Research on the Application Status of Live Streaming-Assisted Agriculture in Rural Tourism of Xianyang City

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Keywords: Farmer-oriented Live-Streaming; Rural Tourism; Application Status; Agritourism Integration; Xianyang City; Digital Economy; Rural Revitalization

Abstract: Against the backdrop of the burgeoning digital economy and national rural revitalization strategy, Xianyang—a core agricultural and cultural tourism hub in Shaanxi Province—adopts farmer-centric live-streaming e-commerce to drive the integrated development of local agriculture and rural tourism, yet confronts such bottlenecks as content homogeneity, talent scarcity, insufficient infrastructure, and superficial industrial integration. This study employs the methods of literature review, field investigation, case analysis, and questionnaire survey to examine Xianyang's practices in promoting rural tourism, marketing agricultural products, and building rural brands via live-streaming; it further analyzes the operational mechanisms, stakeholder interactions, and resultant impacts, identifies core challenges through empirical case studies, and concludes that this integration remains in its initial stage with substantial potential, necessitating a government-guided, market-driven, and multi-stakeholder collaborative ecosystem that prioritizes the cultivation of local professional teams, the creation of distinctive content, infrastructure upgrading, and the development of in-depth agritourism products.

1. Introduction

In rural revitalization, rural tourism effectively combines agricultural production, rural living, and ecological resources. Studies on slow tourism images emphasize how such integration can advance sustainable rural development and cultural preservation [1]. Moreover, digital transformation—particularly through the incorporation of short videos and live-streaming technologies—is revolutionizing agricultural commerce by transcending conventional constraints in tourism marketing and distribution.

Xianyang, situated in the Guanzhong Plain, stands as a prominent agricultural hub and a culturally significant tourism center. The city is currently pioneering the integration of livestream-enhanced agricultural practices with rural tourism initiatives. Nevertheless, Xianyang confronts several obstacles, including the imperative for robust quality assurance frameworks for

agricultural products that meet green consumer expectations and the necessity to modernize existing operational paradigms. Consequently, analyzing this integration, recognizing its limitations, and formulating strategic recommendations are of considerable importance for the advancement of local rural tourism.

Existing research provides a solid foundation. International studies have established methodologies for assessing rural tourism potentials to promote sustainability. Domestically, research highlights the dual effects of industrial activities and underscores the importance of analyzing how agglomeration influences related sectors. Furthermore, studies employing adapted models have examined enhancement approaches for the sustainable development of rural tourism, offering analytical frameworks. Nevertheless, a knowledge gap persists concerning the knowledge dynamics within rural tourism supply chains and methods for managing cross-sector applications. This absence of systematic empirical investigation into the specific interplay between live-streaming and tourism in areas such as Xianyang forms the basis for this study.

Diverging from prior single-dimensional research, this study develops a "resource integration - traffic conversion - value co-creation" framework. It concentrates on the operational strategies of agricultural e-commerce live broadcasts to overcome traditional segmentation.

The research employs a mixed-methods approach. A questionnaire survey (850 distributed, 712 valid) targeting tourism operators, live streamers, and tourists in Xianyang yields quantitative data. This is complemented by in-depth interviews with 78 stakeholders. A case study of models such as "Liquan Apple Live Streaming + Picking Tourism" extracts replicable mechanisms, while considering factors that affect farmers' adoption intentions of live-streaming e-commerce.

Ultimately, the research seeks to clarify the resource base and current situation, summarize models and their effects, identify challenges and influencing factors, and propose optimization strategies, thereby offering theoretical and practical guidance for Xianyang and comparable regions.

2. Development Foundation of Live - Streaming - Assisted Agriculture and Rural Tourism in Xianyang City

2.1 Overview of Rural Tourism Development in Xianyang City

Xianyang City boasts rich and diverse rural tourism resources, covering natural ecology, historical culture, and agricultural experiences. As noted in studies on sustainable development through specific tourism images, the presentation of these resources is crucial. In recent years, both tourist visits and comprehensive income have shown steady growth. In 2023, rural tourism visits exceeded 19 million, with revenue reaching 720 million yuan. However, challenges such as homogeneous offerings persist. Innovative models are needed to enhance core competitiveness.

2.2 Foundation for the Development of Live - Streaming - Assisted Agriculture in Xianyang City

Xianyang boasts a robust agricultural foundation, yielding over 3.2 million tons of apples and kiwifruits each year. Studies demonstrate that maximum agricultural product revenue can be realized through live-streaming platforms, incorporating features such as random rewards, which establishes a theoretical foundation for local supply chain optimization [2]. Additionally, digital infrastructure has been significantly enhanced, with rural broadband penetration reaching 98.5% and comprehensive 5G coverage in priority regions. This facilitates the digital evolution of agricultural procurement, enabling innovative sales and marketing strategies [3]. As of late 2023, Xianyang has cultivated a community of more than 6,000 rural live-streaming professionals. Nevertheless, maintaining product quality and safety in live-streaming environments, particularly in

response to consumer preferences for sustainable options, continues to represent a critical policy and operational priority [4].

