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CROSS-DISCIPLINARY ANALYSIS OF DIGITAL MARKETING FOR AGRICULTURAL PRODUCTS UNDER THE THREE-DIMENSIONAL FRAMEWORK OF INFORMATION CREDIBILITY, LEGAL COMPLIANCE, AND BRAND VALUE: A CASE STUDY OF YUNNAN SMALL-LOT COFFEE

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ABSTRACT

The digital transformation of agricultural marketing has emerged as a critical pathway for rural revitalization and high-quality agricultural development in China. However, existing research often examines digital marketing strategies from a single disciplinary perspective, neglecting the intricate interplay among information credibility, legal compliance, and brand value. This paper proposes a three-dimensional analytical framework—Information Credibility, Legal Compliance, and Brand Value (ILCB)—that integrates insights from information science, regulatory law, and marketing management to examine digital marketing practices for agricultural products. Drawing on signaling theory, institutional theory, and brand equity theory, this study employs a qualitative case study approach to investigate Yunnan small-lot coffee, one of China's most geographically indicated agricultural products with rapidly growing digital market presence. The analysis reveals that: (1) information transparency mechanisms, including traceability systems and content marketing, significantly enhance consumer trust and purchase intention; (2) legal compliance frameworks, particularly food safety regulations and geographical indication protection, serve as foundational institutional safeguards that reduce information asymmetry; and (3) regional brand value is co-constructed through the synergistic interaction of credible information delivery and regulatory adherence. The study contributes to the literature by offering an integrated cross-disciplinary framework that explains how digital marketing outcomes for agricultural products are shaped by the convergence of technological, legal, and market forces. Practical implications for policymakers, platform operators, and agricultural enterprises are discussed, emphasizing the need for coordinated governance that aligns information disclosure standards, regulatory enforcement, and brand development strategies.

Keywords: Digital marketing; Agricultural products; Information credibility; Legal compliance; Brand value; Yunnan coffee; Geographical indication; Cross-disciplinary research

1 INTRODUCTION

The global agricultural sector is undergoing a profound digital transformation, with e-commerce platforms, social media, and live streaming reshaping how farmers and agribusinesses connect with consumers. In China, agricultural e-

commerce has experienced explosive growth over the past decade, driven by government initiatives targeting rural revitalization, widespread mobile internet adoption, and the proliferation of digital marketing channels (Wang, 2023). Among the myriad agricultural products marketed through digital channels, specialty coffee from Yunnan Province represents a particularly compelling case study. Yunnan accounts for over 98% of China's coffee production, with small-lot arabica coffee gaining increasing recognition both domestically and internationally for its distinctive flavor profile (Liu et al., 2019).

Despite the opportunities presented by digital marketing, agricultural products face unique challenges in the online environment. Unlike standardized manufactured goods, agricultural products are characterized by experience and credence qualities—consumers often cannot assess quality before purchase, and certain attributes such as organic cultivation methods or geographical authenticity remain difficult to verify even after consumption (Wu & Yuan, 2022). This information asymmetry creates a “lemon market” problem, where low-quality products can drive out high-quality ones, undermining consumer trust and discouraging investment in quality improvement (Akerlof, as cited in Wei et al., 2024).

Existing research on agricultural digital marketing tends to approach the topic from disciplinary silos. Information systems scholars focus on technology adoption and platform design (Cang & Wang, 2020); legal researchers examine regulatory frameworks and food safety compliance (Zhou et al., 2011); marketing scholars investigate brand building and consumer behavior (Lin & Wang, 2023). While each perspective offers valuable insights, the isolated treatment of information, legal, and brand dimensions fails to capture their interdependent relationships in practice. For instance, a well-designed traceability system may enhance information credibility but lose effectiveness without legal enforcement mechanisms; conversely, robust regulations may provide necessary safeguards but remain inert without effective communication channels to convey compliance information to consumers.

This paper addresses this gap by developing and applying an integrated three-dimensional framework—Information Credibility, Legal Compliance, and Brand Value (ILCB)—that bridges information science, regulatory law, and marketing management. Through an in-depth case study of Yunnan small-lot coffee, this research examines how these three dimensions interact and collectively shape digital marketing outcomes. The study seeks to answer three interrelated research questions:

- How do information credibility mechanisms function in the digital marketing of agricultural products, and what are their effects on consumer behavior?
- In what ways do legal compliance requirements—including food safety regulations and geographical indication protection—influence digital marketing strategies and outcomes?
- How do information credibility and legal compliance jointly contribute to the construction and enhancement of brand value for regional agricultural products in digital markets?

By addressing these questions, this study makes both theoretical and practical contributions. Theoretically, the ILCB framework advances cross-disciplinary understanding of agricultural digital marketing by articulating the causal mechanisms through which technological, legal, and market forces converge. Practically, the findings offer actionable insights for policymakers, platform operators, and agricultural enterprises seeking to optimize digital marketing strategies while maintaining regulatory compliance and building sustainable brand equity.

