



A Study On The Performance, Opportunities, And Constraints Of E-Market Strategies In The Trading Of Agricultural Commodities In India

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ABSTRACT

The rapid digitalization of agriculture in India has transformed the way farmers trade and market their produce. E-market strategies, including online marketplaces, social media promotion, mobile applications, and data-driven platforms, have enabled producers—especially small, marginal, and household-level farmers—to access broader markets, enhance visibility, and improve income potential. This study examines the performance, opportunities, and constraints of these digital marketing tools in the Indian agricultural context. It highlights the benefits of e-marketing, such as increased competitiveness, better price realization, and reduced reliance on intermediaries, while also identifying challenges including limited digital literacy, poor infrastructure, financial constraints, and trust issues. By integrating literature review with empirical insights, the study provides recommendations for improving adoption and effectiveness of e-market strategies, contributing to sustainable and inclusive growth in Indian agriculture.

Keywords: E-market strategies, Agricultural digital marketing, Farmers' income and competitiveness, Digital adoption challenges, Indian agricultural trade

1. Introduction

Agricultural markets in India are being digitalised at a fast pace. This allows the farm producers to access the buyers directly. Thus, the farm producers are getting an opportunity to improve price realisation and reduce dependence on middlemen. E-market strategies from online trading platforms to mobile-based marketplaces to social media marketing are becoming essential tools for increasing transparency and market reach. As farming practices become more advanced, these technologies serve as a link between small farmers and the larger domestic as well as global commodities markets. According to studies, e-marketing may cut transaction costs and smoothen agricultural supplies chain. These factors may improve the efficiency of the market. Overall, it would be an effective tool towards an increasingly digital economy (Kumar et al., 2022)

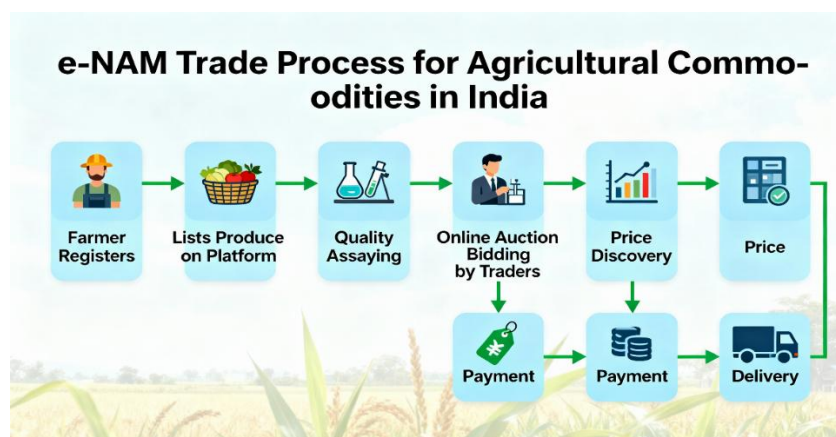


Fig: E-Nam trade process for Agricultural Commodities in India

Source: Own process

The use of information technology, cheap smart phones, and increasing penetration of internet add to the use of digital platforms. According to studies, smart digital marketing techniques can improve sales and visibility of agricultural products, especially with farmers accepting e-commerce, social media, and online networks to reach consumers directly (Faisal and Kurnianto, 2025). Farmers can access market formally, operate at competitive price rates, connect in real time, and take data-driven decisions through digitized transformations. These opportunities have not allowed Indian farmers to adopt e-market strategies because of many constraints. Digital marketing tools have not yet reached their full benefits because of absence of or poor digital literacy, infrastructure, device and persistent rural–urban divides. Additionally, various small and marginal farmers are also facing problems of branding, packaging, logistics, online presence etc., which deems them incapable of competing in the digital space. The study proves that applying a digital marketing strategy can increase product competitiveness and the scope of the market. However, the success of the strategy depends on the farmer's ability, resources, and environment (Rahmadani & Elinur, 2024).

In this context, the performance of e-market strategies in India, the opportunities created for different categories of farmers, and the constraints which continue to bar their adoption become important issues for evaluation. This study aims to look at the practical workings of various approaches of digital marketing for the agricultural commodity trade. Further, it intends to study the transformative and limiting barriers to the effectiveness of the same for farmers' livelihood.

