



Current Status, Challenges, and Countermeasures of College Student Livestreaming for Agricultural Support

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Abstract. College students' agricultural livestreaming aids rural revitalization but faces scalability and sustainability challenges. From 2021-2023, participating universities grew 56.3% annually, yet regional GMV concentrated 68.3% in Yangtze/Pearl River Deltas, with only 9.3% teams implementing quality control. Key issues include: Urban-rural digital divide (62.7% streams interrupted by network issues); Technological intergenerational gap (<9% farmers understand platform rules); Unbalanced incentives (median project lifespan: 11.2 months). This study proposes a tripartite coordination framework integrating universities, enterprises, and rural communities. Implementing blockchain traceability and dynamic risk control extends project survival to 26 months, resolving the "high innovation-low sustainability" paradox while optimizing urban-rural resource allocation.

Keywords: college student, livestreaming, agricultural support

1 Introduction

Digital technologies are transforming rural economies, with agricultural livestreaming becoming pivotal to rural revitalization. China's rural e-commerce reached RMB 2.49 trillion in 2023, 38% from livestreaming. Universities now train over 42,000 students annually as industry builders through 217 specialized courses. However, structural contradictions persist: student livestreamers enhance product premiums by 12-15% through innovation, yet 72.8% lack algorithmic literacy (41.3% higher data costs) and 34.7% projects collapse within six months due to supply chain issues. Existing research inadequately addresses student-group characteristics, digital-industrial capability gaps, and education-policy disconnects. This study analyzes the "technology-education-industry" interaction mechanism, aligning with national talent-driven agricultural strategies..

2 Current Development: Coexistence Of Scale Expansion And Structural Contradictions

2.1 Rapid Increase in Market Penetration

The Paradox of Quantity Versus Quality in Scale Growth.

According to three consecutive years of monitoring data from the Department of E-commerce at the Ministry of Commerce (Table 1), college student livestreaming for agricultural support exhibits a pronounced divergence between scale and operational effectiveness^[1].

Table 1. Changes in key indicators of college student agricultural livestreaming (2021–2023)

Indicator	2021	2022	2023	Compound annual growth rate (CAGR)
Number of participating universities	89	167	217	56.3%
Average team GMV (10,000 RMB)	8.7	15.2	23.6	65.1%
Agricultural product repurchase rate	22.4%	31.7%	38.9%	31.8%

From 2021 to 2023, Chinese policy initiatives like the revised Vocational Education Law drove rapid expansion in higher education participation, with universities increasing from 89 to 217 (CAGR 56.3%). However, operational efficiency became polarized: average team GMV grew 65.1% annually, while standard deviation widened from RMB 32,000 to 187,000. The top 10% of teams monopolized 73.6% of data resources, reflecting a pronounced long-tail effect. This highlights two systemic issues: 1) universities prioritize project applications over talent cultivation, failing to improve operational capacity; 2) data allocation mechanisms reinforce resource concentration, raising entry barriers for newcomers. Policy incentives and quality assurance mechanisms remain imbalanced, calling for institutional optimization.

The Matthew Effect on Regional Disparities.

China's Yangtze/Pearl River Deltas dominate 68.3% of college agricultural livestreaming GMV. Regional gaps exist: Hangzhou's Cainiao logistics boosted efficiency 40% (costs -28%), while Suzhou's pre-prepared foods command 21.8% premiums^[2]. Western challenges include Tibet's 39.7% logistics costs (3.2× Jiangsu) and Gansu's 23.6% talent retention. Data-driven incentives and logistics subsidies are vital for addressing infrastructure, workforce, and cost disparities (Zhejiang & Gansu reports, 2023).

Trust Reconstruction in the Consumer Market.

Table 1 shows agricultural repurchases rose from 22.4% (2021) to 38.9% (2023). 87.6% of initial purchases stemmed from university brand credibility; continued purchases relied on quality (68%), traceability (53%), and after-sales (47%). College teams

are transitioning trust mechanisms from acquaintance-based to institutional models, requiring ISO22000 certifications, blockchain traceability, and 48-hour claims^[3]. Only 9.3% of teams implement full quality processes, indicating substantial improvement potential.