2 LITERATURE REVIEW

2.1 Information Credibility and Consumer Trust in Agricultural E-Commerce

Information asymmetry has long been recognized as a fundamental challenge in agricultural markets. Because agricultural products possess significant credence attributes—such as production methods, origin authenticity, and safety standards—consumers face substantial uncertainty when making online purchase decisions (Fu et al., 2022). Signaling theory provides a foundational lens for understanding how market participants can communicate unobservable quality attributes to reduce information asymmetry. In agricultural contexts, effective signals must be costly to fake and difficult for low-quality producers to imitate (Wei et al., 2024).

Research has identified multiple mechanisms through which information credibility can be enhanced in digital agricultural markets. Fu et al. (2023) demonstrate that product environmental information transparency—including soil and water quality information—significantly influences online consumers' purchasing behavior for green agricultural products, with competence trust and benevolence trust playing mediating roles. Similarly, Fu et al. (2022) find that production technology information transparency and production means information transparency have differential effects on consumer trust dimensions, with trust in competence positively impacting trust in benevolence, both of which influence online green purchase behavior.

Institution-based trust represents another critical dimension, particularly in online environments where direct experience with sellers is limited. Wu and Yuan (2022), in their study of poverty-alleviation agricultural products, find that the effectiveness of user feedback mechanisms, platform supervision mechanisms, product traceability mechanisms, and product certification mechanisms enhances customers' purchase intention by strengthening institutional trust. Individual trust tendency positively moderates the relationship between institutional mechanisms and consumer trust, highlighting the interaction between systemic and individual factors.

Emerging digital marketing formats, particularly live streaming, introduce new dynamics to information credibility. Dong et al. (2022) find that live-streaming e-commerce quality dimensions—including information quality, system quality, service quality, telepresence, and social presence—all positively impact green trust, which in turn strengthens green purchase intention. Han et al. (2024) further reveal that interactivity and presence in live streaming marketing positively influence purchase intention through the mediating roles of trust and resonance, with rural sentiment exerting a negative moderating effect on the relationship between interactivity and resonance.

2.2 Legal Compliance and Regulatory Frameworks for Agricultural E-Commerce

The legal and regulatory environment constitutes the institutional foundation upon which digital agricultural markets operate. Food safety regulations represent the most fundamental compliance requirement, as agricultural products are directly consumed and pose potential health risks if improperly handled. Zhou et al. (2011), in their study of the vegetable processing industry in Zhejiang, identify firm size, expected premium, export market orientation, brand name, e-commerce adoption, training frequency, and traceability implementation as key determinants of food safety and quality standard adoption behavior. Their findings underscore the reciprocal relationship between regulatory compliance and market orientation—firms that engage in e-commerce and export markets are more likely to adopt stringent quality standards.

China's 2015 Food Safety Law (FSL) represents a landmark regulatory development requiring most food sellers on e-commerce platforms to obtain valid online licenses for retail food handling. Jin et al. (2021), using proprietary data from Alibaba, examine the progressive implementation of the FSL and find that buyers are more willing to transact with sellers who display their FSL licenses, particularly for younger and less reputable sellers. Their synthetic control analysis reveals that the average quality of surviving food sellers improved after partial and mandatory licensing, as unwilling sellers exited the platform. Importantly, the FSL did not negatively impact platform gross merchandise value or significantly increase average sales prices, suggesting that regulatory enforcement can enhance market transparency without hampering long-term performance.

Quality and safety management systems provide a more comprehensive framework for compliance. Ma et al. (2018) develop an index system for agricultural products sold via e-commerce comprising six first-level and thirteen second-level indicators, applying Hazard Analysis and Critical Control Point (HACCP) principles to identify key control points throughout the supply chain. Their work emphasizes that regulatory oversight must span production sources, processing and manufacturing, warehousing and transportation, and regulatory measures (Li, 2023), reflecting the multi-stage nature of agricultural product quality assurance.

Geographical indication (GI) protection represents another critical legal dimension, particularly for regional specialty agricultural products. Mao and Görg (2023) find that Chinese agricultural GIs have heterogeneous effects on firms' export quality: GIs without quality supervision actually reduce export quality due to free-riding incentives, while GIs with effective quality supervision prevent such degradation. Their findings highlight that legal designation alone is insufficient—enforcement mechanisms are essential to ensure that GI protection delivers on its quality-signaling promise. Qian and Dong (2023), comparing Chinese and EU GI protection systems, identify gaps in China's operational systems and operational status, suggesting that the China-EU Geographical Indications Agreement may play a crucial role in strengthening quality supervision.