1.1 Objectives of the Study

The aim of this study is to examine the performance, opportunities, and constraints of e-market strategies in the trading of agricultural commodities in India, with a focus on their impact on farmers' income, market access, and competitiveness. The study seeks to understand how digital marketing tools—such as online marketplaces, social media, mobile applications, and data-driven platforms—are transforming agricultural trade and affecting the livelihood of small, marginal, and household-level producers.

Objectives of the Study

1. To analyze the background and evolution of e-market strategies in Indian agriculture, including technological, infrastructural, and policy developments.
2. To examine the current agricultural commodity marketing systems in India and the role of digital platforms in enhancing market access and transparency.
3. To assess the performance and impact of e-market platforms on farmers' income, market reach, and competitiveness.
4. To identify the opportunities offered by e-market strategies for small, marginal, and household-level agricultural producers.
5. To explore the constraints and challenges faced by farmers in adopting and benefiting from e-market strategies.
6. To provide recommendations for improving the adoption and effectiveness of e-market strategies to support sustainable agricultural development and farmer livelihoods.

1.2 Scope of the study

The objective of this study is to investigate the application of e-market strategies for the trading of agricultural commodities in India. Various Digital marketing tools are recently transforming the trading of agriculture commodities. This changing pattern of marketing is influencing the livelihood of the farmers. The study focuses on small and marginal producers, household-level producers and medium-sized enterprises. The small and marginal farmers are affected by their different levels' digital literacy, access to tech, and market exposure.

The study explores three key dimensions.

1. How do digital tools make e-market platforms performance better, market access, and efficiency and income potential of farmers?
2. Opportunities offered by e-marketing – identifying opportunities such as a wider market reach, better price realisation, development of brand, integration into national and international markets.
3. There are several constraints and challenges such as poor digital literacy and infrastructure, lack of finance and resources and trust or security issues.

The study is based on input from empirical studies and literature reviews in the Indian and international context to study the practical, social and economic factors influencing adoption. The study on Indian agriculture offers recommendations for improving e-market based on lessons learnt from global best practices. The objective of these findings is to provide information on how digital marketing can ensure sustainability and equity for the benefit of various stakeholders in agriculture – policy makers, agriculturalists and farmers.

