

RESEARCH ARTICLE

BOOSTING BIHAR'S ECONOMY THROUGH MITHILA MAKHANA: OPPORTUNITIES AND CHALLENGES

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ABSTRACT

Makhana, also known as fox nut or gorgon nut, is one of Bihar's most significant agro-based products. The Mithila region of Bihar, particularly in districts like Darbhanga, Madhubani, and Saharsa, is a leading producer of makhana in India. Recognized for its high nutritional value and increasing global demand, makhana has the potential to become a key driver of Bihar's economy. This paper explores how Mithila Makhana can be leveraged to boost Bihar's economic growth by enhancing production, improving supply chain infrastructure, promoting exports, and ensuring farmer welfare. The study also identifies challenges such as inadequate processing facilities, lack of organized markets, and poor branding, while proposing strategic solutions to overcome these hurdles.

KEYWORDS

Mithila Makhana, Bihar Economy, Agricultural Development, Export Potential, Rural Employment, food processing industry

1. INTRODUCTION

Bihar, despite being rich in natural resources and agricultural potential, remains one of India's economically lagging states. However, one of its most promising agricultural products is Makhana (*Euryale ferox*), commonly known as fox nut or gorgon nut. Bihar accounts for more than 85 percent of the makhana produced in the country (Khan, 2025; Bihar Horticulture Development Society, 2022). The northern region of Bihar, which includes the districts of Madhubani, Darbhanga, Sitamarhi, Saharsa, Katihar, Purnia, Supaul, Kishanganj, and Araria, possesses agro-climatic conditions that are well-suited for the cultivation of makhana (Minten et al., 2010; Kumari et al., 2016). The Mithila region—comprising districts like Darbhanga, Madhubani, and Saharsa—being a leading producer (Khan, 2025). Makhana is highly valued for its nutritional benefits, medicinal properties, and commercial viability, and in recent years, it has gained recognition as a superfood in national and international markets (Das et al., 2006; Kumar et al., 2016). Given its immense potential, Mithila Makhana can become a key driver of Bihar's economy by improving rural employment, boosting exports, and attracting investments in processing and value addition.

However, despite its importance, makhana production in Bihar remains unorganized and inefficient, plagued by challenges such as traditional farming techniques, inadequate processing infrastructure, and poor branding. This research explores how Bihar can harness the full potential of Mithila Makhana to drive economic growth. By adopting modern farming techniques, improving supply chain infrastructure, enhancing branding efforts, and promoting exports, the makhana industry can contribute significantly to Bihar's development.

2. ECONOMIC SIGNIFICANCE OF MITHILA MAKHANA

Makhana cultivation is a labour-intensive process that provides employment to thousands of rural families in Bihar (Minten et al., 2010). It plays a crucial role in poverty alleviation and rural development by offering sustainable livelihoods to farmers, labourers, and traders

involved in pond management, harvesting, processing, and marketing. The market demand for makhana has grown exponentially, driven by increasing health consciousness and a shift towards organic and nutritious snacks. This demand extends beyond India, with significant interest from countries like the USA, UK, Canada, and UAE, where makhana is marketed as a premium superfood.

Apart from its direct economic benefits, makhana also holds significant nutritional and commercial value. It is rich in protein, fiber, antioxidants, and essential minerals, making it a popular choice for health-conscious consumers. The food, pharmaceutical, and cosmetic industries have also started exploring its functional and medicinal properties, further expanding its market potential. If properly developed, the makhana industry could emerge as a multi-billion-rupee sector, positioning Bihar as a global leader in the production and export of this unique crop.

Despite the substantial market for Makhana, with over 15,000 metric tonnes traded annually and a valuation running into several thousand crores, the economic benefits reaching farmers remain disproportionately low. According to data from the Micro, the trade volume reflects a thriving industry (Small and Medium Enterprises Development Institute, 2016). The study reveal that farmers earn less than ₹250 crore collectively, while traders make around ₹550 crore (Sandeep et al., 2015; The National Research Centre for Makhana, 2003). This disparity highlights significant inefficiencies within the marketing channels and points to a lack of integration across the value chain, which prevents producers from accessing fair profits.

3. CHALLENGES IN MAKHANA PRODUCTION AND MARKETING

Despite its economic importance, Bihar's makhana industry faces several challenges that hinder its growth and profitability. One of the primary issues is reliance on traditional farming techniques. Makhana cultivation is largely unorganized, and most farmers lack access to modern technology, scientific farming methods, and improved seed varieties (Kashyap and Shukla, 2023; Ahmad and Kumar, 2020). This results in low productivity and inconsistent quality, making it difficult for farmers to

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compete in high-value markets. Additionally, farmers struggle with poor access to credit, subsidies, and government support, further limiting their ability to expand production (Ahmad and Kumar, 2020).

