

Research on the Synergistic Development Path of Value Creation and Ecological Benefits of Ecological Agricultural Product Enterprises Driven by Branding

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ABSTRACT Branding is a key driver for ecological agricultural product enterprises to achieve sustainable growth while balancing economic value creation and ecological benefits. These enterprises must pursue market value while undertaking ecological protection and environmental restoration responsibilities, making the synergy between value creation and ecological benefits a core issue for long-term development. Through value signal transmission, consumer cognition reconstruction, and market premium mechanisms, branding expands the space for enterprise value creation. However, this synergistic relationship does not emerge automatically and requires strategic integration, mechanism innovation, and optimized resource allocation. This study constructs a brand-ecology synergy measurement model, reveals the signal transmission mechanism and value conversion path of branding-driven synergistic development, proposes phased and differentiated development strategies, and designs digital technology-enabled collaborative management tools and a multi-subject guarantee system. The research provides theoretical value and practical guidance for promoting ecological agriculture toward high-value, sustainable development and for building a coordinated development pattern between enterprise competitiveness and ecological responsibility.

INDEX TERMS branding, ecological agricultural products, value creation, ecological benefits, sustainable development

I. INTRODUCTION

ECOLOGICAL agricultural enterprises face dual pressures to remain competitive while fulfilling their social mission, especially as they provide the essential organic fibers that drive the environmental transition of the modern industry. Under the traditional development model, economic and ecological goals are often regarded as a trade-off, making it difficult for enterprises to balance the two. Branding provides a new idea to solve this dilemma. A brand is not only a tool for market competition but also a link connecting value creation and ecological practices [1]. However, synergistic development does not occur automatically. In practice, there are problems such as disconnect between brand ecological commitments and actual behaviors, difficulty in converting ecological investment into brand premium, and inefficient synergistic mechanisms leading to unbalanced development [2]. Clarifying the driving mechanism of branding in this process, revealing the root causes of synergistic imbalance risks, and exploring the realization

paths and guarantee mechanisms of synergistic development are of great significance for promoting the high-quality development of the ecological agricultural product industry.

II. DRIVING MECHANISM OF BRANDING ON VALUE CREATION OF ECOLOGICAL AGRICULTURAL PRODUCT ENTERPRISES

A. PATH OF BRAND EQUITY ACCUMULATION AND MARKET PREMIUM REALIZATION

The brand equity accumulation of ecological agricultural product enterprises follows a progressive logic of “cognition construction-trust enhancement-value monetization”. Brand equity consists of four dimensions: brand awareness, perceived brand quality, brand association, and brand loyalty. These elements achieve accumulation effects through hierarchical penetration of consumers’ minds. The improvement of brand awareness reduces consumers’ information search costs, enabling enterprises to gain priority in homogeneous competition. Perceived brand quality transmits the inherent

value of products to the market through verifiable signals such as ecological certification and quality traceability, thereby establishing a trust foundation for consumers regarding ecological attributes [3]. Brand association connects enterprises' ecological practices with consumers' health and environmental protection concepts, forming emotional resonance and value recognition. The cultivation of brand loyalty builds stable customer equity through repeat purchases and word-of-mouth communication, providing enterprises with sustained cash flow support. The realization of market premium relies on the effective conversion of brand equity into consumers' willingness to pay. Through branding strategies, ecological agricultural product enterprises can externalize part of the implicit costs of ecological investment and translate them into market-recognized price premiums. However, such premiums are not fixed constants but vary significantly depending on product category, market maturity, consumer awareness, and agricultural commodity price volatility. In highly competitive or saturated ecological product markets, the marginal effect of branding on price premiums tends to diminish. Existing empirical studies and industry practices indicate that under relatively stable supply–demand conditions and effective ecological value recognition, branded ecological agricultural products generally achieve a price premium of approximately 15%–40% compared with conventional products, although this range is strongly context-dependent (see Figure 1).