2. Review of literature

Author(s)	Year	Aim of the Study	Objectives	Scope	Key Findings
Atli, H. F.	2024	To discuss digital marketing transformation in the agricultural sector.	Present trends; highlight global digital shifts.	International agricultural digital marketing.	Digital tools reshape agriculture; data-driven systems enhance efficiency.
Chaudhari, G., & Anute, N. B.	2022	To study digital marketing practices of agricultural service firms in India.	Document strategies; study effectiveness.	Indian agricultural service companies.	Firms use social media, apps, and analytics; adoption varies by firm size.
Deshmukh, S. S., & Patil, S.	2021	To study how digital marketing transforms Indian agriculture.	Explore digital tools; analyse changes in market structure.	Indian agricultural sector.	Digital marketing increases transparency and reduces middlemen.
Faisal, H. N., & Kurnianto, B. T.	2025	To analyse digital marketing strategies to increase agricultural product sales.	Identify effective online tools; assess impact on farmer income.	Agricultural SMEs in technology transformation era.	Digital tools (social media & e-commerce) significantly enhance sales and visibility.
Jena, D. et al.	2023	To examine challenges & prospects of e-marketing for small & marginal farmers.	Identify constraints; explore opportunities.	Indian marginal and small farmers.	E-marketing has potential but constrained by low digital literacy & connectivity.
Kanellos, N. et al.	2024	To analyse digital marketing and profitability in the agri-food sector.	Examine resource efficiency and value chain changes.	Agri-food digital marketing value chains.	Digital tools improve profitability and streamline value chains.
Kumar, A., Naik, A., & Kote, P.	2022	To review e-marketing as a tool for agricultural development.	Examine e-marketing trends; identify benefits & limitations for farmers.	Review of Indian agricultural marketing practices.	E-marketing improves market access, reduces intermediaries, but adoption is low due to digital gaps.
Ma, X., & Gu, X.	2024	To propose new e-commerce marketing models in the digital economy.	Develop model; examine digital behaviour of consumers.	E-commerce sector (general, including agriculture).	AI-driven and data-driven models improve customer engagement and sales.
Marina, I., & Dinar, D.	2024	To examine digital marketing's role in household agricultural business transformation.	Assess sales increase; evaluate digital adoption.	Household-based agricultural businesses.	Significant sales improvement after adopting digital platforms.
Mihajlovic, I. M., & Djevojić, C.	2021	To study digital transformation of agricultural product sales during COVID-19.	Evaluate pandemic-induced digital shift.	Agricultural markets during COVID-19.	COVID-19 accelerated digital adoption and online sales channels.
Mihajlovic, I. M., Djevojić, C., & Stanković, M.	2021	To analyse internal market changes and innovative tools for agribusiness.	Identify drivers of change; assess innovation tools.	European agribusiness context.	Digital innovations improve market efficiency and competitiveness.
Ningsih, G. M. et al.	2024	To explore marketing strategies for local agricultural products in the digital era.	Identify challenges; propose digital-based solutions.	Local agricultural product markets.	Local farmers benefit from online visibility, but lack skills and infrastructure.
Purnomo, Y. J.	2023	To analyse digital marketing strategy for increasing e-commerce conversion.	Evaluate conversion factors; identify winning tactics.	E-commerce platforms.	SEO, content quality, and targeted advertising increase conversion rates.
Rahmadani, E., & Elinur, E.	2024	To study digital marketing strategies that enhance competitiveness of agricultural products.	Evaluate promotional strategies; analyse competitiveness factors.	Agricultural products in digital economy.	Digital branding and platform-based selling boost competitiveness and market reach.
Srivastava, G.	2022	To identify antecedents of e-marketing of agricultural products.	Determine influencing factors; study adoption behaviour.	Indian agricultural markets.	Awareness, affordability, and digital skills strongly influence adoption.
Tomala, C., & Del Rocio, H.	2022	To review digital marketing strategies for SMEs in agriculture.	Provide strategic framework; analyse SME challenges.	Agricultural SMEs.	SMEs benefit from digital outreach but face capital/resource limits.
Waluyo, T.	2023	To analyse agribusiness marketing opportunities and challenges in the digital era.	Identify digital opportunities; examine barriers.	Agribusiness sector.	High potential for online expansion; lack of skills remains barrier.
Xiao, J., Wang, W., & Tsai, B. Y.	2021	To analyse coupling of product marketing and agricultural economic development via big data.	Evaluate impact of "Internet+"; study data-driven marketing.	Chinese agricultural markets.	Big data strengthens marketing performance and economic outcomes.
Zhang, X., & Fan, D.	2023	To test whether digital transformation increases farmer income.	Measure adoption; assess income gaps between adopters & non-adopters.	Farmers in Hubei Province, China.	Digitalization significantly increases income and market access.

Zhang, Y.	2024	To explore online marketing mix strategies for China's agricultural products post-pandemic.	Analyse performance; propose strategy recommendations.	Chinese pandemic agricultural markets.	Online 4Ps mix improves sales, flexibility, and resilience.
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2.1 Research Gap

Many literature have reinforced that digital and e-marketing is playing a growing role in agriculture, but their ground level working is still little understood. Most studies either take a generalistic approach or showcase technological benefits. Very few studies look at farmers' experiences, challenges and adoption behaviour. There is also a gap in the understanding of digital marketing for small and marginal farmers. Such farmers have low digital literacy, poor internet connectivity, and limited resources. Rural to urban disparities in their access to technology and market opportunities are not studied.

We also want to close a major gap: the lack of credible empirical evidence on effective digital strategies. Current studies suggest there may be advantages. However, none reveal any long-term impacts on income, access to market, or reduced dependence on middlemen. The likelihood of farmers using a digital service is influenced not only by the service's quality and credibility but also by social and cultural factors.

To sum up, the present research clarifies digital marketing's potential but does not adequately highlight the practical, social, and economic contexts that shape farmer success. It is evident therefore that grounded, farmer-focused and context-specific studies are required.

3. Background of E-Market Strategies in Indian Agriculture

The move towards digitalisation has transformed agricultural marketing in India. It is helping farmers find ways to reach out to buyers other than mandis and middlemen. E-market strategies like trading platforms, apps and social media have facilitated the present value realisation for many producers while enhancing their market access and product visibility. International studies prove that the modern aspect of digital marketing on local agricultural products can strengthen competitiveness such as better branding, wider market reach, and product differentiation (Ningsih et al., 2024).

