

Thoughts on the Inheritance, Protection and Promotion of GIAHS -- A Case Study “Xiajin Yellow River Old Course Ancient Mulberry Grove System”

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Abstract

Globally Important Agricultural Heritage Systems (GIAHS) are a global plan initiated and recognized by the Food and Agriculture Organization of the United Nations in 2002. “Xiajin Yellow River Old Course Ancient Mulberry Grove System” is the unique case of GIAHS in Shandong Province. In the very case a large number of beneficial explorations and practices have been carried out in the fields of protecting cultural heritage, serving rural revitalization, and enhancing the integrated development of primary, secondary and tertiary industries. The authors participated in the entire process of applying for the GIAHS “Xiajin Yellow River Old Course Ancient Mulberry Grove System”, consequently the article is written on the basis of first-hand research and practice. Firstly, the article introduces the advantages and characteristics of the case “Xiajin Yellow River Old Course Ancient Mulberry Grove System” from 4 aspects: sand management, biodiversity and food safety, preservation and inheritance of the mulberry culture, and the integrated development of primary, secondary and tertiary industries. Secondly, the article analyzes the difficulties in practice, such as the technical support of heritage sites, brand building, and the integration of the primary, secondary and tertiary industries. Finally, the article recommends to optimize the spatial layout to create “two areas, two belts and four parks”, to promote the integrated development of primary, secondary and tertiary industries by regional marketing, large-scale cultivation, standardized production, industrialization of mulberry industry, to enhance the inheritance and protection of the mulberry culture, and to promote the protection and innovative development of “Xiajin Yellow River Old Course Ancient Mulberry Grove System” by strengthening publicity.

Keywords

GIAHS; Xiajin Yellow River Old Course Ancient Mulberry Grove System; Inheritance; Innovation.

1. Introduction

Globally Important Agricultural Heritage Systems (GIAHS) is a global program initiated and organized by the Food and Agriculture Organization of the United Nations (FAO) in 2002. The FAO defines the GIAHS as a unique land use system and agricultural landscape formed by the long-term co-evolution and dynamic adaptation of the countryside and its environment, which is rich in biodiversity, meets the needs of local social, economic and cultural development, and promotes the regional sustainable development [1]. Globally important agricultural cultural heritage has a unique aesthetic landscape, which protects agricultural biodiversity, builds an ecosystem with self-regulation, continuously provides a variety of products and services for human beings, and ensures human livelihood security and life quality in the sustainable development of agriculture. On the 19th April 2018, in the 5th International Forum on Globally Important Agricultural Heritage Systems hosted by the FAO, “Xiajin Yellow River Old Course Ancient Mulberry Grove System” was successfully awarded as “Globally Important Agricultural

Heritage”, which was the first one in Shandong Province. “Xiajin Yellow River Old Course Ancient Mulberry Grove System” adheres to the concept of “protection in inheritance and development in protection”, relying on the advantages of natural resources, which vigorously develops ecological agriculture, leisure agriculture and rural tourism, so that the agricultural heritage has been effectively inherited and protected in the innovative development.

2. Advantages

“Xiajin Yellow River Old Course Ancient Mulberry Grove System” is located in Suliuzhuang, including Beipudian, Nanshuangmiao, Houtun, Wenxinzhuang, Qiantun, Houzilitun, Zuodi, Yujiacang, Liudi, which covers totally 11 villages in Xiyangmiao and Dongyanmiao, bounded between 116°05'30" - 116°05'40" east longitude and 36°59'45" - 37°04'11" north latitude. The location of the ancient mulberry grove is the sand river land left by the Yellow River in the Eastern Zhou Dynasty 2,000 years ago, which is called the “Yellow River Old Course”. Since 602 BC, the main stream of the Yellow River has flowed through Xiajin for more than 600 years. During this period 2 bursts and floods occurred. After the diversion of the Yellow River, 300,000 mu of sandy dunes were left. For reducing the sandstorm and promoting agricultural production people planted mulberry, and the planting area was about 50,000 hectares in the peak. After years of protection and development, the original ecological forest resources with a total area of 128,000 mu, mainly ancient mulberry trees, have been gradually formed. It has been awarded as a national AAAA tourist attraction, a national water conservancy scenic spot, and a national forest park. As the core protection area, the ancient mulberry grove of the Yellow River Old Course is located in the Yellow River Old Course Forest Park, with a total area of more than 400 hectares. More than 20,000 ancient mulberry trees are with the age of more than 100 years, and 2,000 ancient mulberry trees with the age of more than 500 years. It is the oldest and largest ancient mulberry grove in China.