B. BRAND DIFFERENTIATION POSITIONING AND COMPETITIVE ADVANTAGE SHAPING

The competitive landscape of the ecological agricultural product market determines the strategic necessity of brand

differentiation positioning. The traditional agricultural product market is dominated by price competition, where enterprises are trapped in a low-profit dilemma and cannot support the high costs of ecological investment. Through establishing unique value propositions in consumers' minds, brand differentiation separates enterprises from homogeneous competition. Ecological attributes themselves constitute a natural foundation for differentiation, but this difference needs to be explicitly expressed and systematically communicated through branding to be converted into competitive advantages [4]. Differentiation positioning includes three levels of strategic choices: ecological quality differences at the product level, consumption experience differences at the service level, and ecological concept differences at the value level. Product-level differences establish quality barriers through technical indicators such as organic certification and zero pesticide residue standards; service-level differences enhance customer stickiness through value-added services such as origin traceability and ecological base experiences; value-level differences establish value resonance with target consumer groups by conveying concepts such as environmental protection and healthy living. The synergistic effect of this multi-level differentiation positioning enables enterprises to build competitive advantages characterized by high imitation costs and strong path dependence, thereby forming entry barriers based on brand equity, as shown in Table 1.

TABLE 1. Brand Differentiation Positioning Matrix of Ecological Agricultural Product Enterprises

Differentiation Level	Differentiation Basis	Implementation Methods	Competitive Barrier Strength	Consumer Perception
Product-level difference	Ecological quality, technical standards, safety guarantees	Organic certification system, zero pesticide residue testing, ecological breeding technology, quality traceability system	Medium (imitable but high cost)	Strong (direct perception)
Service-level difference	Consumption experience, value-added services, interactive relationships	Origin traceability platform, ecological base experience, customized distribution, member community operation	Stronger (requires resource integration)	Stronger (experience-based perception)
Value-level difference	Ecological concepts, social responsibility, cultural connotations	Ecological story communication, environmental public welfare participation, regional cultural excavation, lifestyle advocacy	Strong (brand uniqueness)	Medium (emotional cognition)

C. CULTIVATION OF CORE COMPETITIVENESS ORIENTED BY BRANDING

The cultivation of core competitiveness driven by branding strategies follows a dynamic evolutionary process of “capability identification–resource allocation–capability integration”. The essence of core competitiveness is a combination of capabilities formed by enterprises in long-term practice that are difficult for competitors to replicate. The cultivation of core competitiveness of ecological agricultural

product enterprises needs to integrate branding orientation into key links such as ecological resource control, technological innovation, supply chain management, and market network construction. Ecological resource control capability is reflected in enterprises' mastery of high-quality ecological production areas and ecological breeding technologies, which are converted into market-recognized quality guarantees through brand endorsement. Technological innovation capability includes the research and develop-

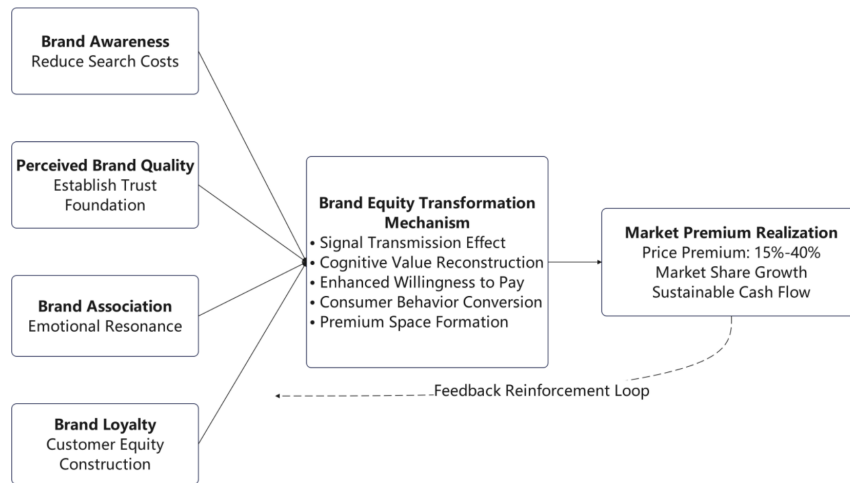


FIGURE 1. Model of Brand Equity Accumulation and Market Premium Realization Path

ment of ecological planting technologies, breakthroughs in product deep processing technologies, and the application of digital management technologies. Branding orientation makes technological innovation more focused on improving the ecological value of products

and consumer experiences. The cultivation of supply chain management capability establishes a full-cycle traceability system from production to consumption, converting brand commitments into verifiable quality assurance mechanisms. Market network construction capability is manifested in enterprises' channel control and customer relationship management capabilities established through brand influence. The accumulation of this capability enables enterprises to gain sustained market pricing power.

