



Digital Agricultural Marketing in Odisha: Progress, Challenges and Future Prospects of e-NAM

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Agricultural marketing plays a crucial role in enhancing income of the farmers and ensuring efficient movement of agricultural produce from farms to consumers. Recognizing the limitations of fragmented Agricultural Produce Market Committee (APMC) markets, the Government of India introduced the National Agriculture Market (e-NAM) in 2016 as a unified electronic trading platform. Odisha with nearly 93 per cent of small and marginal farmers has emerged as one of the leading eastern states in implementing this digital marketing initiative. The integration of 66 regulated markets, registration of over 4.56 lakh farmers and facilitation of trade worth more than Rupees 5,754 crore demonstrate the growing acceptance of e-NAM in the state. Despite these achievements, inadequate assaying facilities, poor logistics, digital illiteracy and infrastructural gaps continue to constrain its effectiveness. This article reviews the progress of e-NAM in Odisha, highlights its contribution to agricultural marketing and rural development, identifies major implementation challenges and suggests policy measures for strengthening digital agricultural markets.

Keywords: Agricultural marketing, Digital agriculture, e-NAM, Farmer producer organizations, Market reforms, Odisha

Introduction

Agriculture remains the principal source of livelihood for a majority of rural households in Odisha. While improvements in crop production have contributed significantly to food security, farmers continue to face serious challenges in marketing their produce. Price fluctuations, dependence on intermediaries, inadequate market infrastructure and restricted access to competitive markets often prevent farmers from receiving remunerative prices. Therefore, improving agricultural marketing has become as vital as increasing agricultural production.

Historically, agricultural marketing in Odisha has been regulated through the Agricultural Produce Market Committee (APMC) system under the Odisha Agricultural Produce Markets Act, 1956. The objective of regulated markets was to protect farmers against unfair trade practices and ensure transparent transactions. However, over time localized markets became increasingly dependent on commission agents and licensed traders, limiting competition and restricting the bargaining power of farmers. Farmers located in remote tribal districts such as Koraput, Rayagada, Kandhamal and Nabarangpur were particularly disadvantaged because transporting small quantities of produce to distant markets

was neither economically viable nor logistically feasible (Government of Odisha, Co-operation Department, n.d.). To overcome these structural constraints the Government of India launched the National Agriculture Market (e-NAM) in April 2016 through the Small Farmers' Agribusiness Consortium (SFAC). The initiative aims to integrate APMC markets across the country into a unified electronic trading platform that facilitates transparent price discovery, online bidding and interstate trade (Government of India, 2016). Rather than replacing physical markets, e-NAM strengthens them by introducing digital technologies that enhance market efficiency and reduce information asymmetry between buyers and sellers. Odisha adopted the programme through a series of legislative and administrative reforms that enabled electronic trading, single unified trader licensing and single-point levy of market fees. These reforms have contributed significantly to the modernization of agricultural marketing and have positioned Odisha among the progressive states promoting digital agricultural commerce.

At the national level, the National Agriculture Market (e-NAM) has witnessed remarkable expansion since its launch in April 2016. As of March 2026, the platform has integrated 1,656 Agricultural Produce Market Committee (APMC) mandis across 23 States and 4 Union Territories creating one of the world's largest electronic agricultural marketing networks. More than 1.80 crore farmers, 2.72 lakh traders and 4,724 Farmer Producer Organizations (FPOs) have been registered on the platform. Since its inception e-NAM has facilitated cumulative trade of over 13.25 crore metric tonnes of agricultural produce valued at approximately ₹4.82 lakh crore covering 247 agricultural commodities. These achievements demonstrate the increasing acceptance of digital agricultural marketing and provide a strong foundation for states such as Odisha to integrate local farmers into competitive national markets (Press Information Bureau, 2026).

e-NAM as a catalyst for digital agricultural marketing

The need for e-NAM is particularly significant in Odisha because of its agricultural structure. According to the Odisha Economic Survey 2024-25, nearly 93 per cent of farmers belong to the small and marginal category with average operational holdings below one hectare (Government of Odisha, 2025). Such farmers usually produce limited marketable surplus and therefore depend heavily on village traders or commission agents for disposing of their produce. The traditional marketing chain generally involves multiple intermediaries including village aggregators, commission agents, wholesalers, processors and retailers. Every intermediary adds marketing costs while reducing the producer's share in the final consumer price. Limited market information further weakens bargaining position of the farmers compelling them to accept prices determined by local traders.