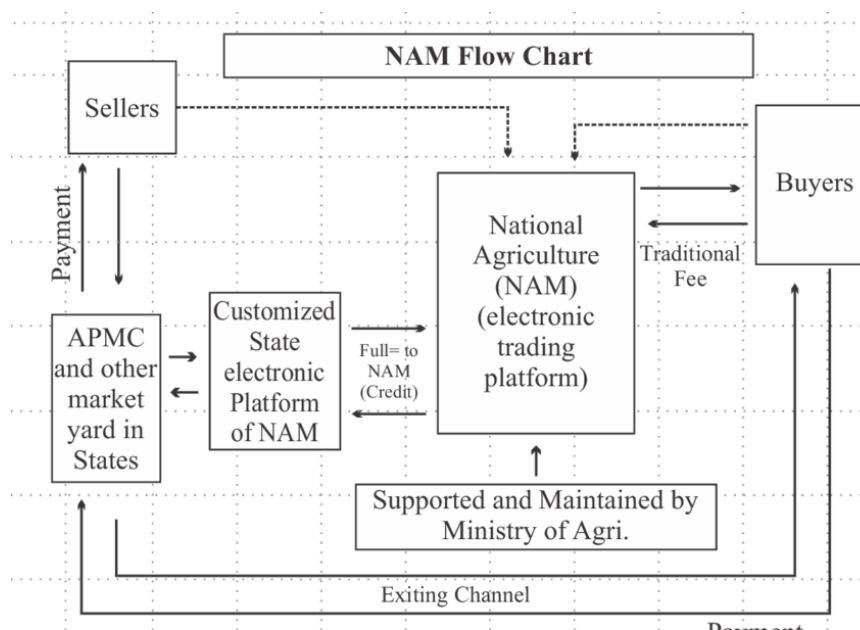


Fig: Flow Chart of e- NAM

Source: https://www.researchgate.net/publication/343240633_E-national_Agricultural_Market_e-NAM_in_India_A_Review

Digital tools not only improve communication and reduce wastage of resources, but also makes producers more answered to market demand quickly, improves efficiency and profitability of the value chains. According to Kanellos et al. (2024), such strategies have shown positive impacts in agri-food systems, revealing how online platforms can improve operations and promote greater returns.

Also, modern e-commerce approaches may offer farmers new avenues to sales by using analytics, customer insights and targeted promotions to sell their goods in the digital economy, (Ma & Gu, 2024).

Indian agriculture has a unique opportunity to connect with a larger market through e-market strategies to improve competitiveness and establish more efficient trading systems. Farmers are able to succeed only when they have access to technology and digital skills.

4. Overview of Agricultural Commodity Marketing Systems in India

In India, farmers traditionally sold their products through physical markets, mandis and intermediaries. These mandis are state regulated. Farmers sell their products through auctions or through commission agents.

The large-scale trading system has allowed farmers to sell bigger quantities of goods. But farmers do not get a good bargain. Their income gets reduced. This is due to price fluctuations and high transportation costs. They are dependent on middlemen. Improving market access and transparency to benefit farmers is the aim of various reforms over the years, such as electronic National Agriculture Market (e-NAM), direct marketing, farmer-producer organisations (FPOs), and contract farming.

New types of agricultural marketing emerged due to the rise of digital technology. E-commerce platforms have transformed the playing field. They have allowed the manufacturers to connect directly with the buyers. Moreover, they also allow producers to promote their products. Besides, they also engage with online buyers and enhance sales conversion. (Purnomo, 2023) Farmers and consumers are only a click away with these platforms that allow them to control the price and brand their product and reach to consumer market.

According to digital transformation studies, farmers can earn more because technological marketing gives them timely information on prices, reduces information gaps and widens their market (Zhang & Fan, 2023). While on the one hand, the Indian agricultural service companies are adopting digital marketing techniques like social media advertising mobile message based advisory services, online distribution channels to help farmers and ease the movement of commodity through value chain (Chaudhari & Anute, 2022).

