



Digital Marketing Strategies for Agricultural Products in Enhancing Farmer Competitiveness: A Literature Review

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Abstract. Digital marketing has become a strategic instrument for strengthening the competitiveness of farmers, yet empirical evidence remains fragmented across contexts, commodities, and methods. This study aims to synthesize the literature on digital marketing strategies for agricultural products and their contribution to farmers' competitiveness. A systematic literature review was conducted following the PRISMA 2020 protocol. Searches in Google Scholar, GARUDA/SINTA, Scopus, and DOAJ identified 749 records published in 2017–2025; after duplicate removal, screening, and full-text eligibility assessment, 25 articles were included. Thematic analysis produced five themes: (1) digital marketing strategies and the competitiveness of agricultural products; (2) e-commerce and agricultural marketplaces; (3) social media as a marketing channel; (4) digital literacy and farmer capability; and (5) the impact of digitalization on market access, income, and value chains. The review shows that digital marketing enhances competitiveness through four mechanisms: transaction-cost efficiency, market expansion, product value-added and branding, and improved bargaining position through price information. However, these benefits are conditional on digital literacy, infrastructure, and institutional support. The findings imply that interventions should integrate capacity-building, mentoring, and enabling policies rather than focusing solely on technology adoption.

Keywords: Agricultural Products; Digital Marketing; E-Commerce; Farmer Competitiveness; Systematic Literature Review.

1. INTRODUCTION

Digital transformation has fundamentally reshaped the agricultural sector, from production and distribution processes to the marketing of farm products. Advances in information and communication technology marked by the penetration of the internet, smartphones, social media, and electronic commerce platforms have opened opportunities for farmers to connect directly with consumers without depending entirely on long chains of intermediaries (Manik, 2024; Gumbi et al., 2023). In the agribusiness context, digital marketing is understood as the use of digital channels websites, social media, marketplaces, search engines, and messaging applications to promote, distribute, and sell agricultural products to end consumers and other business actors (Waluyo, 2022; Kanellos et al., 2024).

For farmers in developing countries, including Indonesia, the classic problem is a weak bargaining position within the market structure. Long distribution chains mean that the largest price margins are captured by intermediary traders, while farmers receive only a small share of the final consumer price (Apriadi & Saputra, 2017). Limited access to information on prices, markets, and consumer preferences exacerbates the information asymmetry that disadvantages farmers, particularly among farmers with limited socioeconomic and entrepreneurial literacy (Nwangwu et al., 2024; Guampe, 2021). Under these conditions, farmer competitiveness the

ability to offer products at competitive prices, with consistent quality and services responsive to market demand is difficult to improve through conventional marketing approaches alone (Kusumawardhani et al., 2025).

A number of empirical studies show that the adoption of digital marketing is positively associated with farmers' marketing performance. Yunita (2025) found a significant effect of digital marketing on increased sales of agricultural products in a farmer corporation; Rembang & Saruan, (2025) reported higher incomes among rural farmers who utilized digital technology and social media advertising; and at the macro level, farmer participation in e-commerce has been shown to raise farm household income and narrow rural income gaps (Guan et al., 2024; Liu et al., 2021). Research on the agri-food industry likewise demonstrates that effective digital marketing strategies reduce advertising costs and improve resource efficiency along the value chain (Kanellos et al., 2024).

Nevertheless, the benefits of digital marketing are not automatically enjoyed by all farmers. Barriers related to digital literacy, limited network infrastructure, data costs, and low levels of trust and technical capability constrain adoption, particularly among smallholders (Gumbi et al., 2023; Magesa et al., 2023; Fharaz et al., 2022; Guampe et al., 2022). These findings indicate that the relationship between digital marketing and farmer competitiveness is conditional and shaped by individual, institutional, and environmental factors.

Existing studies remain scattered across diverse geographic contexts, commodities, and research designs, so a comprehensive picture of digital marketing strategies for agricultural products and the mechanisms through which they enhance farmer competitiveness is not yet systematically available particularly one that integrates Indonesian evidence with international evidence. To fill this gap, this study conducts a systematic literature review guided by three research questions: (RQ1) What digital marketing strategies are used by farmers and agribusiness actors to market agricultural products? (RQ2) How do these strategies contribute to enhancing farmer competitiveness? (RQ3) What factors support and hinder the effectiveness of digital marketing for agricultural products?