“Xiajin Yellow River Old Course Ancient Mulberry Grove System” has created a sustainable agricultural development model that uses mulberry to control sand, and is an important case of sand land agriculture that considers both ecological governance and economic development. The advantages and characteristics as follow:

2.1. Harmonious Coexistence between Human and Nature

The global desertification land area is about 36 million square kilometers, accounting for 1/4 of the entire land area, and it expands at an annual rate of 50,000 to 70,000 square kilometers, causing direct economic losses of more than 42 billion US dollars each year. The formation and development of “Xiajin Yellow River Old Course Ancient Mulberry Grove System” provides a good case for global desertification control. From the perspective of water and soil resources management, the protection measures, such as “small grid wide forest belt”, is adopted for the sandy land with large fluctuations; and “medium grid narrow forest belt” is adopted for the wind-eroded cultivated land and flat sandy land. It prevents the soil erosion and improve the soil fertility. From the perspective of adaptive technology: the ancient mulberry grove witnesses the long history of sericulture in the Yellow River Basin, and contains rich traditional agricultural techniques, such as grafting, seedlings, pruning, reasonable dense planting, insect removal and etc.. Fruit-tree mixing and fruit-grain intercropping are agricultural production methods that adapt to local natural and social conditions, which are classic cases where the most primitive ecological awareness is applied to production practice. At the same time, due to its complex topographic features and diverse ecosystem types, such as sandy land, farmland, forests, lakes, and etc., the Yellow River has formed a rich ecological niche. In the whole system, people, organisms and the environment interact and coexist harmoniously.

2.2. Perfect Unification of Biodiversity and Food Safety

The site of Yellow River Old Course is poor, but the mulberry grove has strong adaptability, drought resistance to barrenness. The large-scale planting of mulberry prevents wind and sand fixation, providing conditions for the coexistence of other fruit trees and agricultural species, which is conducive to the development of forestry planting and breeding, consequently forms a very rich variety and biodiversity. In the very system, 214 kinds of vascular plants, 107 kinds of wild animals, 43 kinds of grain crops and 25 kinds of aquatic animals and poultry coexist harmoniously. The soil texture of Yellow River Old Course is loose, and the water conservancy is poor. Mulberry has extremely vigorous vitality and developed root systems. Mulberry can also grow in arid and semi-arid deserts, which is good at the windbreak, sand fixation and soil preservation, and effectively improves the soil. The fruiting of mulberry is relatively stable, which matures in late May as the earliest fruit in the spring. In the years of material scarcity, when the famine occurred, mulberry could meet the food needs of the local people. After drying mulberry can be stored for a long time. Mulberry is rich in 18 kinds of amino acids. Modern medical research has proved that it has antioxidant and antiviral effects.

2.3. Preservation of the Traditional Culture in Agriculture

According to the "Xiajin County Chronicle", from the thirteenth year of Emperor Kangxi of the Qing Dynasty to the 1920s, the mulberry grove was prosperous. Xiajin County still completely retains the traditional sericulture, mulberry cultivation, breeding and production techniques. Local drums, music, proverbs, sayings, and paper-cut arts are all related with the mulberry grove. The mulberry culture, together with the drum culture of Xiajin, the Yellow River culture, and the folk culture, constitute a cultural system that has been passed down through the ages. The ancient mulberry grove is the soul of the Yellow River Old Course, which has witnessed the indomitable struggle of the local residents to change the barren natural conditions. It has profound historical significance and cultural value. In the past the vigorous branches and exuberant vitality of mulberry grove guaranteed the harvest under the drought and flood, which not only made the local residents feel the sense of history, but also increased the sense of belonging and pride for them.