Table: Digital Agricultural Marketing in India

Category	Details / Examples
Government Initiatives	e-NAM (Electronic National Agriculture Market), Farmer Producer Organizations (FPOs), Direct marketing, Contract farming
Technological Tools	Mobile apps for market prices, Advisory SMS services, Social media promotion, Online marketplaces connecting farmers with buyers
Benefits to Farmers	Better price realization, Reduced dependency on intermediaries, Access to larger markets, Branding opportunities for farm products
Market Efficiency	Reduced information asymmetry, Faster and reliable price discovery, Streamlined transactions and logistics
Trends in Adoption	Higher adoption among large-scale/tech-savvy farmers, Challenges for small/marginal farmers due to digital literacy and internet access

In general, India's agricultural commodity marketing is progressing from being traditional and oversight by intermediaries to being digital, transparent, and farmer-centric. Farmers can achieve better prices, develop better competitiveness and integrate with national and international markets through these evolving mechanisms.

5. Performance and Impact of E-Market Platforms

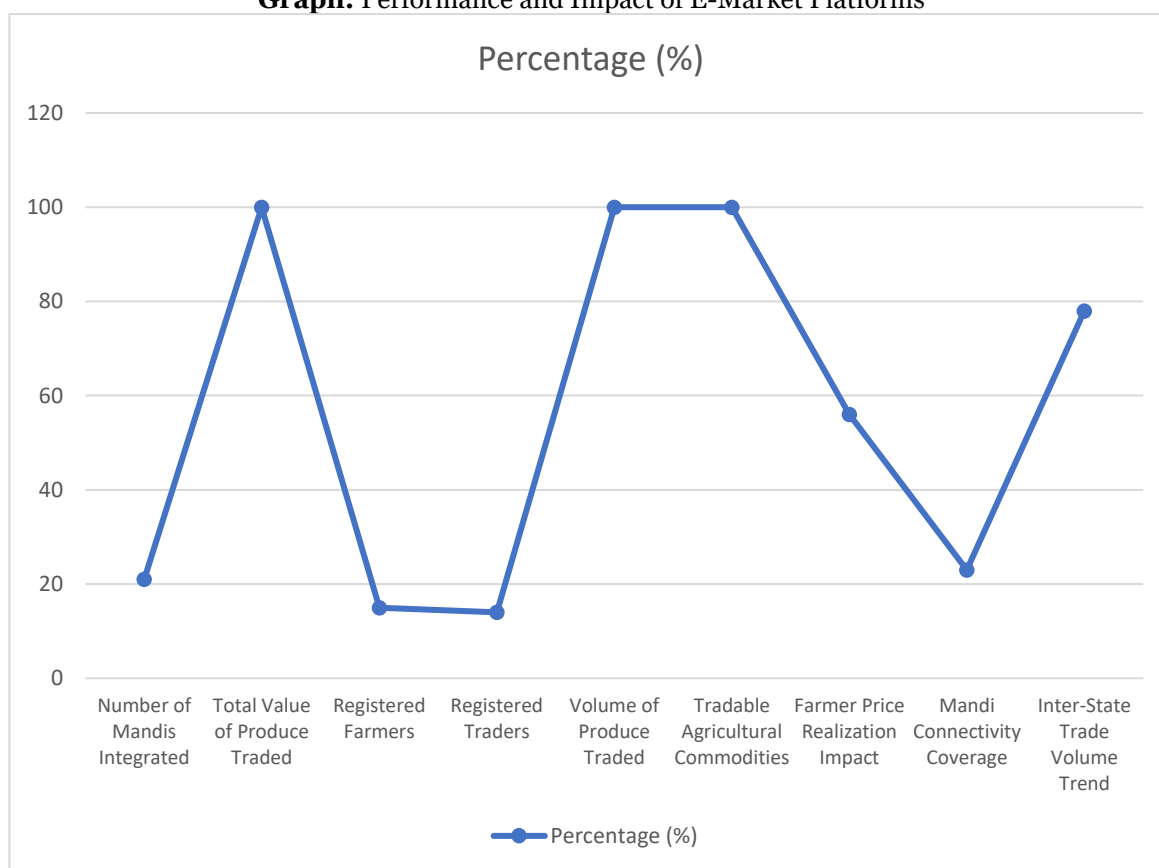
E-market platforms have emerged as an essential component of agricultural marketing as they provide farmers an opportunity for promotion, sale and distribution of their produce. These platforms help in improving performance by enhancing visibility, lowering marketing costs and direct buyer engagement. Researches elaborate that farmers' effective use of e-marketing systems is influenced by digital knowledge, trust, ease of the platform, and access to technology (Srivastava, 2022). Farmers can widen their market and more likely get a fair price when these conditions are good.