2. RESEARCH METHOD

Research Design

This study employs the systematic literature review (SLR) method, a research approach that identifies, appraises, and synthesizes the findings of prior research in a systematic, transparent, and replicable manner to answer specific research questions (Snyder, 2019). To ensure transparency and traceability of the study selection process, this review follows the

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). PRISMA is used as the reporting framework for the identification, screening, eligibility assessment, and inclusion stages, visualized in the flow diagram in Figure 1.

Literature Search Strategy

The literature search was carried out from January to March 2026 across four academic databases: Google Scholar, GARUDA/SINTA, Scopus, and the Directory of Open Access Journals (DOAJ). The keyword combination used was: (“*pemasaran digital*” OR “digital marketing”) AND (“*produk pertanian*” OR “agricultural products” OR agribisnis OR agribusiness) AND (“*daya saing*” OR competitiveness OR *petani* OR farmers) AND (“e-commerce” OR marketplace OR “*media sosial*” OR “social media”). The search was limited to articles published between 2017 and 2025 to capture developments in agricultural digital marketing over the past decade, written in Indonesian or English.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were defined prior to screening to ensure the relevance and comparability of the reviewed studies, as summarized in Table 1.

Table 1. Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
Articles address digital marketing, e-commerce, marketplaces, or social media for agricultural/agribusiness products	Articles do not focus on digital marketing of agricultural products (e.g., digitalization of production only)
Articles link digital marketing to farmer competitiveness, sales, income, market access, or marketing performance	Articles do not address dimensions of farmer competitiveness or marketing performance
Empirical research articles, literature reviews, or community-service articles with field data, published 2017–2025	Editorials, opinion pieces, books, proceedings without full text, or seminar summaries
Written in Indonesian or English with accessible full text	Full text not retrievable
Verified sources (with a DOI and/or traceable on the official journal website)	Sources whose validity could not be verified

Study Selection Process

The selection process followed the four PRISMA 2020 stages. At the identification stage, the search yielded 749 records (Google Scholar = 412; GARUDA/SINTA = 186; Scopus = 97; DOAJ = 54). After 132 duplicates were removed, 617 records were screened by title and abstract, and 468 records were excluded as irrelevant to the focus of the review. Of the 149

reports sought for full-text retrieval, 21 could not be retrieved. A total of 128 reports were then assessed in full for eligibility; 103 were excluded because they did not focus on digital marketing of agricultural products ($n = 48$), did not address farmer competitiveness or marketing performance ($n = 34$), were not research articles or scholarly reviews ($n = 15$), or their sources could not be verified ($n = 6$). Accordingly, 25 articles met all criteria and were included in the synthesis. The full selection flow is presented in Figure 1.

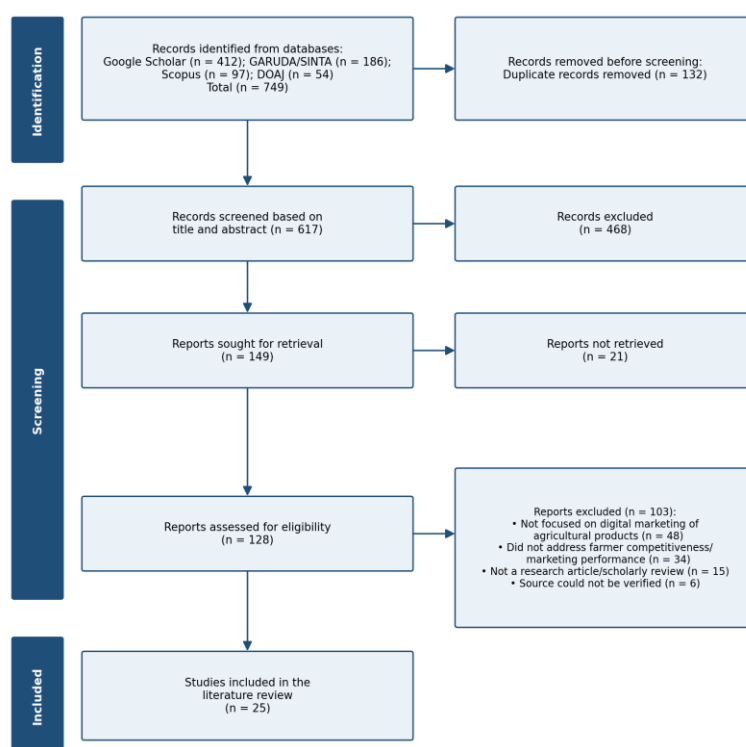


Figure 1. PRISMA 2020 flow diagram of the study selection process (Page et al., 2021).

