

The Construction of Houguan Culture and the Training System for New-Age Agricultural Talents

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Abstract: Houguan Culture embodies profound connotations of patriotism and dedication, openness and inclusiveness, pragmatism and innovation, as well as emphasis on education. It provides a crucial cultural foundation and value guidance for the cultivation of agricultural talents in the new era. Against the strategic backdrop of rural revitalization and agricultural modernization, this paper explores how to integrate Houguan Culture into the construction of the training system for new-age agricultural talents. By analyzing the spiritual characteristics of Houguan Culture and its alignment with the quality requirements for contemporary agricultural talents, the paper proposes a people-oriented training model for new-age agricultural talents that systematically integrates humanistic literacy with technological capabilities, guided by cultural immersion. The purpose is to provide theoretical and practical references for the reform of new-age agricultural talent training, and contribute to the connotative and high-quality development of agricultural education as well as the comprehensive revitalization of rural areas.

Keywords: Houguan Culture; New-age agricultural talents; Ecological agriculture; Rural revitalization

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1. Introduction

Nowadays, China's agriculture is at a critical historical juncture. On one hand, to ensure food supply, China's land has undergone long-term intensive development, leading to a series of severe ecological problems such as soil degradation, non-point source pollution, and over-exploitation of groundwater. On the other hand, against the backdrop of complex and grim international situations and rapid changes in China's modern population structure, national ecological security and public health have become issues of increasing concern. Therefore, vigorously developing ecological agriculture and promoting the transformation of agriculture towards green, low-carbon, and circular development have become an urgent and significant task.

However, people are caught in a dilemma on the path of transformation: blindly copying the Western

ecological agriculture model may easily lead to “inadaptability” due to China’s unique national conditions; while completely returning to traditional Chinese farming methods would result in relatively low production efficiency, which cannot meet the growing development needs of modern society. Thus, an era-defining question arises: at this critical juncture, what kind of path should China’s ecological agriculture take? To answer this question, people may need to seek inspiration from the profound accumulation of history and culture.

Looking back at history, in the Houguan area of Fuzhou during modern China, a group of pioneers represented by Lin Zexu and Yan Fu emerged ^[1]. Facing an “unprecedented transformation in three thousand years”, they successfully addressed the complex relationships between “Chinese and Western, ancient and modern, essence and function” through their outstanding practices, forming the unique spiritual essence of Houguan Culture and providing valuable “Houguan Wisdom” for China’s agricultural modernization. The value of this wisdom lies in neither simple “copying” nor conservative isolation, but in being brave enough to absorb the outstanding achievements of foreign civilizations while adhering to local roots, and creatively transforming them into a driving force for self-development ^[2]. This is exactly what China’s current agricultural transformation needs.

2. The spiritual connotation of Houguan culture aligns with ecological agriculture

To use Houguan Culture as a “mirror” to solve the current “dilemma” of agriculture, people first need to deeply understand the resonance between its spiritual connotation and the fundamental concepts of ecological agriculture.

2.1. “Integration of Chinese and Western” and the philosophical foundation of ecological agriculture

The essence of Houguan Culture lies in “integration” rather than “patchwork.” Yan Fu translated Evolution and Ethics (also known as Tian Yan Lun in Chinese), introducing Huxley’s theory of evolution and Spencer’s social Darwinism into China. However, he did not simply copy them; instead, by adding commentaries and annotations, he emphasized the key role of “group cooperation” and “mutual assistance” in the evolution of human society, and made localized revisions and enhancements to the single logic of “natural selection, survival of the fittest.”

This tells us that the philosophical foundation of ecological agriculture is not an either-or dualism. It should neither be a “return to nature” that abandons all modern technologies nor a mechanical reductionism that only focuses on efficiency. The alignment lies in the need to integrate the systems theory, material cycle theory, and energy flow laws in Western ecology with the philosophies of “harmony between man and nature” and “the way of the three elements (heaven, earth, and man)” in traditional Chinese farming wisdom. Western ecology provides us with scientific analytical tools and cognitive frameworks to help us accurately understand the structure and functions of agricultural ecosystems; while the concept of “harmony between man and nature” lays the foundation for its value orientation and ethical boundaries, emphasizing that humans are part of nature, and agricultural production must follow the laws of nature to pursue the harmonious coexistence of humans and nature.

This integrated new philosophy not only recognizes the need for a certain degree of “competitive efficiency” in the global market to ensure farmers’ livelihoods and national food security, but also emphasizes the pursuit of “harmonious coexistence” within the carrying capacity of the ecosystem. This is the modern interpretation of Yan Fu’s thought of “group evolution” in the agricultural field — in a healthy agricultural ecosystem, all internal elements (crops, animals, microorganisms, and humans) should be in a relationship of coordinated evolution ^[3].