2.3 Brand Value and Regional Brand Equity for Agricultural Products

Brand building has emerged as a strategic priority for agricultural products seeking to differentiate themselves in increasingly competitive digital markets. Regional public brands, which leverage geographical indications and collective reputation, have become particularly prominent in China's agricultural development strategy. Ren et al. (2023) characterize agricultural geographical indications as carriers of unique product value accumulated through history, arguing that building regional brands is a powerful mechanism for stabilizing farmer income increases and achieving sustainable agricultural development. They identify branding dilemmas including the loss of GI resources, weak supervision, and insufficient investment, proposing a three-stage branding path encompassing germplasm discovery, quality control, and brand promotion.

The economic value of regional brands manifests through multiple channels. Lin and Wang (2023), analyzing user reviews from JD.com and China's Specialty Products Pavilion, find that regional brand agricultural products enjoy

significantly higher reputation on e-commerce platforms compared to non-brand agricultural products, with government service support demonstrating a positive moderating effect. Hu et al. (2023), in their study of eco-agricultural products in a Chinese national park context, find that brand awareness, brand trust, perceived quality, and perceived price all positively influence purchase intention, with consumers willing to pay an average premium of 17.13% for branded eco-products.

The determinants of agricultural brand competitiveness have been systematically examined. Tang et al. (2024), using DEMATEL-ISM modeling in the Yangtze River Delta region, develop a four-dimensional evaluation index system encompassing core brand competitiveness, brand management, market competitiveness, and branding innovation. Their analysis identifies regional production bases, brand technology innovation, and system innovation as profound-level influencing factors. Zhang et al. (2024), studying Yingde black tea, find that government support, resource endowment, industrial clusters, and regional culture all positively contribute to regional public brand reputation, with industrial clusters and regional culture playing mediating roles.

Digital marketing channels have transformed how agricultural brands are built and communicated. Wang (2023) argues that agricultural enterprises can effectively enhance brand value, product value, and economic value of regional agriculture by leveraging new media and mobile internet technologies. Niu et al. (2020) specifically examine Yunnan plateau specialty agricultural products, finding that the “e-commerce + content marketing” model connects brand concepts with consumer communication, representing a future main form of marketing. Fan and Zhang (2025), analyzing TikTok accounts selling Sichuan Pujiang dekopon, find that product trust evaluations, source credibility, and content flow experience significantly contribute to sales growth, while account trust evaluation does not significantly affect purchase behavior—suggesting that consumers make rational decisions based on product-specific evidence rather than account-level reputation in agricultural product markets.

2.4 Research Gaps and the Need for Integration

The literature review reveals three notable gaps. First, most studies examine information credibility, legal compliance, and brand value in isolation, with limited attention to their interactive effects. Second, research on agricultural digital marketing has predominantly focused on general or generic products, with relatively few studies investigating specialty products like Yunnan coffee that possess distinct geographical and cultural characteristics. Third, the cross-disciplinary nature of agricultural digital marketing—spanning information science, law, and marketing—has not been adequately theorized. The present study addresses these gaps by developing an integrated three-dimensional framework and applying it to the specific context of Yunnan small-lot coffee.

3 THEORETICAL FRAMEWORK

3.1 The ILCB Framework: Information Credibility, Legal Compliance, and Brand Value

This study proposes the Information Credibility–Legal Compliance–Brand Value (ILCB) framework as an integrative analytical lens for understanding agricultural digital marketing. The framework posits that effective digital marketing for agricultural products results from the dynamic interaction of three interrelated dimensions: (1) information credibility mechanisms that reduce information asymmetry and build consumer trust; (2) legal compliance structures that establish institutional legitimacy and enforce quality standards; and (3) brand value accumulation that translates trust and compliance into competitive market advantage.

3.2 Information Credibility Dimension

Drawing on signaling theory (Spence, as cited in Wei et al., 2024) and cue utilization theory (as cited in Xu et al., 2022), the information credibility dimension examines how various signals and cues transmitted through digital channels influence consumer perceptions of trustworthiness. In agricultural digital marketing, credibility signals operate at multiple levels:

- **Product-level signals:** These include product descriptions, quality certifications, traceability information, and environmental disclosures. Fu et al. (2023) distinguish between soil information transparency and water information transparency, demonstrating that different types of environmental information have differential effects on consumer purchasing behavior.
- **Seller-level signals:** Seller reputation, user reviews, credit ratings, and credit codes represent signals about the seller’s trustworthiness. Wei et al. (2024) find that credit codes on packaging boost perceived brand authenticity, with stronger effects on prevention-focused consumers.
- **Platform-level signals:** Platform supervision mechanisms, user feedback systems, and certification mechanisms provide institutional guarantees that enhance trust in online transactions (Wu & Yuan, 2022).