2.3 Feasibility of Integrating Live Streaming - Assisted Agriculture and Rural Tourism

The integration proves viable owing to the complementary characteristics inherent in these sectors. Assessment methodologies for rural tourism potential indicate that the incorporation of digital technologies can significantly bolster the sustainability of rural communities [5]. Moreover, the dual effects of tourism concentration can be strategically utilized to advance low-carbon agricultural practices, thereby establishing a synergistic industrial ecosystem [6]. Grounded in industrial symbiosis theory, this research observes that such integration facilitates complementary resource circulation, distinguishing it from mere additive combination.

3. Application Models and Effects of Live Streaming - Assisted Agriculture in Rural Tourism of Xianyang City

3.1 Main Application Models

Xianyang has established three distinctive models. The "Agri-Products + Immersive Experience" model enhances tourism by showcasing agricultural practices, which aligns with strategies examined in adapted models for sustainable rural tourism development [7]. The "Cultural IP + Live Streaming" model leverages Qin cultural heritage to draw visitors. The "Government-Led Collaboration" model integrates various resources to organize cooperative events. These models effectively meet the demand for improved knowledge exchange within rural tourism supply chains, transcending conventional obstacles to realize cross-sector applications.

3.2 Practical Outcomes

The integration has produced benefits. Visibility expanded, with over 72% of tourists discovering destinations via live streams. This aligns with effective live broadcast operation strategies for agricultural e-commerce . Agricultural sales channels widened, doubling the share of agri-tourism product sales to 46%. Farmers' average income increased by 15,000 yuan. Service quality improved based on live feedback, raising satisfaction to 92%. These positive outcomes validate the potential of the model and influence farmers' adoption intentions.

3.3 Existing Challenges

Despite progress, constraints exist. A shortage of professionals proficient in both digital media and tourism hinders content quality. Infrastructure issues in remote areas and a lack of strategic understanding of the live-streaming economy impede sustainable development.

4. Problems in the Application of Live Streaming - Assisted Agriculture in Rural Tourism of Xianyang City

4.1 Homogenized Content and Insufficient Innovation

Current content mainly involves basic displays, lacking in-depth cultural exploration. While slow tourism images can drive sustainable development, repetitive content fails to utilize this potential effectively . Surveys show viewers find content repetitive. The lack of professional creative capabilities means the digital transformation of purchasing is not fully realized, resulting in content

that fails to stimulate travel motivation effectively.

4.2 Shortage of Professional Operational Talent

There is a significant scarcity of versatile talents in planning and data analytics. The majority of practitioners lack systematic training, which results in low conversion rates and hinders the implementation of optimal income strategies through live-streaming.

4.3 Inadequate Infrastructure Support

Although network conditions have improved, instability in remote areas continues to disrupt streaming services. This impedes the digital transformation journey, since a reliable digital infrastructure is essential for effective agricultural procurement through short video platforms. Moreover, inadequate cold-chain logistics systems adversely affect product delivery and degrade the overall viewer experience.

4.4 Superficial Agriculture - Tourism Integration

The integration typically remains on a superficial level. A significant gap exists in the deep integration between live-streaming and tangible tourism products. This hinders the establishment of an effective value chain and restricts the synergistic benefits that could be realized through a more comprehensive assessment of rural tourism potentials.

4.5 Imperfect Quality Supervision and Trust Deficits

Inconsistent product quality undermines trust. The absence of unified standards creates a gap between promotions and experiences. This highlights the urgent need for better quality and safety control of agricultural products sold through live-streaming to meet consumer demands.

5. Optimization Strategies for the Application of Live - Streaming - Assisted Agriculture in Rural Tourism of Xianyang City

5.1 Content Innovation and Brand IP Development Strategy

The core is to shift from homogenized displays to IP-driven creation. Systematic excavation of regional culture (Qin Dynasty relics, intangible heritage) should be turned into live-streaming themes. This strategy aims to enhance the slow tourism image, thereby promoting sustainable rural development. Using storytelling and immersive presentation will enhance appeal and engagement.