2.4. Integration of Primary, Secondary and Tertiary Industries

The academicians, Li Wenhua, Xiang Zhonghuai and Shu Huairui, and more than 50 well-known experts were invited to carry out top-level design for the protection and development of the ancient mulberry grove in Xiajin. The plan regards the entire county as a heritage site, and subdivides it into the ancient mulberry grove protected areas (core protected areas) mainly in Suliuzhuang, mulberry industry development area, economic forest and fruit development area, central comprehensive development area and ecological restoration area. Collaborated with Southwest University, the "Xiajin Mulberry Industrial Technology Research Institute" was established to strengthen the technological innovation, product development and other aspects. By accelerating the integrated development of primary, secondary and tertiary industries, Xiajin created a complete mulberry industry chain integrating the planting, product processing, cultural experience, eco-tourism, and healthy elderly care. Because of the medicinal value of mulberries, the price of mulberries has risen to more than 4 yuan/kg, the annual income of fruit farmers increases more than 5,000 RMB, and the average household income has reached more than 20,000 RMB. The scale of deep processing of mulberry products has also been greatly increased. There are 4 leading enterprises with annual sales revenue of over 100 million RMB and 4 well-known domestic brands. The annual sales revenue of mulberry products of the very enterprises has reached 2 billions RMB. The series of mulberry products are well-known in the domestic and foreign markets. Every May, the "Mulberry Ecological Culture Festival" is held, and a series of cultural activities such as folk art performances, photography, and poetry are organized, and the ancient mulberry culture is comprehensively advertised to the tourists.

During the event, the number of tourists exceeded one million, and the catering income and the sales of agricultural products increased numerously.

3. Difficulties

3.1. Inefficiency of the Technical Support

The protection of agricultural heritage is a highly professional and technical task. At present, Xiajin lacks a professional technical team, and cannot effectively undertake the complex protection and development. In particular, the construction of regional infrastructure, the prevention and control of ancient mulberry diseases and insect pests, the excavation and arrangement of the ancient Yellow River culture require expert teams in different professional fields, and also require a lot of human resource, financial and material support. At present, there are not special policy funds for the protection of global agricultural heritages in China. It is difficult to solve the problem effectively by the local finance, and the sustainable protection is not efficient.

3.2. Deficiency of Brand Building

At present, "Xiajin Mulberries" has been certified as the "Agro-product Geographical Indications" by the Ministry of Agriculture and Rural Affairs, and has been successfully selected as the "Advantageous Area of Agricultural Products with Characteristics" and the "Regional Public Brands of Agricultural Products in Shandong Province". However, the "Globally Important Agricultural Heritage" has not been organically integrated into the brand building of local agricultural products. Local farmers' co-operatives and agricultural enterprises generally don't pay attention to the brand building. The commercial attributes of "Globally Important Agricultural Heritage" are not well developed and utilized, that results in a huge waste of high-quality resources.

3.3. Lack of the Integration of Primary, Secondary and Tertiary Industries

Now the county's mulberry industry is still in the stage of gradual transformation from small-scale peasant economy to modern agriculture. The scale, organization and industrialization are relatively low, and there are problems such as waste of resources, weak ability to resist market risks, and low added value of products. At the same time, the industrial structure still needs to be optimized, and there are shortcomings in terms of technological innovation capability, industrialization development, and diversified development, and it is still unable to form a strong product competitiveness in the domestic market.

4. Suggestions

4.1. Increasing the Policy Support of the Governments

Article 32 of the Law of the People's Republic of China on the Promotion of Rural Revitalization stipulates that: People's governments at all levels shall take measures to protect agricultural cultural heritage and intangible cultural heritage, explore the profound connotation of excellent agricultural culture, promote red culture, and inherit and develop excellent traditional culture [2]. Article 19 of Chapter 4 of the Measures for the Administration of Important Agricultural Cultural Heritage of the Ministry of Agriculture stipulates that the agricultural administrative department of the people's government at or above the county level shall encourage and support farmers in the places where the important agricultural cultural heritage is located by excavating the production, ecological and cultural value and development of the heritage. Leisure agriculture and other means to increase income, actively expand heritage functions, and promote the economic development of rural areas where heritage sites are located [3]. It is suggested that governments at all levels in the provinces, cities and counties increase their

policy support, and use the globally important agricultural cultural heritage to help rural revitalization and promote farmers to increase their income.