2.2. “Pragmatism for practical application” and the practical orientation of ecological agriculture

Houguan Culture possesses a strong realistic character. Taking the Fujian Shipbuilding School, founded by Shen Baozhen, as an example, its goal was not to cultivate theorists who only talk the talk, but engineers and naval officers capable of designing, building, navigating, and maintaining modern ships. The curriculum emphasized the integration of theory and practice, and the school was attached to a shipyard where students had to participate in the actual manufacturing process. This spirit of “opposing empty talk and focusing on practical results” is the source of the vitality of Houguan Culture.

Its alignment directly points to the “survival” issue of ecological agriculture. Any wonderful concept of ecological agriculture, if it cannot be “implemented” to effectively help farmers increase their income, ensure food production, and improve their living standards, will ultimately be nothing but a castle in the air. Therefore, the path of China’s ecological agriculture must stand the test of “pragmatism for practical application.” It should not be an “ornamental” environmentalism-separation economic laws imagined by the urban middle class, nor a policy model that relies on high subsidies for survival. It must be a “production model” that is acceptable to the majority of farmers, competitive in the market, replicable, promotable, and profitable. The “excellence” of ecological agriculture must be proven through tangible economic and ecological benefits — this is the true inheritance of the spirit of “pragmatism for practical application”^[4].

2.3. “Looking at the world with open eyes” and the technological openness of ecological agriculture

From Lin Zexu organizing the translation of Western books and newspapers and compiling *Sizhou Zhi* (A Survey of the Four Continents) to Shen Baozhen advocating the introduction of Western technologies and equipment for shipbuilding, the predecessors of Houguan demonstrated a broad vision and proactive attitude of “looking at the world with open eyes.” They did not cling to outdated ideas or consider China as the “center of the world”; instead, they clearly recognized the gaps and made great efforts to learn and catch up with courage and wisdom.

The alignment here is that the development of China’s ecological agriculture must not be carried out “behind closed doors.” While we should be rooted in local wisdom, people must also uphold an open attitude of “looking at the world with open eyes” and actively track and absorb advanced technologies and equipment in the global field of ecological agriculture. These include, but are not limited to: agricultural sensors and UAV technologies for precision fertilization and pesticide application; agricultural robots that can reduce reliance on labor and improve operational accuracy; fully biodegradable plastic film technologies to replace traditional plastic mulch; and farmland ecosystem monitoring and early warning platforms based on big data and artificial intelligence.

These “green technologies” are not exclusive to Western industrialized agriculture; on the contrary, people can use these modern technological means to achieve ecological management goals more efficiently and accurately. For example, precision irrigation can save water resources, and pest and disease prediction can reduce the abuse of pesticides. This is a vivid practice of “looking at the world with open eyes” in the new era — using the most cutting-edge technologies to empower the oldest dream of sustainable agriculture.

3. Core principles for the development of China’s ecological agriculture from the perspective of Houguan culture

Based on the above philosophical alignment, people can extract three core principles from Houguan Culture to

guide the practice of China's ecological agriculture.

3.1. “Selecting the best for adoption and integrating Chinese and Western” at the technological level

This principle is directly derived from the spirit of “integrating Chinese and Western.” It requires people to break free from the shackles of “Western-centrism” or “traditional fundamentalism” in technology selection and uphold an attitude of practical rationalism, just as Chairman Mao Zedong said, “Make the past serve the present and foreign things serve China.”

Specifically, first, people should not blindly admire Western standards. The Western organic agriculture certification system has its specific historical and social backgrounds, and some of its standards (such as the complete rejection of certain biological pesticides) may not be economically feasible under the pressure of pests and diseases in China. People should learn from its concepts but not be constrained by its standards.

Second, people should not stick to inefficient traditional methods. For example, the ecological wisdom of traditional composting, intercropping, and crop rotation needs to be inherited, but it can also be upgraded with modern technologies. For instance, integrating China's compound farming systems, such as “rice-fish cultivation” and “mulberry-based fish ponds” with IoT water quality monitoring and intelligent feeding systems to achieve dual optimization of ecological and economic benefits; combining Western earthworm composting technology with China's rural biogas projects to build a more efficient and cleaner model for the resource utilization of agricultural waste. This is the beauty of “integration.”