III. VALUE CONVERSION OF ECOLOGICAL BENEFITS AND SYNERGISTIC FOUNDATIONS

A. INTERNALIZATION MECHANISM OF EXTERNALITIES IN ECOSYSTEM SERVICE VALUE

The ecosystem service value generated by ecological agricultural product enterprises in the production process has typical positive externality characteristics. This externality leads to the failure of market mechanisms to spontaneously achieve effective resource allocation. Enterprises invest a lot of resources in soil protection, biodiversity conservation, and pollution reduction, and the resulting ecological benefits are shared by the whole society, but the costs are borne by the enterprises alone, thus forming a market failure dilemma of "ecological investors suffering losses". The essence of the externality internalization mechanism is to convert scattered social benefits into economic returns accessible to enterprises through institutional arrangements. As a signal screening tool, the certification system plays a key role in the internalization process, although high certification costs and compliance requirements may exclude small-scale ecological producers in the absence of complementary policy support. Third-party endorsements such as organic certification and ecological origin certification reduce the

degree of information asymmetry, enabling consumers to identify and be willing to pay a premium for ecological value [5]. The internalization effect of the price mechanism is reflected in the price compensation obtained by ecological agricultural products compared with conventional products. The magnitude of this compensation depends on consumers' willingness to pay for the environment and the market competition pattern. Financial means such as government subsidies and ecological compensation funds constitute an important supplement to the internalization mechanism, partially offsetting enterprises' ecological investment costs through direct payments, thereby forming a dual internalization path of "market + government", as shown in Figure 2.

B. PATH OF CONVERTING ECOLOGICAL QUALITY INTO BRAND VALUE

The conversion of ecological quality into brand value is a multi-stage signal transmission and value reconstruction process, involving a systematic transformation from physical attributes to consumer cognition and then to market value. As an inherent attribute of products, ecological quality has a high degree of information asymmetry. Consumers find it difficult to directly observe and verify the ecological characteristics of products, thus requiring brands as trust intermediaries to transmit quality signals [6]. The starting point of the conversion path is the visual expression of ecological quality. Enterprises convert abstract ecological attributes into identifiable quality marks by establishing ecological production standards, obtaining authoritative certifications, and building traceability systems. Brand storytelling assumes a value interpretation function in the conversion process, elevating ecological quality from product attributes to emotional value by telling ecological planting stories, displaying origin environments, and spreading environmental protection concepts to connect with consumers' health needs and environmental awareness. The market verification link strengthens brand credibility through consumers' repeat

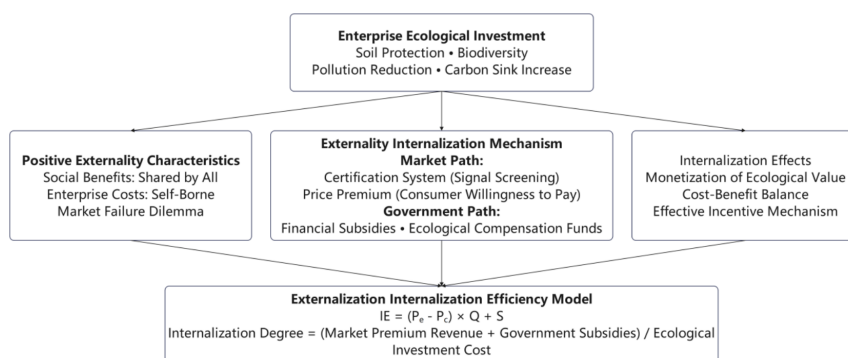


FIGURE 2. Model of the Internalization Mechanism for Ecosystem Service Value Externalities

purchases and word-of-mouth communication, forming a positive cycle of “ecological quality-brand trust-consumer loyalty”. Conversion efficiency is affected by multiple factors such as brand awareness, the credibility of certification systems, and the level of market education. Improving conversion rates requires enterprises to maintain a dynamic balance between quality assurance and brand communication.