Data Extraction and Analysis

Data from each included article were extracted into a worksheet containing the authors and year of publication, publication source, research context/location, methods, focus of the study, and main findings. The analysis employed a thematic approach through four steps: familiarization with article content, coding of findings, grouping of codes into themes, and narrative synthesis across themes. This process produced five main themes: (1) digital marketing strategies and the competitiveness of agricultural products; (2) e-commerce and agricultural marketplaces; (3) social media as a marketing channel for agricultural products; (4) digital literacy and farmer capability; and (5) the impact of digitalization on market access, income, and value chains.

3. RESULTS AND DISCUSSION

Results

Characteristics of the Selected Studies

A total of 25 articles met the inclusion criteria. By research context, 20 articles examined Indonesia and 5 examined international settings (Greece, Sub-Saharan Africa, South Africa, Nigeria, and China). By year of publication, the studies were concentrated in 2022–2025 (23 articles), indicating that scholarly attention to agricultural digital marketing has risen sharply in the post-pandemic period. In terms of approach, the reviewed studies include quantitative surveys, qualitative case studies, SWOT analyses, literature reviews, and training-based community-service articles. The characteristics of all studies are summarized in Table 2, together with the theme(s) to which each study contributes (T1–T5).

Table 2. Characteristics of the studies included in the review.

No	Authors (Year)	Source	Focus of the Study	Theme
1	Fharaz, Kusnadi, & Rachmina (2022)	Jurnal Agribisnis Indonesia	Effect of digital literacy on farmers' e-marketing literacy	T4
2	Arvianti, Anggrasari, & Masyhuri (2022)	Agriekonomika	Digital marketing by millennial farmers and marketing-chain efficiency in Batu City	T3, T4
3	Afridhianika & Lestari (2025)	Innovative: Journal of Social Science Research	Digital marketing strategies (social media, marketplaces, SEO) and local product competitiveness	T1
4	Taufiq, Surni, & Abdullah (2025)	IJASERD	Consumer perceptions of digital marketing for agricultural products in Kendari City	T1
5	Kusumawardhani, Dirgatama, & Puspitasari (2025)	Bubungan Tinggi: Jurnal Pengabdian Masyarakat	Transformation of agricultural product marketing through digital marketing for farmer competitiveness	T1, T5
6	Waluyo (2022)	Jurnal Sosial Sains dan Komunikasi	Digital marketing strategy for local agribusiness products: visibility, engagement, e-commerce	T1
7	Gantini, Azzahra, Sumawati, & Roswinna (2025)	Journal of Innovation and Research in Agriculture	Application of e-commerce and digital marketing strategies and farmers' income	T2, T5
8	Apriadi & Saputra (2017)	Jurnal RESTI	Marketplace-based e-commerce to shorten the distribution chain of farm products	T2, T5

9	Pardede (2025)	Jurnal Agroteknologi	Effect of social media on the effectiveness of agricultural product marketing (review)	T3
10	Rembang & Saruan (2025)	Empiricism Journal	Rural digital marketing strategy (palm sugar, Facebook Ads) and farmers' income	T1
11	Saruan & Rembang (2025)	Jurnal Agribisnis	SWOT analysis of rural agricultural digital marketing; training and product image	T1
12	Setiawan (2024)	Online scholarly article	Digital literacy and e-commerce utilization for farm products; millennial farmer competitiveness	T2, T4
13	Fadjeri et al. (2025)	Abdibaraya	Digital marketing training for agricultural products (chili promotion, e-commerce)	T4
14	Nurfathiyah, Sarwoprasodjo, Muljono, & Matindas (2024)	Jurnal Penyuluhan	Social media and ornamental-plant farmers' self-efficacy in e-commerce	T3
15	Manik (2024)	Jurnal Syntax Admiration	Digital transformation model of agricultural marketing communication (TaniHub case)	T4
16	Maimunah, Kristiawan, & Setyana (2025)	Jurnal Pertanian Terpadu	Use of social media in developing horticultural agribusiness in Tuban Regency	T3
17	Padapi, Haryono, & Rukmelia (2022)	Jurnal Sains dan Teknologi Industri Peternakan	Social media as a promotion channel for processed agribusiness products and sales growth	T3
18	Yunita (2025)	Jurnal Aurum Ratio	Effect of digital marketing on increased sales of agricultural products (farmer corporation)	T1
19	Lestari & Wicaksana (2025)	Conference proceedings	E-commerce strategies for the competitiveness of agricultural products in farmer group associations	T2
20	Selvia & Nurhayati (2023)	Jurnal PKM Agri Hatantiring	Training on packaging, branding, promotion, and digital marketing of farm products	T4
21	Kanellos, Karountzos, Giannakopoulos, Terzi, & Sakas (2024)	Sustainability	Digital marketing strategies, profitability, resource efficiency, and agri-food value chains	T1, T5