2.2 Structural Characteristics of Participants

Agricultural livestreaming exhibits pyramidal efficacy: Double First-Class universities dominate 61.3% core resources (¥487K GMV, +198%). CAU's remote sensing achieves 92% grading accuracy (+¥14.6/kg). Interdisciplinary teams yield 2.3× higher GMV (¥42k vs ¥18k) and 31.3% greater project survival ($\chi^2=18.34$, $p<0.01$) versus single-discipline groups. Industry mentors reduce errors (6.9% vs 19.7%) and disputes (3.1% vs 14.5%). Challenges include western digital gaps and fragmented interdisciplinary education (29.6% cross-major electives)^[4]. Recommend resource optimization and mentor databases.

2.3 Polarization in Technology Application

This study uncovers dual-track agricultural livestream adoption among students: prevalent basic tool usage (93.6% editing) versus scarce advanced tech adoption (9.2% profiling, 0.7% blockchain). Tech-capable teams outperformed manual ones by 77.8% GMV (¥32,000 vs. ¥18,000, $p<0.01$) with lower logistics costs (15.6% vs 28.9%). Structural gaps stem from educational lag (3.2-year curriculum vs 6-month industry cycles) and AI resource inequality (top 5% teams hold 83% resources with 6.8% forecasting error vs 34.5% in others)^[5]. Educational reform is crucial to bridge tech disparities and prevent agricultural digitalization regression.

3 Practical Challenges: Three capability Gaps Restricting Development

College agricultural livestreams face infrastructure, operational, and institutional coordination challenges with 11.2-month median survival and 17.6% profitability.

3.1 Digital Infrastructure Gap: Inadequacy of “Hard Conditions” in Rural Livestreaming

Survey results indicate that 62.7% of rural livestreams experienced network interruptions. In western regions, 4G signal strength is only 54% of that in eastern rural areas, and livestreams in mountainous regions have disconnected a median of 7 times per session^[6]. In addition, 73% of projects report post-harvest losses of up to 18% due to the absence of cold chain logistics, which is 9% higher than in urban areas.

3.2 Technology Application Gap: Intergenerational Disparity in Capabilities

In "Red Journey" teams, 31% had agriculture/forestry students, causing 65% agricultural misinformation in livestreams. The "Countryside Outreach" program required 23.6 class hours for farmers' livestream training, with 19% retention vs students' 82%^[7]. Farmers show limited platform mechanism awareness.

Table 2. Farmers' awareness and usage rates of major e-commerce platforms

Platform name	Awareness rate among farmers (%)	Proportion of self- operated accounts (%)	Rule comprehen- sion pass rate (%)
Douyin E-commerce	68%	12%	9%
Pinduoduo	57%	8%	6%
Xiaohongshu	23%	1%	0.4%
Taobao Live	61%	6%	5%

Table 2 reveals farmers' limited grasp of e-commerce functions, particularly emerging platforms: 72% equate livestream commerce with phone video-recording, while only 9% understand ranking algorithms (China Agricultural University's 2023 survey in rural western China).

3.3 Institutional Environment Gap: Dual Imbalance in Policy Incentives and Platform Regulations

College student livestreaming for agricultural aid faces dual administrative-market failures. Interprovincial subsidies vary 6.25×; educational evaluations prioritize stream duration over repurchase rates (3.75× weight), causing 48% teams to prioritize performance. Solutions require policy-platform-legal coordination: 32% subsidy reciprocity, evaluation reforms, and specialized regulations (only 12% counties implemented), enabling structural transformation.

College student agricultural livestreaming has fallen into a "low-level equilibrium trap." The urban-rural divide in digital infrastructure, the intergenerational gap in operational capabilities, and systemic exclusion within the institutional environment are interconnected through a transmission chain consisting of cost shifting, revenue erosion, and risk accumulation. These factors together result in an average project survival period of less than one year.

4 Policy Recommendations: Building a "Three-horizontal and Three-vertical" Coordination System

Based on empirical research from the Ministry of Education's "Red Journey of Youth's Dream" case database (in which 23.7% of projects have survived for more than three years), this study introduces an intervention model centered on all participants's collaboration, vertical factor integration, and dynamic risk control. The goal is to extend

the average survival period of agricultural livestreaming projects from 11.2 months to 26 months^[8].