The effectiveness of these signals depends on their credibility—signals must be perceived as truthful, accurate, and difficult to manipulate. In the digital environment, this credibility is shaped by both the content of the information and the trustworthiness of its source.

3.3 Legal Compliance Dimension

Grounded in institutional theory (North, as cited in Wu & Yuan, 2022), the legal compliance dimension encompasses the formal regulations, standards, and enforcement mechanisms that structure agricultural digital markets. Key components include:

- **Food safety regulations:** The Food Safety Law and associated standards establish mandatory requirements for food production, processing, and online sales. Jin et al. (2021) demonstrate that mandatory licensing improves average seller quality by removing non-compliant sellers from the market.
- **Geographical indication protection:** GI laws and regulations protect regional brand names and establish quality standards for designated products. Mao and Görg (2023) emphasize that GI effectiveness depends critically on the presence and enforcement of quality supervision mechanisms.
- **E-commerce platform regulations:** Platform-specific rules and regulatory requirements govern seller behavior, product listings, and consumer protection. Ma et al. (2018) identify warehousing and transportation regulatory measures as one of four major factors influencing agricultural product quality and safety on B2C platforms.

Legal compliance serves both protective and signaling functions. Protectively, it establishes minimum quality standards and penalizes non-compliance, reducing the likelihood of market failures. As a signal, visible compliance with regulations—such as displayed licenses or certification marks—conveys quality assurance to consumers, particularly when direct product verification is impossible.

3.4 Brand Value Dimension

The brand value dimension, informed by brand equity theory (Aaker, as cited in Tang et al., 2024), examines how information credibility and legal compliance contribute to the intangible value of agricultural brands. Regional agricultural brands derive their value from multiple sources:

- **Brand awareness and recognition:** Digital marketing channels significantly enhance brand visibility and consumer recognition (Wang, 2023).
- **Perceived quality:** Credible information and regulatory certification collectively shape consumer perceptions of product quality (Hu et al., 2023).
- **Brand trust and loyalty:** Consistent delivery of credible information and adherence to legal standards build long-term trust and repeat purchase behavior (Xu et al., 2022).
- **Brand authenticity:** For geographical indication products, authenticity is a core value driver, closely linked to origin verification and traditional production methods (Wei et al., 2024).

3.5 Interrelationships Among the Three Dimensions

The ILCB framework emphasizes that the three dimensions are not independent but dynamically interrelated:

- **Legal compliance → Information credibility:** Regulatory requirements mandate certain information disclosures and provide independent verification of product claims, thereby enhancing the credibility of information transmitted through marketing channels. For example, a displayed food safety license (legal compliance) serves as a credible signal of quality (information credibility).
- **Information credibility → Brand value:** When consumers perceive marketing information as credible, they develop trust and positive brand perceptions, contributing to brand equity. Effective communication of quality attributes is essential for building brand differentiation.
- **Legal compliance → Brand value:** Compliance with regulations and GI protection establishes the institutional foundation for brand value by ensuring consistent quality and preventing free-riding. Without legal enforcement, regional brands may suffer from reputation dilution due to low-quality entrants.
- **Synergistic effects:** The three dimensions interact synergistically—legal compliance provides the foundation, information credibility provides the communication mechanism, and brand value represents the market outcome. Weaknesses in any dimension undermine the effectiveness of the others.

4 METHODOLOGY

4.1 Research Design

This study employs an exploratory qualitative case study design to investigate the three-dimensional framework in practice. The case study method is particularly appropriate for this research because it allows for an in-depth examination of complex, context-dependent phenomena within real-life settings (Yin, as cited in Lin & Wang, 2023). Specifically, a single-case design with embedded units of analysis is adopted, focusing on Yunnan small-lot coffee as the primary case while examining multiple dimensions (information, legal, brand) and multiple actors (farmers, enterprises, platforms, regulators).

4.2 Case Selection Rationale

Yunnan small-lot coffee was selected as the case study for several reasons. First, it represents a high-value agricultural product with significant geographical indication characteristics, making it an ideal context for examining brand value and GI protection issues. Second, Yunnan coffee has experienced rapid digital marketing adoption, with increasing presence on e-commerce platforms, live streaming channels, and social media. Third, the Yunnan coffee industry faces genuine challenges related to information asymmetry (consumers cannot easily verify coffee origin and quality) and regulatory compliance (food safety, GI protection). Finally, as a product from western China, Yunnan coffee embodies the broader rural revitalization and agricultural modernization agenda that motivates much of the policy and academic interest in agricultural digital marketing.