22	Morepje, Sithole, Msweli, & Agholor (2024)	Sustainability	Influence of e-commerce platforms on sustainable agriculture among Sub-Saharan African smallholders	T2, T5
23	Gumbi, Gumbi, & Twinomurinzi (2023)	Sustainability	Systematic review of sustainable digital agriculture for smallholders; literacy and infrastructure	T4
24	Nwangwu, Onyenekwe, Opata, Ume, & Ume (2024)	International Food and Agribusiness Management Review	Digital technology and smallholder market participation in Nigeria (double hurdle model)	T5
25	Guan, He, & Hu (2024)	Agriculture	Impact of rural e-commerce on farmers' income and the income gap in China	T2, T5

Note: T1 = digital marketing strategies and competitiveness; T2 = e-commerce and marketplaces; T3 = social media; T4 = digital literacy and farmer capability; T5 = impact of digitalization on market access, income, and value chains.

Digital Marketing Strategies and the Competitiveness of Agricultural Products

The first theme covers studies that directly link digital marketing strategies to the competitiveness of agricultural products. Afridhianika & Lestari, (2025) identified three strategic pillars most widely used by agribusiness actors social media marketing, marketplace selling, and search engine optimization (SEO) which jointly improve the competitiveness of local products against imported and industrial products. In line with this, Waluyo (2022) emphasized that digital marketing strategies for local agribusiness products should be directed at three intermediate targets: increasing product visibility, strengthening consumer engagement, and integrating with e-commerce channels.

Quantitative evidence reinforces this argument. Yunita (2025) found that digital marketing had a positive and significant effect on increased sales of agricultural products in a farmer corporation, while Rembang & Saruan, (2025) showed that the use of digital technology including paid social media advertising raised the incomes of rural palm sugar farmers. The SWOT analysis by Saruan & Rembang, (2025) confirmed that the main strengths of rural digital marketing lie in low promotion costs and broad reach, whereas its weaknesses stem from limited human resources; digital training and product image building therefore become priority strategies.

On the demand side, Taufiq et al. (2025) reported positive consumer perceptions of digital marketing for agricultural products, particularly regarding the ease of obtaining product information and transaction speed. At the industry level, Kanellos et al. (2024) demonstrated

that strong digital marketing performance marked by increased organic traffic through search engines is associated with lower advertising costs and greater resource efficiency in agri-food firms, which in turn strengthens profitability and value-chain competitiveness. Kusumawardhani et al. (2025) showed that digital marketing transformation accompanied by mentoring can improve farmer competitiveness in a sustained manner, rather than producing only momentary sales gains.

E-Commerce and Agricultural Marketplaces

The second theme highlights the role of e-commerce and marketplaces as transaction infrastructure. The earliest study in the corpus, Apriadi & Saputra, (2017), demonstrated that marketplace-based e-commerce can shorten the distribution chain of farm products so that farmers obtain better selling prices while consumers pay lower purchase prices. Gantini et al. (2025) confirmed that the application of e-commerce combined with digital marketing strategies increases farmers' income, although its effectiveness is constrained by digital literacy and infrastructure readiness. Similar findings were reported by Setiawan (2024), who showed that e-commerce utilization expands market access and strengthens the competitiveness of millennial farmers, and by Lestari & Wicaksana, (2025), who documented e-commerce strategies in farmer group associations as a means of supply consolidation and collective bargaining power.

International evidence shows a consistent pattern. Morepje et al. (2024), reviewing the 2010–2024 literature on Sub-Saharan Africa, concluded that e-commerce platforms markedly improve smallholder market access, generate better prices, reduce post-harvest losses, and facilitate information flows that encourage sustainable farming practices. In China, Guan et al. (2024), using rural revitalization survey data, demonstrated that rural e-commerce increases farm household income while reducing income inequality among farmers. Overall, this theme shows that marketplaces function as a disintermediation mechanism that shifts part of the surplus from intermediaries to farmers.