C. THEORETICAL BASIS AND BOUNDARY CONDITIONS OF ECO-ECONOMIC SYNERGY

The synergistic development of value creation and ecological benefits of ecological agricultural product enterprises is based on multiple theoretical supports, forming an interdisciplinary theoretical system framework. Sustainable development theory constitutes the philosophical foundation of synergistic development, emphasizing the unity of economic development, social progress, and environmental protection, and providing value legitimacy for enterprises to pursue both economic value and ecological benefits. Shared value theory breaks through the passive performance framework of traditional corporate social responsibility, advocating that enterprises create economic value by solving social problems. The business model of ecological agricultural product enterprises exactly fits this logic, i.e., achieving a win-win situation of environmental improvement and profit growth by providing ecological products. Resource-based theory reveals that enterprises’ competitive advantages originate from the possession and allocation of unique resources. As heterogeneous resources of enterprises, ecological resources and ecological capabilities are converted into sustained competitive advantages through branding, thus forming an inherent connection between ecological investment and value creation [7]. The realization of synergistic development is constrained by strict boundary conditions. Market demand is a prerequisite for synergy; only when consumers have effective demand for ecological products and are willing to pay a premium can synergy have a market foundation. Technical feasibility constitutes the capability boundary of synergy; enterprises must have the technical capability to convert ecological investment into product quality improvement. The institutional environment determines the external

space for synergy; a sound certification system, effective supervision mechanisms, and policy support are institutional guarantees for the sustainability of synergy.

IV. INTERNAL LOGIC AND DYNAMIC EVOLUTION OF BRANDING-ECOLOGICAL BENEFIT SYNERGY

A. SIGNAL TRANSMISSION AND ASSET CONVERSION MECHANISM OF SYNERGISTIC DEVELOPMENT

The synergy between branding and ecological benefits depends on the effective operation of a two-way signal transmission mechanism through which branding conveys credible ecological commitments and enables consumers to recognize and trust ecological value. Ecological investment, as a strategic behavior of enterprises, needs to transmit credible signals to the market. Brands act as signal amplifiers, converting enterprises’ ecological practices into recognizable quality commitments for consumers through brand endorsement [8]. The effectiveness of signal transmission depends on the strength and verifiability of signals. Objective evidence such as organic certification, ecological base demonstrations, and third-party testing enhances the credibility of signals, thereby reducing consumers’ perceived risks. Reverse signal transmission is manifested in consumers’ feedback on the market recognition of ecological value through purchasing behavior. High premiums and high repurchase rates send positive signals to enterprises to continue increasing ecological investment, enabling enterprises to form positive incentives for ecological investment [9]. The asset conversion mechanism is reflected in the mutual reinforcement process of ecological assets and brand assets. Ecological assets accumulated by enterprises in ecological protection, such as environmental resources, technical patents, and management experience, are converted into intangible brand assets through branding operations. The improvement of brand assets, in turn, enhances enterprises’ ability to obtain high-quality ecological resources and attract ecological technology talents, forming a virtuous cycle of asset accumulation.

**B. PHASED EVOLUTION AND SPIRAL UPGRADE
MODEL OF BRAND-ECOLOGICAL SYNERGY**

The synergistic development of branding and ecological benefits is not a linear process achieved overnight but presents phased characteristics and a spiral upward dynamic trajectory. The germination stage is the initial phase of synergistic development. During this period, enterprises face dual cost pressures of ecological investment and brand building, while different types of ecological investment, including capital-intensive inputs such as digital monitoring systems and labor-intensive organic practices, exert markedly different impacts on enterprise cash flow. Low market awareness makes it difficult to monetize ecological value, so the synergistic effect has not yet appeared. Enterprises need to lay the infrastructure for synergistic development by obtaining basic certifications and establishing quality traceability systems. The growth stage is marked by the rapid improvement of brand awareness and the beginning

of market returns from ecological investment [10]. The increase in consumers' recognition of enterprises' ecological practices gradually creates room for price premiums, and the synergistic effect transitions from weak to strong. At this stage, enterprises need to increase brand communication efforts and strengthen the cognitive connection between brands and ecology through ecological storytelling. The mature stage is characterized by the stable enhancement of brand-ecology synergy. Enterprises form a sustainable business model, ecological investment can obtain stable market premium returns, and brand influence, in turn, attracts more resources to invest in ecological construction [11], forming a self-reinforcing positive cycle. The spiral upgrade model reveals that the level of synergy in each cycle achieves a leap on the basis of the previous cycle, promoting enterprises to evolve from low-level synergy to high-level synergy, See Table 2.