4.3 Data Sources

This study draws on multiple data sources to ensure triangulation and comprehensive understanding:

- **Academic literature:** Peer-reviewed journal articles, conference papers, and research reports on agricultural digital marketing, food safety regulation, geographical indications, and Yunnan coffee industry development.
- **Policy documents and regulations:** Chinese national laws and regulations including the Food Safety Law, Geographical Indication protection regulations, and e-commerce laws, as well as local Yunnan provincial policies supporting the coffee industry.
- **Industry reports and statistics:** Reports from industry associations, market research firms, and e-commerce platforms providing data on Yunnan coffee production, consumption, and digital marketing trends.
- **Digital marketing content analysis:** Analysis of representative Yunnan coffee brand websites, social media accounts, live streaming sessions, and e-commerce storefronts to examine how information credibility, legal compliance, and brand value are communicated in practice.

4.4 Data Analysis

Data analysis follows a thematic analysis approach aligned with the ILCB framework. The analysis proceeds through several iterative steps: (1) organizing and familiarizing with the data; (2) initial coding aligned with the three framework dimensions; (3) developing thematic categories within each dimension; (4) examining cross-dimensional relationships and interactions; and (5) synthesizing findings to address the research questions. This deductive-inductive approach allows for both framework-driven analysis and emergent insights from the data.

5 CASE ANALYSIS: YUNNAN SMALL-LOT COFFEE

5.1 Context: Yunnan Coffee Industry Overview

Yunnan Province, located in southwest China, is the country's primary coffee-producing region, accounting for over 98% of national coffee production (Liu et al., 2019). The main coffee-growing areas include Pu'er, Baoshan, Dehong, and Xishuangbanna, situated in the tropical and subtropical highlands ideal for arabica cultivation. Yunnan small-lot coffee (*Coffea arabica*) is characterized by its mellow but not bitter taste, fragrant but not overwhelming aroma, and slight fruity acidity—qualities that have gained increasing recognition among specialty coffee consumers.

The Yunnan coffee industry has undergone significant transformation over the past two decades. Historically focused on commodity green bean exports, the industry has increasingly shifted toward domestic market development and value-added processing (Xu, 2013). This transition has been driven by multiple factors: growing domestic coffee consumption in China, fluctuating international coffee prices, government support for rural specialty industries, and the rise of digital marketing channels that enable direct-to-consumer sales. The "Yunnan small-lot coffee" (Yunnan xiaolü coffee) geographical indication has become an important regional brand, with multiple local GI designations including Pu'er coffee, Baoshan small-lot coffee, and others.

5.2 Information Credibility Dimension in Yunnan Coffee Digital Marketing

5.2.1 Information Transparency and Traceability

In the Yunnan coffee digital marketing context, information credibility is primarily challenged by the difficulty consumers face in verifying coffee origin, processing methods, and quality attributes. Unlike single-origin specialty coffees from established origins like Colombia or Ethiopia, Yunnan coffee has historically been perceived as a commodity product, with consumers often uncertain about the specific farm, processing method, or quality grade of the beans they purchase.

To address this information asymmetry, Yunnan coffee producers and marketers have implemented various transparency mechanisms. Traceability systems represent the most prominent approach. Many Yunnan coffee brands now provide detailed information about the specific farm or cooperative where the coffee was grown, the processing method (washed, natural, honey), the harvest year, and cupping scores. This information is communicated through product packaging labels, e-commerce product pages, and digital storytelling on social media platforms.

The effectiveness of these traceability mechanisms aligns with findings by Wu and Yuan (2022), who identify product traceability mechanisms as one of four key institutional mechanisms that enhance consumer trust. For Yunnan coffee, traceability information serves as a quality signal that helps consumers distinguish between commodity-grade and specialty-grade beans, enabling price differentiation. Fu et al. (2022) similarly find that production technology information transparency and production means information transparency have positive effects on consumer trust dimensions, which is directly applicable to coffee processing method disclosures.

5.2.2 Content Marketing and Digital Storytelling

Content marketing has emerged as a particularly important channel for building information credibility in Yunnan coffee digital marketing. Niu et al. (2020), in their study of Yunnan plateau specialty agricultural products, identify “e-commerce + content marketing” as a dominant model that connects brand concepts with consumer communication. For Yunnan coffee, content marketing takes multiple forms:

- **Farmer and origin storytelling:** Many brands produce content about the farmers, farming communities, and mountainous landscapes where Yunnan coffee is grown. This narrative approach helps consumers connect emotionally with the product and perceive the authenticity of its origin.
- **Educational content:** Coffee brewing tutorials, tasting notes, and explanations of processing methods help consumers understand quality differences, thereby making marketing claims more credible.
- **Live streaming demonstrations:** Live streaming sessions that show coffee roasting, brewing, or farm visits provide real-time visual evidence that enhances information credibility.

Fan and Zhang (2025), studying social platform content marketing for local specialty green agricultural products, find that product trust evaluations and source credibility significantly contribute to sales growth. Their finding that account trust evaluation does not significantly affect purchase behavior is particularly relevant for Yunnan coffee: consumers appear to base decisions on product-specific evidence (tasting notes, origin information) rather than general account reputation, suggesting that detailed product information is more critical than influencer popularity.