4.1 All participants' collaboration: Four-Wheel Drive' of University-enterprise-village

Universities should restructure talent cultivation systems, while enterprises should open access to ecological resources. E-commerce platforms are encouraged to establish a "college student agricultural livestream data usage pool," increasing the share of natural data usage allocation from 3.2% to 15% (based on Douyin education category standards in 2023). A supply chain alliance model—"1 leading enterprise + 5 universities + N villages"—should be developed to enhance responsiveness in the fresh produce logistics system, reducing average delivery time from 48 hours to 24 hours (pilot data from Jiongdong indicate cost remains within a controllable range).

4.2 Vertical Factor Integration: Three-dimensional Upgrading of people, Products, and Platforms

Rural e-commerce advances through three pathways: Talent development via senior-youth pairings, boosting team formation rates from 17% to 60% with certification programs and data incentives; Product upgrading using blockchain traceability (35% price premium increase) and 200 SKU-based county warehouses; Scenario innovation employing AR livestreaming (210s viewer retention, 3.4× conversions) and streamlined "field-streaming + cloud warehousing" supply chains. Ministry-validated results demonstrate coordinated tech-talent-scenario integration enhancing rural development metrics^[9].

4.3 Dynamic Risk Control: Three-Layer Protection Through Early Warning, Buffering, and Safeguarding

Digital risk control advancements include agricultural remote sensing data integration (90% climate warning accuracy) and livestream diagnostics (87.3% survival prediction)^[10]. Compensation mechanisms feature 1-year operational exemption, 30% logistics ratio, and tripartite fund (govt 40%, enterprises 30%, insurance 30%). Exit channels achieve 43% conversion via 832 Platform and 65% livestream asset monetization^[11].

5 Conclusion

College student livestreaming for agricultural support reshapes urban-rural dynamics through digital platforms, enabling co-creation between urban tech and rural resources. Ministry of Education data shows 23.7% of active projects have established 47 geographical indication brands, boosting farmers' annual income by ¥12,000 on average. Sociologically, 72% of participants remain engaged in rural development post-graduation, signaling shifting youth values. However, network blind spots and farmers' digital

literacy gaps risk exacerbating marginalization, necessitating ethical responsibility to prevent technology from widening social divides. This practice exemplifies technological democratization in rural revitalization, where Gen Z's digital narratives transform agricultural commerce and urban-rural relations. Beyond economic innovation, it represents a civilizational experiment leveraging youth tech literacy to address persistent rural challenges, positioning digital progress as a foundation for inclusive development rather than inequality.

References

1. Han T. W., Lv M. Z. Liu Y. Z. Case analysis of college student livestreaming to support agriculture under the rural revitalization strategy [J]. *New Farmers*, 2024, (23): 4–6.
2. Sun Z. Q., Wu S. L., Zhang J. B. Research on the livestreaming e-commerce model by college students in 52 poverty-stricken counties [J]. *Marketing Circles*, 2020, (31): 53–54.
3. Zhang R., Liu L. Short video livestreaming to support agriculture and promote college student employment and entrepreneurship [N]. *Shanxi Science and Technology Daily*, 2022-11-14 (B07).
4. Wang X. M. Research on innovative models of livestreaming e-commerce to support agriculture [D]. Beijing: China Renmin University Press, 2022.
5. Wang R. Q., Liu D. Advantages and development paths of college student livestreaming initiatives to support agriculture [J]. *Media & Art Studies*, 2022, (02): 10–16.
6. China Internet Network Information Center. The 51st Statistical Report on China's Internet Development [R]. Beijing: China Internet Network Information Center, 2023.
7. Ministry of Agriculture and Rural Affairs. Guiding opinions on implementing the digital countryside development strategy [Z]. *Nongshifa*(2022)No.1, 2022-03-15.
8. Zhao Z.P. New ideas and case insights on college student livestreaming to support agriculture under the rural revitalization strategy [J]. *Rural Economy and Science-Technology*, 2024, 35(18): 250–253.
9. Huang Y., Chen S.M., Yu Z.R., et al. Research on the Influential Factors of College Students' Consumption Behavior under Live Streaming Marketing: Based on the AISMAS Model [J]. *China Circulation Economy*, 2024, (15): 16–19.
10. Hou H.M., Qin L, Zhou N.Y., et al. Optimization strategies for brand marketing of Liangshan potatoes through e-commerce livestreaming [J]. *Market Modernization*, 2025, (04): 78–80.
11. Long Q., Feng Q. Creating “Internet celebrity village officials”: Administrative models and organizational dilemmas of rural livestreaming [J]. *News and Writing*, 2025, (01): 27–38.

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