Social Media as a Marketing Channel for Agricultural Products

The third theme examines social media as the marketing channel most accessible to farmers. Pardede's (2025) review of 14 articles concluded that social media increases the effectiveness of agricultural product marketing through three pathways: expanded promotional reach, two-way communication with consumers, and trust building through authentic content. Among millennial farmers in Batu City, Arvianti et al. (2022) found that digital marketing through social media shortens the marketing chain and improves the marketing efficiency of horticultural commodities.

Other studies illustrate the role of social media across subsectors: the development of horticultural agribusiness in Tuban Regency Maimunah et al. (2025) and the promotion of processed agribusiness products, which was shown to increase sales (Padapi et al. 2022). Psychological aspects also matter: Nurfathiyah et al. (2024) showed that social media use enhances the self-efficacy of ornamental-plant farmers in transacting online, and this self-efficacy is a prerequisite for the sustained adoption of e-commerce. Social media thus plays a dual role as a low-cost promotional channel and as a space of digital learning for farmers.

Digital Literacy and Farmer Capability

The fourth theme affirms that digital literacy is the foundation of the effectiveness of all digital marketing strategies. Fharaz et al. (2022) demonstrated that digital literacy positively affects farmers' e-marketing literacy; farmers who are skilled at finding, evaluating, and using digital information are better able to conduct online marketing effectively. Setiawan (2024) found a similar pattern in the utilization of e-commerce for farm products. Financial literacy has likewise been shown to significantly influence farmers' performance and decision-making capacity, suggesting that digital marketing effectiveness depends on broader forms of farmer capability beyond technological skills alone (Guampe et al., 2024). Globally, the systematic review by Gumbi, Gumbi et al. (2023) identified that the greatest barriers to smallholder digitalization lie precisely in digital literacy, affordability, and infrastructure rather than in the availability of the technology itself; a finding confirmed by Magesa et al. (2023) in Tanzania.

Capability-building interventions have proven effective. The community-service article by Fadjeri et al. (2025) documented that digital marketing training improved farmers' ability to promote products through online channels, while Selvia & Nurhayati, (2023) demonstrated the importance of an integrated training package covering packaging, branding, promotion, and digital marketing. At the institutional level, Manik (2024), through a case study of TaniHub, offered a digital transformation model of agricultural marketing communication that positions digital aggregators as knowledge brokers between farmers and markets. Taken together, the studies in this theme show that human and institutional capabilities determine the extent to which digital marketing technology is translated into competitiveness.

Impact of Digitalization on Market Access, Income, and Value Chains

The fifth theme summarizes the evidence on outcome-level impacts of marketing digitalization. Nwangwu et al. (2024), applying a double hurdle model to 360 farmers in Nigeria, demonstrated that digital technology mobile phones in particular increases both the decision to participate in markets and the intensity of smallholder market participation; nearly half of the respondents obtained price information via mobile phones, thereby reducing

information asymmetry. Guan et al. (2024) showed that the income-raising effect is larger for lower-income farmer groups, meaning that rural e-commerce is inclusive and inequality-reducing. Morepje et al. (2024) added evidence of reduced post-harvest losses and improved selling prices in Sub-Saharan Africa.

In the Indonesian context, the shortening of distribution chains through marketplaces Apriadi & Saputra, (2017), increased income through the combination of e-commerce and digital marketing Gantini et al. (2025), and strengthened competitiveness through mentored marketing transformation Kusumawardhani et al. (2025) point in the same direction. Evidence from Indonesia also indicates that farm income remains strongly associated with market access and managerial capability, highlighting the importance of digital marketing as a complementary instrument for improving farm profitability (Guampe et al., 2021; Guampe et al., 2022). At the value-chain level, Kanellos et al. (2024) provided evidence of resource efficiency and reduced marketing costs. The synthesis of the five themes converges on four main mechanisms through which digital marketing enhances farmer competitiveness: (1) efficiency in transaction and promotion costs; (2) market expansion beyond geographic boundaries; (3) strengthening of product value-added through branding, packaging, and digital content; and (4) improvement of farmers' bargaining position through more symmetric access to price and demand information.