TABLE 2. Brand-ecological Synergy Development Stage Characteristics and Implementation Focus Table

Collaborative Development Stages	Core Characteristics	Key Challenges	Key Implementation Tasks	Reference Key Indicators
Germination Stage	Parallel ecological investment and brand building, low market awareness, and no obvious synergistic effects	Dual cost pressure, difficulty in value monetization	Obtain basic ecological certifications, build quality traceability systems, and conduct initial brand registration	Certification compliance for core products and key production links
Growth Stage	Rapidly increasing brand awareness, ecological investment starting to gain market premiums	Weak cognitive connection between brand and ecology, limited premium space	Strengthen ecological story communication, expand experiential channels, and optimize product packaging and labeling	Annual brand search volume growth $\geq 50\%$, premium rate reaching 15%–20%
Maturity Stage	Formation of a sustainable business model, mutual reinforcement between ecology and brand	Imbalance between scale expansion and ecological supply capacity	Digital collaborative management, multi-subject cooperation, and standardized system output	Ecological investment return rate $\geq 30\%$, customer repurchase rate $\geq 60\%$

**C. RISK IDENTIFICATION AND CORRECTION PATH OF
SYNERGISTIC IMBALANCE**

There are multiple risk factors leading to imbalance in the process of synergistic development of branding and ecological benefits. If these risks are not identified and corrected in a timely manner, enterprises will fall into development dilemmas. The disconnect between brand ecological commitments and actual behaviors constitutes the most common imbalance risk. Enterprises overemphasize ecological attributes in brand promotion but fail to fulfill their commitments in actual production links. Once exposed by consumers or the media, brand trust will collapse, resulting in the complete breakdown of the synergistic mechanism. Excessive ecological investment ahead of brand building forms another form of imbalance. Enterprises invest a lot of resources in ecological transformation but neglect brand communication and market cultivation, making it impossible for high-quality products to obtain corresponding market premiums and falling into an inefficient dilemma of “quality without brand”. Reverse imbalance is manifested in the brand expansion speed exceeding the ecological supply

capacity. To meet the rapidly growing market demand, enterprises lower ecological standards or purchase non-ecological raw materials, maintaining growth momentum in the short term but damaging the brand foundation in the long term. The synergistic correction path needs to establish a dynamic monitoring mechanism, real-time tracking the synergistic state through constructing a brand-ecology synergy evaluation index system, and initiating correction procedures when the synergy index is below the early warning threshold. Correction measures include strengthening third-party audits to ensure the implementation of ecological commitments, adjusting investment rhythms to achieve synchronized advancement of brands and ecology, and establishing a flexible supply chain mechanism to cope with scale expansion pressures.

**V. REALIZATION PATH AND GUARANTEE SYSTEM OF
SYNERGISTIC DEVELOPMENT**

A. BRAND-ECOLOGY STRATEGIC INTEGRATION AND DIGITAL EMPOWERMENT STRATEGIES

The core of brand-ecology strategic integration lies in embedding ecological concepts into the brand DNA and building an integrated management system from strategic planning to operational execution. Strategic integration is first reflected in the unity of value propositions. Enterprises need to establish “ecology first” as the core value commitment of the brand, making every brand communication a process of conveying ecological concepts. This integration requires enterprises to introduce ecological design thinking in the product development stage, ensure new products meet established ecological standards through establishing ecological impact assessment mechanisms, and convert ecological characteristics into perceptible product selling points. Organizational integration is manifested in breaking the functional barriers between brand departments and production departments and establishing cross-departmental collaboration mechanisms to ensure that brand commitments are strictly implemented in the production process [12]. Digital technology provides a powerful enabling tool for strategic integration. Blockchain technology transparently presents the ecological investment process to consumers by building an immutable production traceability chain, provided that data authenticity at the production stage is ensured through effective verification and auditing mechanisms. IoT sensors real-time monitor ecological indicator data such as soil, water quality, and air and automatically generate ecological reports. Artificial intelligence algorithms analyze consumers’ concerns about ecological attributes to optimize brand communication strategies. The application of these technologies transforms ecological value from an abstract concept into quantifiable, verifiable, and communicable digital assets, significantly improving the efficiency and credibility of brand-ecology synergy.