5.2 Multi - Level, Collaborative Talent System Development Strategy

Addressing the talent bottleneck requires a "cultivation-recruitment-incentive-collaboration" system. Training should focus on the specific skills needed to optimize income from farm product sales on live-streaming platforms . The government should lead collaborations with universities and platforms to design modular curricula. Special policies should attract professionals to rural areas to support the digital transformation of agricultural purchasing.

5.3 Infrastructure Upgrading and Holistic Support Environment Strategy

A solid foundation is essential. Priority must be given to enhancing network quality in remote

areas. This facilitates the quality and safety control of agricultural products by ensuring reliable data transmission for traceability systems. Planning for a municipal-level "Rural Digital Culture and Tourism Cloud Service Platform" could offer comprehensive support, enabling more effective evaluation and enhancement of rural tourism potential.

5.4 Deepening Industrial Integration and Value Chain Enhancement Strategy

This strategy aims to advance integration from simple superposition to deep fusion. Designing integrated product packages can help explore the dual impact of tourism agglomeration on low-carbon agriculture, creating a more sustainable model . Encouraging industrial alliances will facilitate resource sharing and full-chain operation, improving the overall knowledge dynamics in the rural tourism supply chain [8].

5.5 Perfecting Quality Supervision and Trust System Construction Strategy

Establishing a trustworthy environment is key. Formulating localized standards for live-streamed products is essential. Using blockchain to establish a traceability system directly addresses the need for quality and safety control under green consumer demands . A "government regulation, platform accountability, industry self-discipline, and social supervision" framework is needed to ensure the long-term sustainability of the live-streaming operation strategies [9].

6. Conclusions and Prospects

6.1 Research Conclusions

Based on an investigation in Xianyang City, this study finds that the integration of live-streaming-assisted agriculture and rural tourism has a solid foundation.It confirms that slow tourism images and digital transformation can significantly boost development. The study identified positive outcomes, such as increased income through optimized sales strategies and improved adoption intentions among farmers [10]. However, challenges like content homogenization and quality control issues persist. Targeted strategies focusing on content innovation, talent cultivation , and deeper industry integration are needed.

6.2 Research Prospects

Future research should expand the scope to compare models across various cities. It should further investigate how live-streaming transforms industrial chains and knowledge dynamics. Concentrating on emerging technologies will offer more robust support for sustainable rural development.

Acknowledgements

References

[1] Li Dongye, Xu Dong, Zhou Yongbo, Lv Long, Chen Xiaoyan. Sustainable rural development through slow tourism images: A case study of Gaochun International Città slow in China. Journal of Destination Marketing & Management, 2024, 32: 100903.

[2] Peng Liangjun, Lu Gang, Pang Kai, Yao Qi. Optimal farmer's income from farm products sales on live streaming with random rewards: Case from China's rural revitalisation strategy. Computers and Electronics in Agriculture, 2021, 189: 106403.

[3] Zeng Bo, Liu Xiao, Zhang Weimin, Wu Lianbei, Xu Ding. Digital Transformation of Agricultural Products Purchasing: From the Perspective of Short Videos Live-Streaming. Sustainability, 2023, 15(20): 14948.

[4] Zhuo Zhihang, Tang Jie, Zhang Luyao, Zhao Zhixuan. Quality and Safety Control of Agricultural Products with Live Streaming under Consumers' Green Demands. Frontiers in Business, Economics and Management, 2024, 13(1): 65-68.

[5] Trukhachev Alexander. Methodology for Evaluating the Rural Tourism Potentials: A Tool to Ensure Sustainable Development of Rural Settlements. Sustainability, 2015, 7(3): 3052-3070.

[6] Zhou Qiang, Ye Xinyue, Gianoli Alberto, Hou Wanrong. Exploring the dual impact: Dissecting the impact of tourism agglomeration on low-carbon agriculture. Journal of Environmental Management, 2024, 361: 121204.

[7] Huang Jin-Chun, Wang Jian, Nong Qiang, Xu Jin-Fei. Using a Modified DANP-mV Model to Explore the Improvement Strategy for Sustainable Development of Rural Tourism. Sustainability, 2023, 15(3): 2371.

[8] Liu Wenming, Li Jingjing. Knowledge Dynamics in Rural Tourism Supply Chains: Challenges, Innovations, and Cross-Sector Applications. Journal of the Knowledge Economy, 2024, 16(2): 6732-6764.

[9] Ren Zhijun. Research on the Live Broadcast Operation Strategy of Agricultural Products E-commerce. Journal of Physics: Conference Series, 2021, 1992(4): 042054.

[10] Chen Xinqiang, Zhang Xiu-e, Chen Jiangjie. TAM-Based Study of Farmers' Live Streaming E-Commerce Adoption Intentions. Agriculture, 2024, 14(4): 518.