5.2.3 User Reviews and Social Proof

User reviews and ratings on e-commerce platforms represent another important credibility mechanism for Yunnan coffee products. Consistent with Wu and Yuan’s (2022) findings on user feedback mechanisms, review systems allow consumers to share their consumption experiences, providing social proof that supplements seller-provided information. For relatively new products like Yunnan specialty coffee, user reviews play a particularly important role in reducing perceived risk, as consumers have less pre-existing knowledge about the product category.

However, the credibility of user reviews is itself a concern, as fake reviews and review manipulation are known issues in Chinese e-commerce. This connects to the legal compliance dimension, as platform regulatory oversight (discussed below) is necessary to maintain the integrity of review systems.

5.3 Legal Compliance Dimension in Yunnan Coffee Digital Marketing

5.3.1 Food Safety Regulations

Food safety compliance constitutes the foundational legal requirement for Yunnan coffee sold through digital channels. As a food product, Yunnan coffee must comply with China’s Food Safety Law, which was significantly revised in 2015. Jin et al. (2021) demonstrate that the 2015 Food Safety Law’s licensing requirements have had measurable effects on e-

commerce food sellers: sellers displaying their FSL licenses are more attractive to buyers, and the average quality of surviving food sellers has improved as non-compliant sellers exit the market.

For Yunnan coffee enterprises operating online, food safety compliance involves multiple requirements: obtaining food circulation permits, ensuring product labeling meets national standards, implementing quality control systems throughout the supply chain, and maintaining proper records for traceability. Smallholder coffee farmers and small processing enterprises often face particular challenges in meeting these regulatory requirements, as compliance costs can be relatively high for small operations.

The implementation of these regulations in the Yunnan coffee context illustrates the interaction between legal compliance and information credibility. When coffee producers display their food safety licenses on e-commerce storefronts, this visible compliance serves as a credible signal of quality (Jin et al., 2021). Consumers who may not have the expertise to evaluate coffee quality directly can rely on regulatory certification as a heuristic cue.

5.3.2 Geographical Indication Protection

Geographical indication protection is of particular importance for Yunnan coffee, as the product's identity is closely tied to its regional origin. Multiple GI designations exist for Yunnan coffee at different administrative levels, including "Yunnan small-lot coffee" as a general regional designation and more specific GIs for Pu'er coffee, Baoshan coffee, and other producing areas.

Mao and Görg (2023) provide important insights into the dynamics of GI protection, finding that GIs without effective quality supervision can actually reduce export quality due to free-riding incentives. This risk is salient for Yunnan coffee: without robust quality enforcement, producers outside the designated region or producers of lower-quality coffee could potentially misuse the "Yunnan coffee" designation, diluting its reputation. Qian and Dong (2023) note that China's GI protection system has historically suffered from overlapping management departments and imperfect quality supervision systems—issues directly relevant to Yunnan coffee.

The China-EU Geographical Indications Agreement, which entered into force in 2021, has important implications for Yunnan coffee. As a product that may be listed under the agreement, Yunnan coffee could benefit from enhanced GI protection both domestically and in the EU market. This aligns with Mao and Görg's (2023) finding that international GI agreements can serve as quality supervision mechanisms that prevent free-riding.

5.3.3 E-Commerce Platform Compliance Requirements

Beyond national laws, e-commerce platforms impose their own compliance requirements on sellers. Ma et al. (2018) identify regulatory measures as one of four major factors influencing agricultural product quality and safety on B2C platforms, encompassing platform supervision, seller qualification review, and post-sale dispute resolution. For Yunnan coffee sellers on major platforms like Taobao, JD.com, and Pinduoduo, compliance with platform rules includes: providing business licenses and food circulation permits, accurately describing product attributes, adhering to advertising standards, and maintaining customer service standards.

The interaction between platform-level and national-level regulation creates a multi-layered compliance environment. Platforms, motivated by their own reputation and legal liability, often enforce standards that exceed minimum legal requirements. This private regulation complements public regulation, contributing to the overall governance of information quality and product safety in digital agricultural markets.

5.4 Brand Value Dimension in Yunnan Coffee Digital Marketing

5.4.1 Regional Brand Development

The brand value of Yunnan coffee has evolved significantly from its origins as a commodity export product to its current position as a recognized regional specialty brand. Ren et al. (2023) describe agricultural geographical indications as carriers of historically accumulated product value, and Yunnan coffee exemplifies this transformation. The "Yunnan small-lot coffee" brand has gradually built recognition among Chinese consumers, moving beyond the perception that Chinese coffee is merely cheap commodity beans to one where specific origins and processing methods are appreciated.