3.2. “Systematic thinking and chain development” at the industrial level

This principle draws on the experience of “systematic” construction in the shipbuilding industry. The shipbuilding enterprise founded by Shen Baozhen was not a single shipyard, but a systematic project integrating ship design, construction, maintenance, the cultivation of navigation talents, and the establishment of a naval force.

Similarly, the success of ecological agriculture cannot be solely relied on the “ecologicalization” of the planting link; instead, it must be regarded as a complete industrial chain. People need to build a complete value chain of “ecological planting — low-carbon processing — brand building — green consumption.” This means: first, extending to the downstream, developing green processing industries using ecological agricultural products as raw materials to increase added value; second, seeking benefits from brands, being good at telling ecological and cultural stories behind products, and building regional public brands or corporate brands with high recognition and loyalty; third, expanding into the service field, integrating with rural tourism, research education, health preservation, etc., to realize the integration of the “sixth industry” (integrating primary, secondary, and tertiary industries), transforming agriculture from a simple primary industry into a comprehensive industry integrating production, living, and ecological functions. Only in this way can the value of agriculture truly remain in rural areas and benefit farmers, achieving the ultimate goal of “pragmatism for practical application”^[5].

3.3. “Cultivating new-age farmers and strengthening the foundation” at the subject level

“People-oriented” — any grand blueprint ultimately needs to be implemented by people. The glory of Houguan Culture not only relied on the ideological guidance and responsible actions of outstanding figures such as Lin Zexu, Yan Fu, and Shen Baozhen, but also depended on the broad recognition, continuous inheritance, and practical efforts of the general public.

Therefore, the foundation and hope of ecological agriculture lie in cultivating a new generation of “new Houguan-style farmers.” They should possess several qualities: first, an open vision and the ability to “look at the world with open eyes” — they need to proactively learn advanced ecological agriculture knowledge, technologies, and management models at home and abroad, and understand global market trends; second, a sense of national pride and attachment to the homeland, adhering to the concept of “harmony between man and nature”, deeply loving the land under their feet, and taking the protection of the local environment and the inheritance of farming civilization as their mission; third, a spirit of practical work and commitment to “pragmatism for practical application” — they are not only practitioners of technologies but also “agricultural entrepreneurs” who are good at operation and management, connecting with the market, and organizing production.

Cultivating such new-age agricultural talents is a “foundation-strengthening” measure for building the entire ecological agriculture system and the cornerstone for the smooth operation of all paths. The group “Shige Qintian” (Ten Diligent Days) is a product nurtured under such concepts. They started from barren land, working with the soil, and progressed from primitive farming to the introduction of modern machinery. They deeply understand the importance of “looking at the world with open eyes”, so they used the Internet to hold agricultural exchange forums, inviting farmers from all over China and even the world to share their agricultural experiences. They also truly love the land where they have shed their sweat — they promptly sought help from professionals and transformed their farming methods to nourish the land. Moreover, “Shige Qintian” is not just the name of a group, but also the name of a company. They established this company to help the local cultural and tourism industries connect with the market. At the same time, their influence has expanded — Zhuo Yuan’s hydroponic technology has been implemented in the Three-River-Source Region, enabling the cultivation of fresh vegetables in plateau greenhouses^[6-7].

4. Construction of specific development paths for China’s ecological agriculture from the perspective of Houguan culture

Guided by the above principles, people can construct three mutually supportive specific development paths.

4.1. Technology integration path: The “smart ecological agriculture” model

This is the technological embodiment of the principle of “selecting the best for adoption and integrating Chinese and Western.” Its core is to use modern information technology and intelligent equipment to empower ecological management, forming an agricultural production model characterized by “high technology and low intervention.” Its specific content includes three aspects:

First, integrated monitoring from space, air, and ground. Satellite remote sensing, UAV aerial photography, and on-field sensor networks can be used to monitor soil moisture, nutrient status, crop growth, and signs of pests and diseases in real time.

Second, precise management. Based on monitoring data, intelligent irrigation systems can be used to achieve on-demand water supply, and variable-rate fertilization technology can be adopted to realize precise nutrient supply, minimizing the blind use of chemical fertilizers and pesticides and reducing environmental pollution.

Third, enhanced ecological prevention and control. Big data and AI models can be used to predict the occurrence patterns of pests and diseases, providing the best timing for prioritizing ecological measures such as agricultural prevention and control and biological control (e.g., using beneficial insects to control pests, interfering

with pest reproduction through sex pheromones), with chemical pesticides used only as a last resort.

This model perfectly embodies the spirit of “integrating Chinese and Western”: it is both high-tech and efficient, and at the same time environmentally friendly and respectful of ecological laws, representing the dialectical unity of “efficiency” and “sustainability”^[8].