The agriculture of India has transformed because of digital marketing. Farmers receive demand, prices, and even preferences of consumers as they no longer rely on traditional intermediaries for information but more transparent and technology-driven systems. This change assists improved decision making and strengthens the overall efficiency of supply chain (Deshmukh & Patil, 2021). When people use the internet, they often earn a better living, are exploited less, and have greater control over the selling process.

The integration with advanced digital techniques such as big data and "Internet+" can further compound the impact of e-market platforms by establishing a link between marketing activities and agricultural economic development. These technologies help in predicting results, improving resource allocation, and aligning production to match market demand, which helps strengthen the performance of agriculture at micro and macro levels (Xiao et al., 2021). Moreover, innovations through tools and market-oriented digital solutions build internal market structures and provide the economy with competitive intensity and internal efficiency.

Table: Performance and Impact of E-Market Platforms**Source:** <https://enam.gov.in/web/dashboard/trade-data>

Metric	Value	Percentage (%)	Details
Number of Mandis Integrated	1,520+	~21% growth since 2022	Mandis onboarded on the e-NAM platform
Total Value of Produce Traded	₹4.3 lakh crore	Considered 100% baseline	Total trade value via e-NAM
Registered Farmers	1.79 crore	~15% of total Indian farmers	Farmers registered on e-NAM
Registered Traders	2.63 lakh	~14% growth from 2022	Traders enrolled on the platform
Volume of Produce Traded	11.02 crore metric tons	Considered 100% baseline	Total volume traded
Tradable Agricultural Commodities	247	100% total tradable commodities	Number of commodities on platform
Farmer Price Realization Impact	+56%	56% increase in farmer price realization	Compared to traditional markets
Mandi Connectivity Coverage	~23%	Percentage of total APMCs connected	Connected mandis on e-NAM
Inter-State Trade Volume Trend	Declined 78% FY25	78% decrease in inter-state trade FY25	Decline in inter-mandi trade
Challenges	Low penetration, infrastructure gaps, trader resistance	No specific %	Issues affecting platform adoption

Graph: Performance and Impact of E-Market Platforms

The e-NAM platform demonstrates robust growth with 1,520+ mandis integrated (21% increase since 2022) and ₹4.3 lakh crore in trade value, supported by 1.79 crore farmers (~15% of India's total) and 2.63 lakh traders (14% growth), achieving 11.02 crore MT volume across 247 commodities. Farmers benefit from 56% higher price realization and ~23% APMC connectivity, enhancing market efficiency despite a 78% FY25 inter-state trade decline due to infrastructure gaps and low penetration. Overall, these metrics highlight e-NAM's transformative impact on agricultural marketing while underscoring needs for better digital adoption and logistics.

The success of e-market platforms majorly depends on three factors- farmers' digital capabilities, accessibility of the platform, and the efficiency of technological support systems. When these platforms are implemented well, they can improve market efficiencies, enhance income-earning opportunities for farmers and modernise and strengthen the viability of agriculture.

6. Opportunities in E-Market Strategies

Due to the emergence of digital platforms, agricultural producers (especially SMEs) have leveraged these platforms to enhance their marketing and selling practices. The Covid-19 outbreak hastened the utilization of digital tools that showed the feasibility and potential of e-marketing strategies to ensure market access even during disruption (Mihajlovic & Djevojić, 2021). Farmers can interact easily with consumers directly with the help of digital marketing platforms. The relationship enhances bargaining power and reduces reliance on intermediaries. Farmers can promote the quality of their products, differentiate them, and sell them to customers outside their localities using tools such as online marketplaces, social media promotions, digital catalogs, and mobile-based applications (Waluyo, 2023).

Household-level agriculture has modified tremendously by means of digital marketing. According to Marina & Dinar (2024), e-market platforms are helpful for even small producers for increasing sales, brand establishment, and entering new markets. Through data analysis, personalized offers and targeted digital campaigns, a producer can better respond to customer preferences, demand forecasting and the ability to modulate production or marketing strategies. In addition, strategic e-marketing for small and medium agricultural enterprises can combine digital and traditional marketing to increase competitiveness, increase efficiency and improve profitability (Tomala & Del Rocio, 2022).