Lin and Wang (2023) find that regional brand agricultural products enjoy higher reputation on e-commerce platforms compared to non-brand products, with government service support playing a positive moderating role. For Yunnan coffee, government support has been substantial: local governments in major producing areas have invested in brand promotion, industry infrastructure, and quality standardization. This government support aligns with Zhang et al.'s (2024) finding that government support positively contributes to regional public brand reputation.

5.4.2 Brand Differentiation and Premium Pricing

The development of Yunnan coffee's brand value is evident in the emergence of premium pricing tiers. Hu et al. (2023) find that consumers are willing to pay approximately 17% more for branded eco-agricultural products, and Yunnan specialty coffee shows similar patterns. While commodity-grade Yunnan coffee beans sell at relatively low prices comparable to international commodity markets, specialty-grade Yunnan coffee with specific origin, processing method, and cupping scores can command significantly higher prices in direct-to-consumer digital channels.

This premium pricing is enabled by the interaction of information credibility and legal compliance. Detailed product information (information credibility) allows consumers to understand quality differences, while GI protection and quality certifications (legal compliance) provide assurance that the product claims are genuine. Together, these factors justify price premiums and contribute to brand equity.

5.4.3 Digital Marketing and Brand Building

Digital marketing channels have been instrumental in building Yunnan coffee's brand value. Wang (2023) argues that agricultural enterprises can effectively enhance brand value by leveraging new media and digital technologies, and Yunnan coffee provides a compelling example. The digital environment enables several brand-building mechanisms:

- **Direct-to-consumer connection:** Digital channels allow coffee producers to bypass traditional intermediaries and build direct relationships with consumers, facilitating brand loyalty development.
- **Storytelling and brand narrative:** Social media and content marketing enable the construction of rich brand narratives around origin, tradition, and quality—elements that are particularly important for regional specialty products.
- **Community building:** Specialty coffee consumers form communities around shared appreciation for specific origins and flavors, and digital platforms facilitate these communities, strengthening brand attachment.

Tang et al. (2024) identify innovation in branding as a key dimension of agricultural brand competitiveness, and Yunnan coffee brands have demonstrated innovation in their use of live streaming, short video content, and interactive e-commerce formats. Zheng et al. (2023) find that anchor characteristics including influence, sales promotion, and interactive entertainment positively impact consumers' purchasing behavior for green agricultural products through live streaming, with green consumption cognition playing a mediating role—findings directly applicable to Yunnan coffee live streaming marketing.

5.5 Cross-Dimensional Integration: The ILCB Dynamics in Yunnan Coffee

The Yunnan coffee case illustrates the dynamic interactions among the three ILCB dimensions. Several key cross-dimensional relationships emerge:

- **Legal compliance as foundation for information credibility.** Food safety licensing and GI protection provide institutional backing that makes marketing information more credible. When Yunnan coffee brands display their food business licenses and GI certifications on e-commerce platforms, these legal compliance markers function as high-credibility signals that complement product descriptions and user reviews. Without this legal foundation, even well-crafted marketing content might be viewed with skepticism by consumers concerned about product authenticity.
- **Information credibility as mechanism for brand value creation.** The detailed information about origin, processing, and taste that Yunnan coffee brands provide through digital channels is essential for translating legal compliance into brand value. Legal certifications alone do not create brand meaning—they need to be communicated effectively to consumers. Content marketing, storytelling, and transparent product information transform abstract compliance marks into meaningful brand attributes that consumers can appreciate and for which they are willing to pay premiums.
- **Brand value as incentive for legal compliance and information disclosure.** As Yunnan coffee brands develop stronger brand equity, they have greater incentives to invest in legal compliance and transparent information disclosure. A valuable brand has more to lose from compliance failures or quality scandals, creating reputational incentives for maintaining high standards. This virtuous circle—brand value rewarding compliance and credibility—helps explain why leading Yunnan coffee producers tend to be more transparent and more compliant than smaller, less established operators.
- **Challenges and tensions.** The case also reveals tensions and challenges. Smallholder farmers and small enterprises may struggle to invest in both information disclosure systems and legal compliance, creating a divide between larger branded enterprises and smaller producers. The free-riding problem identified by Mao and Görg (2023) remains a concern: low-quality producers who benefit from the “Yunnan coffee” regional brand without investing in quality improvement can undermine brand value over time. Addressing these

challenges requires coordinated action across all three dimensions—stronger GI enforcement, improved support for small producers, and digital platforms that reward credible information disclosure.

6 DISCUSSION

6.1 Theoretical Contributions

This study makes several theoretical contributions to the understanding of agricultural digital marketing. First, the ILCB framework provides an integrative cross-disciplinary lens that bridges information science, regulatory law, and marketing management. By articulating the dynamic relationships among information credibility, legal compliance, and brand value, the framework moves beyond single-discipline approaches to capture the complexity of agricultural digital markets. The framework's emphasis on interactive effects—how legal compliance enhances information credibility, how information credibility builds brand value, and how brand value incentivizes compliance—offers a more nuanced understanding than siloed analyses.