B. CONSTRUCTION OF A MULTI-SUBJECT COLLABORATIVE GUARANTEE SYSTEM (GOVERNMENT-MARKET-ENTERPRISE-SOCIETY)

The sustainability of enterprises’ brand-ecology synergistic development depends on a three-dimensional guarantee network composed of four subjects: government, market, en-

terprises, and society. Each subject forms a complementary support mechanism through differentiated role positioning. The government focuses on institutional supply and policy incentives, improves the ecological agricultural product certification standard system to reduce enterprises’ certification costs and consumers’ identification costs, establishes an ecological compensation mechanism to provide financial subsidies or tax preferences, and strengthens market supervision to crack down on false ecological labels [13]; the market converts ecological value through the price discovery function, providing economic support relying on green credit, ecological agriculture-specific insurance, and e-commerce ecological product zones; as the core subject, enterprises establish ecological management coordination, employee ecological training, and a linked budget mechanism for ecological investment and brand building; social third-party forces play a guarantee role through consumption guidance, ecological cognition improvement, and industry self-regulation formulation.

The synergy efficiency among multiple subjects depends on the effective operation of information sharing and interest linkage mechanisms. The information sharing platform is the infrastructure for the efficient operation of the system. The government needs to build a unified ecological agricultural product information management system to realize real-time sharing of key information such as certification information, monitoring data, and market prices [14], ensuring that all subjects make decisions based on transparent information; the interest linkage mechanism needs to accurately balance the demands of all parties. The government shares enterprises’ ecological investment costs through subsidies and sets environmental performance assessment indicators; market subjects obtain ecological product channel advantages while assuming joint quality liability; social organizations gain credibility improvement in the process of participation in supervision. This win-win pattern endows the guarantee system with endogenous stability, driving all subjects to actively maintain the continuous operation of the synergistic mechanism and laying a solid external environment for enterprises’ brand-ecology synergistic development, as shown in Table 3, Figure 3.

TABLE 3. Multi-Subject Collaborative Guarantee System: Responsibilities and Effectiveness Table

Participating Subjects	Core Responsibilities	Specific Implementation Measures	Quantitative Effect Reference	Supporting Mechanisms
Government	System supply, policy incentives, market supervision	Establish certification standard systems, provide ecological subsidies (up to 500,000 CNY/year per enterprise), crack down on false labeling	Reduce enterprises’ ecological investment costs by 20%, reduce market irregularities by 80%	Laws and regulations, financial appropriations
Market	Value conversion, financial support, channel empowerment	Green credit (2% interest rate preference), ecological agriculture insurance, e-commerce ecological zones (40% traffic tilt)	Reduce enterprises’ financing costs, increase online conversion rate by 30%	Price mechanism, financial tools
Enterprises	Strategic implementation, capacity building, resource integration	Establish ecological management committees, conduct employee ecological training, set up ecological-brand linked budgets (accounting for 8–12% of revenue)	100% compliance rate of product ecological attributes, increase brand loyalty by 25%	Internal systems, resource allocation
Society	Supervision and guidance, cognitive popularization, industry self-regulation	Third-party testing and supervision (83% coverage rate), ecological advocacy activities, formulate industry self-regulatory standards	Improve consumers’ ecological cognition by 40%, achieve industry compliance rate $\geq 90\%$	Industry associations, social organizations