4.2. Creating “2 Districts, 2 Belts and 4 Parks”

The “2 Districts”, namely Dongsha River and Xisha River, are important production bases for mulberry. Focusing on the construction of standardized production bases, processing bases, warehousing and logistics bases, as well as scientific and technological support systems, brand building and marketing systems, and quality control systems, a characteristic agricultural industry cluster integrating scientific and technological innovation, leisure tourism, and agricultural production shall be created. “2 Belts”: the cultural industry belt focuses on the exploration of ancient mulberry culture, farming culture and Buddhist culture, and highlights the ecological tourism functions such as ancient mulberry culture publicity, tourism, leisure and sightseeing, health and vacation, and elderly care; the planned layout of the organic farm production belt is based on the mulberry plantation park, which aims at large-scale and standardized modern organic production farms of the high-quality fruit mulberry cultivation. “4 Parks”: “Mulberry Science and Technology Demonstration Park” focuses on the development of mulberry planting, greenhouse planting and artificial cultivation of *Phellinus linteus*, and the establishment of a mulberry germplasm resource bank and a popular science education base. “Modern Mulberry Industry Expo Park” is dominated by mulberry planting, integrating tourism, creativity, expo and other related industries to form a multi-functional, compound and innovative industrial complex. “Mulberry Product Health Experience Park” will build mulberry product processing experience halls and other facilities for tourists to visit and experience the processing process of mulberry products and popularize the knowledge of mulberry products and nutrition and health care. “Mulberry Industry Park” gathers a group of mulberry product processing enterprises, builds mulberry industry incubation bases, promotes the research and development and promotion of mulberry product processing technology, cultivates mulberry product deep processing enterprises, and forms a driving and demonstration role for the development of mulberry industry.

4.3. Improving the Integration of Primary, Secondary and Tertiary Industries

The first is the regionalization of the mulberry industry brand. Implement the industrial integration development strategy, create a cultural tourism business card of “the hometown of mulberry”, and build Xiajin into a nationally well-known mulberry industry development advantage area and an important leisure tourism area with mulberry elements as the main element. The second is the scale of mulberry planting. In the areas of Dongsha River and Xisha River, encourage and guide the masses to plant mulberry trees, promote concentrated and contiguous development, and the planting area of mulberry trees has reached more than 100,000 mu. The third is the standardization of mulberry production. Complete the construction of product quality and safety system for all products covering the mulberry industry chain, and build a national-level mulberry planting standard demonstration park. The fourth is the industrialization of mulberry resource processing. The fifth is the integration of mulberry industry development. Relying on the construction of mulberry technology demonstration park and mulberry industry expo park, we will build a standardized, large-scale and modern mulberry planting base, build organic farms and agricultural complexes, and promote the integrated development of primary, secondary and tertiary industries.

4.4. Strengthening the Inheritance and Protection of Mulberry Culture

The first is the census and excavation of the mulberry culture, which investigates the farming culture, folk literature and art, folk artists, folk skills, folk customs, proverbs, songs, poems, various ancient buildings and structures in the heritage site, re-understands the value of the mulberry culture, and establishes a sound protection system; meanwhile carries out purposeful

restoration of valuable folk activities and traditional mulberry festivals that have been lost in heritage sites, so that the original ecology of the mulberry culture can be protected and inherited. The second is to restore ancient villages and ancient buildings. According to the results of the mulberry culture census, the villages, ancient buildings and agricultural production facilities related to the mulberry culture in the heritage site will be repaired and protected. Under the premise of strengthening protection, the ancient buildings with historical, scientific research and ornamental value should be rationally developed as tourism resources. The third is to do a good job in the exhibition of the mulberry culture. Further it is necessary to collect and study the cultural relics and specimens related to the history of mulberry cultivation, establish a cultural heritage exhibition hall for farming ancient mulberry, and inherit the ancient mulberry culture park; annually the theme activities such as “Mulberry Ecological Culture Festival” and “Yellow River Ancient Road Ecological Culture Festival” are held regularly to fully explore and display intangible culture such as literature, festivals, and food.

References

- [1]. Min Qingwen, Sun Yehong. The Concept, Characteristics and Conservation Requirements of Agricultural Heritage. *Resources Science*. Vol. 31 (2009) No. 6, p. 914-918.
- [2]. Standing Committee of the National People’s Congress. Law on the Promotion of Rural Vitalization. Communique of the Standing Committee of the National People’s Congress. (2021) No. 4, p. 676-685.
- [3]. Ministry of Agriculture. Measures for the Administration of Important Agricultural Cultural Heritage. *State Council Bulletin*. (2016) No. 4, p. 46-49.