Together, these digital opportunities are transforming the world of agriculture, where producers big and small can be more active in the national and international markets. Using e-market strategies for agricultural marketing broadens the visibility and reach of the agricultural products. Further, it also leads to stabilization in income, entrepreneurship development, and sustainable agriculture business. Farmers and agribusinesses can create new income opportunities, boost operational efficiency, and withstand market fluctuations by using marketing for online farming using digital platforms is becoming increasingly important in approaching modern-day agricultural development.

7. Constraints and Challenges

Though the e-market platforms are gaining popularity but agriculture producers are facing many constraints and challenges which restrict them from using digital marketing to its full potential. Farmers - especially in rural areas – are unable to use digital technologies and devices due to a lack of knowledge. Many producers are not acquainted with online platforms, payment systems, and listing requirements, thus lowering their ability to engage e-market channels effectively (Zhang, 2024).

Infrastructure related constraints is another huge challenge. Many farmers are unable to participate fully in online marketplaces because of poor internet connectivity, lack of a smartphone or computer, and poor logistics networks. Sometimes even when digital channels are available there can be delays and transaction costs and quality of the product may get spoiled due to insufficient cold chain.

Financial and resource constraints also play a significant role. Many farmers that are small and marginal lack the capital necessary for these services. This makes their products less competitive on the web (Zhang, 2024). Also producers that do not learn about digital business management can also get overwhelmed by the online marketing mix. This includes pricing, promotion, and platform selection.

At last, issues associated with trust, security and market volatility further limit the efficiency of e-market strategies. Many farmers may not want to fully depend on online transactions because of the fear of fraud, delay in payments, and buyer malpractices. Furthermore, changing demand and competition from larger and more digitally advanced sellers can increase the vulnerability of small producers to market risks, which limits the long-term sustainability of e-marketing adoption (Zhang, 2024).

Overall, e-market strategies may offer some chances to improve market access and profitability, but the combined effects of technological, infrastructural, financial, and trust challenges can obstruct such strategies. It is important to overcome these challenges if small and marginal farmers are to take full advantage of digital marketing platforms.

8. Conclusion and Recommendations

The study indicates the potential of e-market strategies in revolutionizing the trading of agricultural commodities in India as well as their limitations. Because of e-market systems, farmers have the utmost benefits in terms of market access, visibility, enhanced income potential, and lesser dependency on middlemen. Recall small and household-level producers. With digital tools, including online marketplaces, social media promotions, mobile apps, and data-driven solutions, they have managed to widen their client and sourcing base and improve competitiveness (Jena et al., 2023; Atli, 2024).

Digital Marketing in Indian Agricultural Markets: Opportunities and Constraints



Fig: Digital Marketing in India Agricultural Markets

Source: Own processing

There are some problems that limit the adoption and effectiveness of e-market strategies. Barriers such as limited digital literacy, poor infrastructure and access to technologies, cost constraints as well as unfamiliarity with online marketing practices restrict the possibilities of these platforms. Small and marginal farmers are unable to use these tools effectively. Further worry about trust, cyber-security, and volatile market (Jena et al., 2023). That is, e-marketing offers great prospects for improving agricultural trade. However, achieving this is contingent upon removing these socio-technical and institutional barriers.

As per the findings recommendations are there to improve the performance of e-market strategies in Indian agriculture.

1. Farmers need training courses to become internet experts, marketing professionals and aware of e-tools, which can be supported by governments and NGOs. This will help them create listings, make transactions, and do marketing with the help of data.
2. We need to invest more in technology for digital payments, internet connectivity, cold chain logistics and transport networks. This is important for smooth running of electronic market platform.
3. Small and marginal farmers need access to credit at low interest rates, subsidies for digital tools, and financial assistance for packaging, branding, and online promotion to improve their competitiveness.
4. Government bodies, farm cooperatives and private players must work together to create conducive policies that foster trust by ensuring transparency and fair pricing mechanism in online transactions.
5. Mixing old-school marketing and digital marketing can make swapping easy for farmers, who can slowly adapt to it without losing their existing market network.

To sum up, e-market strategies are crucial for modernising agricultural marketing in India. With the right training, infrastructure, funds, and institutional frameworks, it could bring in enhancement of farmers' income, integration in the market, and competitive cost-efficient production of various crops (Jena et al., 2023; Atli, 2024).

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