4.2. Industrial integration path: The “integration of primary, secondary, and tertiary industries in rural areas” brand strategy

This is the industrial embodiment of the principle of “systematic thinking and chain development.” It requires people to learn from the wisdom of Houguan’s predecessors in “cultural empowerment” (e.g., Yan Fu’s translations themselves were cultural masterpieces integrating Chinese and Western thoughts), upgrading ecological agricultural products from simple material products to composite products carrying health, culture, aesthetics, and experience.

Its specific content is as follows: first, cultural empowerment and telling good brand stories. We should deeply explore local farming culture, folk customs, and historical allusions, and integrate them closely with ecological agricultural products. For example, telling the story of the thousand-year-old farming wisdom and biodiversity conservation behind rice from traditional terraced fields, and endowing tea from ecological farms with cultural connotations of “healing” and “peace of mind.”

Second, industrial integration to achieve value multiplication. With ecological agricultural bases as platforms, people should expand the multiple functions of agriculture, developing service formats such as homestays, agricultural experience activities, nature research education, and health and wellness vacations. This allows consumers not only to purchase products but also to experience a period of life and a lifestyle here. This realizes the integration of production (primary industry) + processing (secondary industry) + services (tertiary industry), thereby generating value-added effects and transforming ecological agriculture into an industry that can truly increase farmers’ income and enrich their lives.

4.3. Governance integration path: The “multi-stakeholder co-governance” policy system

This is a guarantee for the effective operation of the entire system, reflecting the understanding of the complexity of reality in “pragmatism for practical application.” It requires multiple stakeholders, including the government, research institutions, and market entities (enterprises, cooperatives), to perform their respective duties and work together.

First, the government should play a guiding and supporting role similar to that of “Shen Baozhen.” The government should not take on all responsibilities, but focus on top-level design, such as formulating scientific ecological agriculture certification standards and subsidy policies, strengthening the construction of infrastructure, such as farmland water conservancy, and building public service platforms to provide market information and financial support.

Second, research institutions should play an enlightening and think-tank role similar to that of “Yan Fu.” Universities and research institutes should be committed to developing key technologies for ecological agriculture suitable for national conditions, applying research findings to practical agricultural production; at the same time, they should undertake the training and popularization of science for new-age agricultural talents and the general public, spreading ecological concepts and practical skills.

Third, leading enterprises and cooperatives should serve as platforms and engines similar to the “shipbuilding

industry.” The state encourages leading enterprises to establish standardized production systems, build strong brands, and, through models such as “company + cooperative + farmer”, organize scattered small-scale farmers, realizing large-scale and standardized production of ecological agricultural products and stable market connection, and solving the core problems of small-scale farmers regarding “how to sell” and “to whom to sell.”

5. Conclusion

As an early successful “spiritual breakthrough” in China’s modernization process, Houguan Culture has wisdom that transcends time and space, providing a clear beacon for us to solve the confusion of agricultural transformation today. It enlightens us that the path of China’s ecological agriculture is by no means a simple “single-choice question” between tradition and modernity, or between the East and the West; it must be a “synthetic” path that takes China’s own conditions as the foundation and is inclusive of all useful elements.

The “concept-principle-path” framework constructed in this paper from the perspective of Houguan Culture has its core value in providing a systematic thinking that transcends dual opposition. This path not only serves as a vigilance and avoidance of the traps of Western industrialized agriculture but also represents a transcendence and upgrading of the inefficiency dilemma of traditional agriculture. It can not only effectively alleviate the environmental and resource pressures faced by agriculture but also produce high-value-added agricultural products and cultural services through branding and the integration of primary, secondary, and tertiary industries, reshaping the core competitiveness of China’s agriculture in the global market. Ultimately, it contributes a “Chinese solution” full of Oriental wisdom to the global sustainable agricultural development and rural revitalization^[9].

Looking forward to the future, the success of this path ultimately depends on “people.” Cultivating thousands of “new Houguan-style farmers” who have a global vision while being rooted in their hometowns, advocating science while respecting nature, and being good at innovation while being proficient in practical work is the fundamental guarantee for this great cause to transform from a blueprint into reality. This in itself is a “modern version of Tian Yan Lun” written in the fields — in agriculture, the oldest industry, the “fittest” in the future will no longer be those individuals who only pursue maximum output or minimum cost, but those ecosystem managers who most deeply understand and practice the wisdom of “symbiosis” and “circulation”^[10].

Disclosure statement

The authors declare no conflict of interest.

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