The introduction of e-NAM has fundamentally altered this marketing environment by creating a digital marketplace where farmers can access buyers from different districts and states. Through online bidding agricultural commodities receive wider market exposure, increasing competition among buyers and improving price realization. Farmers no longer remain confined to their local mandi but can potentially sell to processors, exporters and institutional buyers across the country.

The platform has been beneficial particularly for the high-value agricultural commodities of Odisha. Products such as Kandhamal turmeric, Koraput coffee, Koraput ginger, maize, cotton and groundnut possess substantial demand beyond the state. By providing national visibility to these commodities e-NAM creates opportunities for premium pricing, quality based trading and value addition. Besides improving market access e-NAM has strengthened transparency through electronic auctioning and digital payment systems. Direct transfer of payments into farmers' bank accounts reduces dependence on cash transactions and minimizes opportunities for financial irregularities. The platform also complements government initiatives promoting digital agriculture, financial inclusion and Farmer Producer Organizations (FPOs) thereby contributing to inclusive rural development.

Progress of e-NAM in Odisha

Against this encouraging national backdrop, Odisha has made significant progress in implementing e-NAM. According to the Ministry of Agriculture and Farmers Welfare (2025), 66 Regulated Market Committees (RMCs) have been integrated with the e-NAM platform. Although the state has more than 535 market yards these integrated markets represent the major agricultural trading centres covering different agro-climatic regions. The state's progress contributes to the nationwide expansion of e-NAM which by March 2026 had connected 1,656 mandis across the country with more than 1.80 crore registered farmers and cumulative trade worth Rupees 4.82 lakh crore (Press Information Bureau, 2026).

Participation of stakeholders has increased consistently. As of June 2025, approximately 4,56,963 farmers, 10,010 traders, 503 Farmer Producer Organizations and around 2,200 commission agents had been registered under the platform (Government of Odisha, Co-operation Department, n.d.). This expanding network reflects growing confidence in electronic marketing and increasing acceptance of digital technologies within the agricultural sector. The economic impact of the programme is equally noteworthy. Cumulative agricultural trade conducted through e-NAM in Odisha has exceeded Rupees 5,754.67 crores demonstrating the growing importance of the platform in agricultural commerce (Ministry of Agriculture and Farmers Welfare, 2025). Major commodities traded include paddy, maize, cotton, groundnut, turmeric and vegetables. In addition, Odisha has pioneered the online marketing of countable commodities such as coconuts and lemons recording transactions involving more than 45 crore units highlighting the versatility of the platform (Press Information Bureau, 2024).

Benefits, challenges and future prospects

The implementation of e-NAM has generated several economic and institutional benefits for farmers and the agricultural marketing system in Odisha. One of its most significant contributions is transparent price discovery. Unlike conventional markets where prices are often influenced by local traders and intermediaries, e-NAM allows buyers from different regions to participate in competitive electronic bidding. This competitive environment enables farmers to receive prices that more accurately reflect market demand. Studies conducted in Odisha have shown that electronic bidding has improved price realization particularly for maize and other high value commodities (Khandagiri and Kannan, 2022). Another notable achievement is the reduction in marketing inefficiencies. Traditionally, agricultural produce passed through several intermediaries before reaching processors or consumers. Every additional intermediary increased marketing cost and reduced the producer's share of the consumer's rupee. By facilitating direct interaction between buyers and sellers e-NAM reduces unnecessary transaction layers, promotes transparency and enhances marketing efficiency. Although commission agents continue to perform important facilitative roles, their influence on price determination has gradually declined.

The platform has also significantly expanded market access for Odisha's agricultural commodities. The state produces several crops with high commercial value including Kandhamal turmeric, Koraput coffee, Koraput ginger, maize, cotton and groundnut. Through e-NAM these commodities are now visible to buyers across India including food processors, exporters, pharmaceutical industries and institutional purchasers. Interstate demand has particularly benefited maize producers in districts such as Nabarangpur where competition from poultry feed manufacturers in Andhra Pradesh and Telangana has resulted in better prices (Khandagiri and Kannan, 2022). An equally important outcome has been the strengthening of Farmer Producer Organizations (FPOs). Collective marketing through FPOs enables aggregation of produce from numerous smallholders thereby creating marketable quantities attractive to large buyers. Aggregation reduces transportation costs, strengthens bargaining power and facilitates value addition through grading, sorting, packaging and branding. The increasing participation of FPOs demonstrates that digital marketing can complement institutional innovations aimed at improving income of the farmers.

Another emerging opportunity is warehouse based marketing through Electronic Negotiable Warehouse Receipts (e-NWRs). Under this system farmers can deposit produce in accredited warehouses, receive warehouse receipts and obtain institutional credit without immediately selling their produce. They may subsequently sell when market prices improve thereby avoiding distress sales during peak harvest periods. Such integration of warehousing and digital marketing has the potential to stabilize farm income and strengthen supply chain efficiency.

