, establish and improve the talent training system for the understory economic industry, and fill the gaps in talent development; The third is to strengthen the research and development of understory economy and technology, enhance independent innovation capabilities, and include understory economy special projects in the national key research and development plan.

(5) Strengthen the security system. One is to improve the marketing mechanism, establish various professional cooperatives, industry associations, and intermediary service institutions, strengthen market information analysis and judgment, timely release product supply and demand information, so that farmers can timely understand the market situation and minimize market risks. The second is to establish a forest economic insurance mechanism and include funds for forest economic development in the municipal financial budget. The third is to strengthen market supervision, regulate the behavior of the understory economic market, strictly investigate behaviors that disrupt market order and harm the interests of farmers, effectively protect the legitimate rights and interests of farmers, provide a good trading environment for the understory economic market, attract capital investment, and provide a good environment for the development of the understory economic industry.

#### **4. Explore and innovate the industrial development model of underforest economy**

(1) Explore forest compound management models. Processing thinning wood into wooden products to increase added value; It can also be used to cultivate fungi and agarwood, improving economic benefits; The branches and sawdust from thinning can be processed into biofuels. Develop models such as "national reserve forest+understory economy" and "economic forest+understory economy" to achieve the effect of understory economy combining short-term and long-term growth. The same forest can generate more understory products, achieving maximum comprehensive benefits.

(2) Explore demonstration models for forest resource integration. Taking the construction and promotion of key demonstration projects as the starting point, adopting a three-dimensional intercropping model of forest, forest, and mountain areas, introducing and cultivating suitable varieties, imparting learning skills, driving the employment of surrounding people, and paving a new path of "digging gold" under the forest and enriching the people ecologically. At the same time, encourage

various types of social capital to "enter the mountains and forests", establish a "enterprise order" cooperative planting model, and guide enterprises to develop a "customized pharmaceutical park" model under the forest. Actively cultivate new forestry management entities, encourage forest farmers to establish forestry professional cooperatives, family forest farms and other new forestry management entities, improve the degree of cooperation and organization, and form an industrial system that integrates planting cultivation, rough processing, deep processing, and sales.

(3) Explore the integration model of forestry and tourism. Implementing a forest tourism integration model of "forest park+forest health preservation", relying on rich forest ecological resources, cultural and health preservation resources, and green food resources, introducing forest tourism projects, actively cooperating with rural areas to lease idle resources, and absorbing labor in the village to attract tourists and open up financial resources for the countryside. Combining with the construction of No.1 Scenic Avenue, we will create leisure agriculture demonstration sites, forest homes and other health projects, and create a forest health brand of "entering forest oxygen bars, tasting forest cuisine, and appreciating forest scenery" to achieve sustainable development of promoting tourism through forests and supporting forests through tourism.

## **5. Explore and innovate the development mechanism of understory economic industries**

(1) Make efforts at the top to build a solid foundation. At the municipal level, a document on the development of understory economy has been issued, listing understory economy as a government assessment target. The understory economic industry has been included in a new stage of high-quality development at the municipal level, with standardized and orderly planning and long-term development. Develop and issue relevant policy documents, focusing on building a "five system" of characteristic industries, production and operation, scientific and technological services, basic support, and policy guarantees. And incorporate the achievements of the development of understory economic industries into the performance evaluation of promoting high-quality development in cities and counties.

(2) Establish an operational mechanism for the comprehensive service system of understory economic industries. Create a comprehensive service system app for the understory economic industry, click on the market price trend module, and you can see the recent market prices of understory products. Each product has a link at the back, and after clicking, you can see the market price trend of the product in different periods. The platform integrates government service system, forest economy map, market service system, and financial service system. Through service network and mobile end, it gathers basic data of the forestry industry in the city, promotes the organic integration of industry and big data, and provides convenient and diversified services for enterprises and users.

(3) Establish a transfer mechanism for understory space. Issue "Forest Undercover Space Operation Certificate" and establish "Forest Undercover Operation Loan". The subject of understory space operation can apply for a "understory space operation certificate", which forms a "dual insurance" with the lease contract, effectively protecting the rights and interests of understory space operators. Select the forest stands in the whole city, integrate the scattered and fragmented understory space centralized reserve and scale that meet the conditions and have the intention of circulation into the "Forest Ecological Bank", dynamically update the understory space resource surplus and plot distribution based on the "Forest Ecological Bank", township land circulation platform, etc., release the understory space circulation and investment promotion information through television, WeChat official account and other channels, and establish and improve the understory economic industry investment

promotion project database. At the same time, with forest management rights and crops as the main body, we will launch "forest management loans" to solve the problem of financing difficulties for operators.

(4) Develop a special statistical survey system for understory economy. Include the system in a village level table. Scientific and accurate data can comprehensively reflect the development achievements, benefits, potential, and risks of the understory economy, providing a barometer and wind vane for the high-quality development of the city's understory economy, and also providing reference and inspiration for the national statistical monitoring reform of understory economy.

## References

- [1] Guo Hongyan, Gu Weibin, Xu Lei. (2022). *Exploration of Underforest Economy in the Construction of National Reserve Forests*. *China Forestry Economy*.
- [2] Wang Fang. (2022) *Current Situation and Countermeasures of Dry and Miscellaneous Fruits and Underforest Economic Development in the Qinling Mountains*, *Modern Horticulture*.
- [3] Lin Tao. (2013) *A Brief Discussion on the Development Model of Underforest Economy*. *Modern Horticulture*.
- [4] Yu Fei. (2021). *Development Status and Potential of High Quality Underforest Economy*. *Agricultural Economics*.
- [5] Du Jianguo, Xu Lingyan, Jin Shuai. (2021). *Research on Path Selection and Guarantee Mechanism for Promoting Green Development*.