Discussion

The findings of this review show that digital marketing is not merely an alternative sales channel but a structural instrument that changes farmers' position within the food value chain. The four identified mechanisms cost efficiency, market expansion, value-added strengthening, and improved bargaining position work in a complementary fashion. The promotion-cost efficiency demonstrated by Kanellos et al. (2024) and Saruan & Rembang, (2025) enables smallholders to compete in markets previously accessible only to well-capitalized actors, while disintermediation through marketplaces Apriadi & Saputra, (2017), Morepje et al. (2024) shifts part of the intermediary margin to farmers. The resulting competitiveness is therefore multidimensional: price competitiveness through cost savings, differentiation competitiveness through branding and content, and service competitiveness through direct communication with consumers.

Nonetheless, the synthesized evidence also confirms that the relationship between digital marketing and competitiveness is conditional. Studies within the digital literacy theme Fharaz et al. (2022), Gumbi et al. (2023), Magesa et al. (2023) consistently position human capability as the decisive intervening variable: the same technology produces different impacts

depending on digital skills, self-efficacy Nurfathiyah et al. (2024), and the institutional support that accompanies it. This finding is consistent with the dynamic capabilities perspective, which holds that competitive advantage derives not from the mere possession of resources (technology) but from the ability of organizations in this case farm households and farmer groups to integrate and reconfigure those resources in response to market dynamics.

A comparison of Indonesian and international evidence reveals convergence in the direction of findings alongside divergence in context. Studies from Indonesia, Africa, and China alike find positive effects of marketing digitalization on income and market access (Guan et al., 2024; Nwangwu et al., 2024; Rembang & Saruan, 2025). The dominant barriers differ, however: African studies emphasize deficits in basic infrastructure such as electricity and connectivity (Morepje et al., 2024; Gumbi et al., 2023), whereas Indonesian studies more often highlight intergenerational gaps in farmers' digital literacy and the weak sustainability of adoption after training ends (Arvianti et al., 2022; Fadjeri et al., 2025). The implication is that agricultural digital marketing policies cannot be uniform and must be calibrated to local infrastructure readiness and farmer demographic profiles.

This review also identifies the important role of institutions in sustaining outcomes. E-commerce strategies implemented collectively through farmer group associations Lestari & Wicaksana, (2025) and farmer corporations Yunita (2025) tend to be better able to overcome scale constraints supply volume, continuity, and logistics than individual adoption. The digital aggregator model analyzed by Manik (2024) offers a middle path: farmers remain focused on production, while digital marketing, quality curation, and logistics functions are consolidated by the platform. This shows that the institutional architecture of digital marketing is as important as the technology itself.

From a policy perspective, the findings point to three intervention priorities. First, improving farmers' digital literacy through integrated training that covers packaging, branding, content creation, and online transaction management Selvia & Nurhayati, (2023) Fadjeri et al. (2025), accompanied by continuous mentoring so that adoption does not cease once training ends (Kusumawardhani et al., 2025). Second, developing rural connectivity and logistics infrastructure, particularly cold chains for fresh products, as a precondition for the effectiveness of agricultural marketplaces. Third, strengthening farmer institutions as the basis for supply aggregation and collective bargaining power within the digital ecosystem.

This review has several limitations. First, the corpus is dominated by Indonesian studies with descriptive designs and local coverage, so generalization of the findings requires caution. Second, the heterogeneity of methods and outcome measures across studies precluded a

quantitative meta-analysis; the synthesis presented is narrative-thematic. Third, restricting the review to articles in Indonesian and English and to published literature opens the possibility of publication bias, as studies with negative or non-significant findings are less likely to be published.

4. CONCLUSION

Based on a systematic synthesis of 25 articles published in 2017–2025, it can be concluded that the dominant digital marketing strategies used by farmers and agribusiness actors comprise social media marketing, selling through e-commerce and marketplaces, search engine optimization, and paid digital advertising. These strategies demonstrably contribute to farmer competitiveness through four mechanisms: efficiency in transaction and promotion costs, expanded market reach, strengthened product value-added and branding, and an improved bargaining position through access to price information. The effectiveness of digital marketing is conditional on farmers' digital literacy, the availability of connectivity and logistics infrastructure, and institutional support such as farmer groups, farmer corporations, and digital aggregators.

Future research is advised to use longitudinal designs and field experiments to test the causal impact of digital marketing on competitiveness, to develop standardized measures of farmer competitiveness so that findings can be compared across studies, and to examine which digital institutional models are most effective for smallholders. For policymakers, this review confirms that agricultural marketing digitalization programs should be designed as an integrated package technology, capability, institutions, and infrastructure so that digital transformation genuinely improves farmer welfare and competitiveness.

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