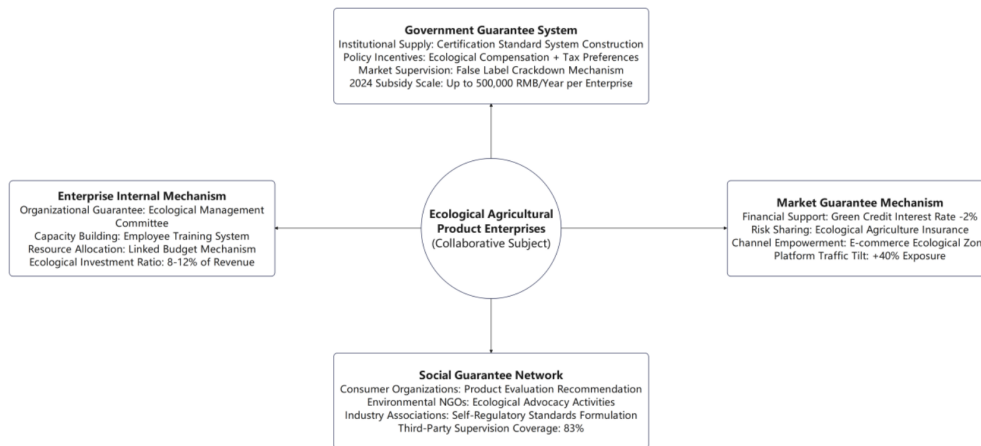


FIGURE 3. Architecture of the Multi-Subject Collaborative Guarantee System

C. ANALYSIS OF TYPICAL CASE SYNERGY MODELS AND EXPERIENCE PROMOTION

Through systematic analysis of the synergistic development practices of typical ecological agricultural product enterprises across different regions, while acknowledging substantial differences in local policy environments and government guarantee mechanisms [15], three representative synergy models can be refined. The certification-driven synergy model centers on third-party endorsements such as organic certification and geographical indication certification. Enterprises quickly establish market trust and achieve brand premium by obtaining authoritative certifications. It is suitable for start-up enterprises with obvious product quality advantages but insufficient brand awareness. The certification cost is relatively low and can effectively reduce consumers' perceived risks. A typical example is Tibet Green Source Modern Agricultural Technology Co., Ltd., which, with the support of government policies, technical cooperation with scientific research institutes, and an organic certification system, improves desertified land to develop organic fruits and vegetables, builds the high-end brand "Yazang Legend", and its products have obtained qualifications for supply to Hong Kong and Macao as well as gold medals at agricultural expositions; Renhua County's geographical indication industry, under government leadership, has established a geographical indication cultivation system, formulated full-chain standards, and provided financial support, promoting products such as Changba pomelo and Renhua white hair tea to achieve brand upgrading through geographical indication certification and driving significant income growth for village collectives and farmers.

The experience-driven synergy model transforms consumers from onlookers to participants by constructing ecological agricultural experience scenarios. Enterprises strengthen emotional bonds by opening ecological planting bases for visits, organizing agricultural experience activities,

and providing membership customization services. A typical case is the Anqiu ecological agricultural industrial cluster. The government takes the lead in building the country's first county-wide ecological agriculture county, implementing a "dual-code" certification system and a parent-subsidiary brand matrix, cooperating with Wumart Group to achieve direct farm-supermarket connection, and linking with financial institutions to provide precise credit support. This not only allows consumers to obtain fresh ecological agricultural products through production and sales connection but also drives the product premium rate to exceed 25%. Enterprises have achieved dual improvements in brand loyalty and industrial benefits through multi-party collaboration.

The digital empowerment-driven synergy model represents the cutting-edge direction of synergistic development. Enterprises digitize the ecological investment process and display it to consumers in real time through technologies such as blockchain, IoT, and big data. A citrus enterprise in Meishan, Sichuan has deployed IoT devices such as soil sensors and meteorological monitoring stations in orchards. All ecological indicator data are stored on the blockchain to form an immutable ecological file. Consumers can scan the product QR code to view the complete data from planting to harvesting. The number of traceability inquiries for its products is much higher than the industry average, and the online conversion rate and brand search volume have increased significantly. Digitalization turns ecological value from an abstract commitment into verifiable data, significantly enhancing consumer trust.

These three models are not mutually exclusive, and mature enterprises often adopt hybrid models to maximize synergistic effects. The promotion of experience needs to be adaptively adjusted according to the enterprise's development stage, resource endowments, and target market characteristics to avoid simple replication. Governments and industry associations should establish case databases and

experience exchange platforms, accelerate the diffusion of synergy models through benchmarking demonstrations, and provide differentiated technical support and policy guidance to promote the transformation of the ecological agricultural product industry towards high-quality synergistic development.

VI. CONCLUSION

The synergistic development of value creation and ecological benefits within ecological agricultural enterprises, when driven by branding, constitutes a systematic and dynamic process that increasingly incorporates the high-value requirements of the sustainable industry. This integration ensures that the production of organic agricultural fibers translates into long-term ecological gains and enhanced market competitiveness for green products. This study reveals the internal logic of synergy through signal transmission, value conversion, and two-way constraint mechanisms, constructs a synergy measurement and phased evolution model, and proposes phased and differentiated strategies. The research shows that synergistic development needs to build a virtuous cycle through strategic integration, mechanism innovation, and resource integration. Enterprises should integrate ecological concepts into the core of the brand, use digital technology to enable the visualization of ecological value and brand trust building, and rely on multi-party collaboration between government, market, enterprises, and society to improve the guarantee system. Future research can be carried out around differences in regions and product types, in-depth empowerment of digital technology, and other directions to provide precise support for the high-quality development of ecological agriculture.