Despite these encouraging achievements several challenges continue to limit the effectiveness of e-NAM in Odisha. The first major challenge is the limited availability of scientific assaying facilities. Online agricultural marketing depends upon accurate quality assessment because buyers frequently purchase commodities without physically inspecting them. Many regulated markets however still lack adequately equipped assaying laboratories capable of certifying moisture content, purity, grain quality and other quality parameters. Inadequate quality certification discourages interstate buyers and reduces confidence in online transactions (Government of Odisha, Co-operation Department, n.d.).

The second challenge is digital divide. Although internet penetration has increased considerably digital infrastructure remains uneven across tribal and remote districts. Limited smartphone ownership, poor internet connectivity and inadequate digital literacy prevent many farmers from independently participating in electronic trading. Elderly cultivators often rely upon commission agents or mandi officials for registration, bidding and transaction management thereby limiting the empowerment expected from digital agriculture.

Behavioural constraints also influence adoption. Many small and marginal farmers require immediate cash after selling agricultural produce to meet household expenses or repay debts. Although digital payments under e-NAM improve transparency and financial accountability settlement may require one or two working days. Consequently, some farmers continue to prefer traditional traders who offer instant cash despite comparatively lower prices (Parmar and Bansal, 2025).

Transportation and logistics constitute another major bottleneck. The scattered nature of agricultural production, inadequate rural roads, insufficient storage facilities and high transportation costs reduce the economic benefits of online marketing particularly for farmers located far from regulated markets. Strengthening rural logistics and warehouse infrastructure therefore remains essential for maximizing the impact of e-NAM.

Limited awareness regarding quality standards, grading procedures, electronic bidding and warehouse receipt systems further restricts participation of the farmers. Agricultural extension personnel, Krishi Vigyan Kendras (KVKs), Farmer Producer Organizations and state agricultural agencies must therefore intensify awareness programmes and capacity building initiatives to improve the understanding of farmers about digital marketing systems.

Policy Implications

The long term sustainability of e-NAM depends upon coordinated interventions aimed at strengthening infrastructure, institutions and human capacity. Priority should be given to establishing modern assaying laboratories in all regulated markets and introducing mobile quality testing units capable of providing scientific grading services at village aggregation centres. Such facilities would improve buyer confidence and promote interstate trade. Simultaneously, digital literacy programmes should be expanded through State Agricultural Universities, Krishi Vigyan Kendras, Agricultural Extension Departments and Farmer Producer Organizations. Practical training on online registration, electronic bidding, digital payments and market information services would enable farmers to participate independently in digital marketing.

Government support for Farmer Producer Organizations should continue through financial assistance, infrastructure development, managerial training and stronger market linkages. Well-functioning FPOs can aggregate produce efficiently, negotiate better prices and facilitate value addition. Investments in warehouse infrastructure, cold chains, transport connectivity and rural logistics should accompany digital market reforms. Scientific storage

facilities integrated with e-NAM will reduce post-harvest losses and enable farmers to sell produce according to market conditions rather than immediate financial necessity. Finally, real-time market intelligence systems providing commodity prices, demand forecasts, weather advisories and transportation information through mobile applications and SMS services can help farmers make informed marketing decisions.

Conclusion

The National Agriculture Market represents a transformative step towards modernizing agricultural marketing in India. Odisha has demonstrated significant progress through the integration of 66 regulated markets, registration of more than 4.56 lakh farmers and digital trade exceeding Rupees 5,754 crore. These achievements indicate that digital platforms can substantially improve transparency, competition and efficiency within agricultural markets. Nevertheless, digital transformation alone cannot guarantee inclusive agricultural development. Strengthening physical infrastructure, scientific assaying, logistics, digital literacy and institutional support remains equally important. Farmer Producer Organizations, agricultural extension agencies and research institutions will continue to play a central role in enabling farmers to realize the full benefits of digital agricultural marketing. The continued expansion of e-NAM at the national level demonstrates the transformative potential of digital agricultural marketing in India. Odisha has established a strong foundation through the integration of 66 regulated markets and increasing participation of farmers, traders and FPOs. Continued investments in infrastructure, scientific assaying, digital literacy, logistics and institutional capacity will further strengthen the agricultural marketing ecosystem of the state. With sustained policy support and technological innovation e-NAM has the potential to enhance market efficiency, improve farmers' income, promote value addition and contribute to sustainable agricultural development in Odisha.

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