Second, the case of Yunnan coffee enriches our understanding of how geographical indication products navigate the transition from commodity to specialty markets in digital environments. The findings support Mao and Görg's (2023) argument that GI protection effectiveness depends critically on quality supervision mechanisms, and extend this insight by showing how digital information channels can both support and challenge GI systems. On one hand, digital traceability and storytelling enhance the credibility of GI claims; on the other hand, the ease of online marketing creates opportunities for misuse and free-riding.

Third, the study contributes to the literature on live streaming and social media marketing for agricultural products. Consistent with Fan and Zhang (2025), the findings suggest that product-level credibility signals matter more than account-level reputation in agricultural product markets. This has implications for theories of influencer marketing, which often emphasize the importance of source credibility at the persona level. In agricultural contexts, where product attributes are central and consumers are making functional purchase decisions, product-specific evidence may outweigh influencer popularity.

6.2 Practical Implications

The study offers several practical implications for different stakeholders. For **policymakers**, the findings underscore the importance of coordinated governance across information, legal, and brand domains. Effective agricultural digital marketing strategy cannot rely on regulation alone—it must also support the development of information infrastructure (traceability systems, quality standards) and brand building initiatives. Strengthening GI quality supervision, as recommended by Mao and Görg (2023) and Qian and Dong (2023), is particularly important for preventing free-riding and maintaining regional brand value.

For **e-commerce platforms**, the research highlights the dual role platforms play in governing information credibility and facilitating brand value creation. Platforms that invest in robust seller verification, transparent review systems, and quality certification displays will create more trustworthy market environments. The finding that displayed licenses increase buyer willingness to transact (Jin et al., 2021) suggests that platforms should make compliance information more prominent and accessible to consumers.

For **agricultural enterprises and farmer cooperatives**, the case demonstrates that investing in information transparency and legal compliance is not merely a cost center but a brand-building strategy. Yunnan coffee producers that effectively communicate their origin, processing methods, and quality certifications through digital channels can build stronger brand equity and command price premiums. The content marketing approaches identified by Niu et al. (2020) and Fan and Zhang (2025) offer actionable models for small producers seeking to differentiate themselves in crowded digital marketplaces.

6.3 Limitations and Future Research

This study has several limitations that suggest directions for future research. First, the single-case study design, while enabling in-depth analysis, limits generalizability. Future research could apply the ILCB framework to other agricultural product categories and regional contexts to test its broader applicability. Second, the analysis is primarily qualitative, based on document analysis and secondary data. Future research could employ quantitative methods to empirically test the relationships among the three dimensions—for example, surveying consumers to measure how different types of information credibility signals and compliance certifications jointly influence brand perceptions and purchase intention.

Third, the study focuses on the Chinese context, where specific regulatory frameworks (such as the Food Safety Law and China's GI system) and platform ecosystem (Taobao, JD, Douyin) have unique characteristics. Comparative research examining how the ILCB dynamics play out in different national contexts would enrich the framework. Finally, as digital marketing technologies continue to evolve—particularly with the emergence of AI-generated content, blockchain traceability, and virtual influencers—future research should investigate how these new technologies reshape the relationships among information credibility, legal compliance, and brand value.

7 CONCLUSION

This paper has developed and applied a three-dimensional ILCB framework—Information Credibility, Legal Compliance, and Brand Value—to analyze the digital marketing of agricultural products, using Yunnan small-lot coffee as a case study. The analysis demonstrates that effective digital marketing for agricultural products emerges from the dynamic interaction of three interrelated dimensions: credible information mechanisms that reduce consumer uncertainty, legal compliance structures that establish institutional legitimacy, and brand value accumulation that translates trust and compliance into competitive advantage.

The Yunnan coffee case illustrates how these dimensions operate in practice. Information credibility is enhanced through traceability systems, content marketing, and user reviews; legal compliance is enforced through food safety regulations, geographical indication protection, and platform rules; and brand value is built through regional brand development, premium pricing, and digital storytelling. Crucially, these dimensions do not operate independently—legal compliance provides the foundation that makes information credible, effective information communication transforms compliance into brand value, and growing brand equity creates incentives for continued compliance and transparency.

As digital marketing continues to transform agricultural markets worldwide, the integrated perspective offered by the ILCB framework becomes increasingly important. Policymakers, platform operators, and agricultural enterprises must recognize that success in digital agricultural markets requires coordinated attention to information quality, regulatory compliance, and brand development—addressing any one dimension in isolation will yield suboptimal results. For Yunnan coffee and similar regional specialty products, the path to sustainable digital marketing success lies in strengthening the virtuous circle among credible information, robust compliance, and growing brand value.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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