CASES

https://www.xizang.gov.cn/xwzx_406/bmkx/202503/t20250320_468317.html

<https://www.chinacoop.gov.cn/news.html?aid=1853976>

<https://caijing.chinadaily.com.cn/a/202511/25/WS692544a5a310942cc499333b.html>

AUTHOR CONTRIBUTIONS

Conceptualization – Xu Xinliang and Zhao Yi; methodology – Xu Xinliang and Zhao Yi; investigation – Xu Xinliang and Zhao Yi; writing-original draft preparation – Xu Xinliang and Zhao Yi. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

ACKNOWLEDGEMENTS

Not applicable.

REFERENCES

- [1] Y. Zhang, R. Wu, and P. Zhou, "Ecological resilience, rural revitalization, and the green transformation of agricultural enterprises," *Finance Research Letters*, vol. 86, no. PE, Art. no. 108688, 2025, doi: 10.1016/j.frl.2025.108688.
- [2] H. Y. Yang, Q. Zhang, and H. J. Xie, "Research on the construction of rural e-commerce entrepreneurial ecosystem," *Agricultural Economy*, no. 9, pp. 141-142, 2025.
- [3] L. Zhang, "Path of branding operation and market expansion of agricultural products," *Modern Business*, no. 13, pp. 56-59, 2025.
- [4] Y. Ren, "Selection of Technological Innovation Models for Agricultural Enterprises in Heilongjiang Province," *Agricultural & Forestry Economics and Management*, vol. 7, no. 2, 2024, doi: 10.23977/agrfem.2024.070211.
- [5] S. Yang, "Development Strategies and Optimization Measures of Cross-border E-commerce of Characteristic Agricultural Products Enterprises under the Background of Digital Economy," *Modern Economics & Management Forum*, vol. 5, no. 3, 2024, doi: 10.32629/memf.v5i3.2390.
- [6] X. H. Gao, "Research on the digital marketing transformation of agricultural product enterprises from the perspective of TOE theory," *Modern Business and Industry*, vol. 45, no. 9, pp. 21-23, 2024.
- [7] X. X. Zhang, "Branding operation of agricultural products - a guarantee for high-quality and efficient agricultural development," *Hebei Agriculture*, no. 11, pp. 45-46, 2023.
- [8] Q. W. Li, "Research on the mechanism of e-commerce driving the branding development of agricultural products," *Tianjin Agricultural University*, pp. . (Dissertation), 2023.
- [9] Y. Cao, Y. Z. Liu, and C. Q. Yi, "Research on the brand enterprise introduction strategy of farmer cooperatives," *Operations Research and Management Science*, vol. 32, no. 3, pp. 213-219, 2023.
- [10] Z. Y. Gu, "Development differences and resolution mechanisms of ecological agriculture," *Huxiang Forum*, vol. 36, no. 2, pp. 87-101+133, 2023.
- [11] C. Gao and M. X. Feng, "Rural Ecological Environment Promotes the Improvement of the Mechanism of Bilateral Economic Interest Connection between Agricultural Enterprises and Farmers under the New Retail Format," *Sustainability*, vol. 14, no. 23, Art. no. 16204, 2022, doi: 10.3390/su142316204.
- [12] X. F. Deng, B. Y. Lu, and Z. J. Xu, "Research on the branding, symbolic characteristics, internal mechanism and realization path of geographical indication agricultural products," *Agricultural Economy*, no. 6, pp. 123-126, 2022.
- [13] J. Lu and J. Sun, "Research on the collaborative co-construction of regional agricultural product brands under the rural revitalization strategy - based on the perspective of value co-creation," *Research on Economics and Management*, vol. 43, no. 4, pp. 96-110, 2022.
- [14] A. Dorofeev, P. Breslavets, A. Dobrunova, et al., "A model for managing sustainable regional development of ecological agricultural enterprises in rural areas," *IOP Conference Series: Earth and Environmental Science*, vol. 949, no. 1, Art. no. 012146, 2022, doi: 10.1088/1755-1315/949/1/012146.
- [15] Y. Yang, "Leading role of leading enterprises and its realization path under the background of agricultural industrialization," *Agricultural Economy*, no. 8, pp. 41-43, 2021.