Another major issue is the lack of proper processing and storage infrastructure (Ahmad and Kumar, 2020). Makhana farmers typically sell raw seeds at low prices, missing out on the profits that could be earned through value addition. The absence of modern processing units and cold storage facilities leads to significant post-harvest losses and quality deterioration, reducing the competitiveness of Bihar's makhana in national and international markets. In many cases, middlemen exploit farmers by purchasing makhana at unfairly low rates and selling at much higher margins, leading to economic losses for primary producers (Sandeep et al., 2015; National Research Centre for Makhana., 2003).

Additionally, poor branding and lack of organized marketing strategies prevent Mithila Makhana from reaching premium customers (Ahmad and Kumar, 2020). Unlike other Indian agricultural products such as Darjeeling Tea or Alphonso Mangoes, makhana lacks strong branding, making it difficult for consumers to differentiate high-quality Mithila Makhana from lower-quality alternatives. Moreover, Bihar faces export challenges due to high trade barriers, lack of international certifications, and inadequate government support for makhana exporters. These challenges need to be addressed through policy reforms, investment in infrastructure, and strategic marketing efforts.

Recently, under Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme the twelve ODOP brands launched also include Makhana King (foxnuts). These brands are designed to promote specific products from different districts across India under the One District One Product (ODOP) initiative (MOFPI, 2022-23).

4. STRATEGIES FOR STRENGTHENING THE MAKHANA INDUSTRY

To transform Mithila Makhana into a globally competitive industry, Bihar must adopt a multi-dimensional approach focusing on modernization, value addition, market expansion, and policy support. One of the most critical steps is introducing scientific farming techniques to improve productivity and quality. This includes providing training programs for farmers, encouraging the use of high-yield seed varieties, and promoting organic farming practices to cater to health-conscious consumers. Additionally, mechanized harvesting and post-harvest technology improvements can help reduce labour costs and improve efficiency.

Investing in processing and storage infrastructure is also essential. The government should establish state-of-the-art makhana processing units in major production hubs like Darbhanga and Madhubani, where farmers can sell raw seeds for processing into value-added products such as roasted makhana, makhana flour, and makhana-based snacks. Encouraging public-private partnerships (PPPs) in the food processing industry can attract investments and create employment opportunities. Furthermore, providing farmers with cold storage and warehousing facilities will help in reducing wastage and maintaining quality standards.

Participating in global food expos, e-commerce platforms, and social media marketing can further boost its market reach. In addition, establishing farmer cooperatives and direct-to-consumer sales models can reduce dependence on middlemen and increase farmer incomes.

The Bihar government should also focus on export promotion by providing incentives and subsidies for makhana exporters. Setting up dedicated export promotion zones and negotiating trade agreements with foreign markets can help expand Bihar's presence in the global organic food industry. Encouraging tie-ups with international brands and retailers can further enhance the value of Mithila Makhana in global markets.

5. GOVERNMENT INITIATIVES

Several successful initiatives have demonstrated how targeted efforts can uplift Bihar's makhana industry. In Darbhanga, small-scale processing units have already adopted mechanized techniques, leading to higher yields and improved quality standards. Some farmers have also shifted to organic makhana production, which has enabled them to sell at premium prices in international markets. The Bihar government has initiated pilot projects to distribute high-quality seeds, provide technical training, and offer financial assistance to makhana farmers. These projects have shown promising results in terms of yield improvement and farmer income growth.

Additionally, some private companies have started working directly with farmers, providing better pricing, training, and market access. The rise of online retail platforms and food startups focusing on healthy snacks has also created a new demand for premium packaged makhana, further increasing its market potential.

Recently in the Union Budget 2025-26, the Government of India announced the establishment of a dedicated Makhana Board in Bihar, aligning with the broader vision of promoting 'Agriculture as the first engine' in India's developmental trajectory. This strategic initiative aims to holistically enhance the production, processing, value addition, and marketing of makhana, a regionally significant and economically promising crop.

The proposed Makhana Board will serve as a nodal agency to address existing structural inefficiencies and facilitate an integrated value chain approach. It is expected to play a pivotal role in providing technical support, training, and capacity-building assistance to makhana farmers. Furthermore, it will ensure that cultivators benefit from the full spectrum of government schemes and support mechanisms tailored to their needs.

A financial allocation of ₹100 crore has been earmarked for the operationalization of the Board, reflecting the government's commitment to strengthening the makhana sector. To enhance collective bargaining power and streamline production and market linkages, stakeholders engaged in the makhana value chain will be systematically organized into Farmer Producer Organizations (FPOs). This organizational restructuring is anticipated to empower farmers, improve economies of scale, and facilitate greater market access and profitability. This development signifies a substantial policy shift toward recognizing the socio-economic potential of niche agri-products and integrating them into the national agricultural growth agenda.

6. CONCLUSIONS

Mithila Makhana holds immense potential to drive economic growth, rural employment, and global trade opportunities for Bihar. However, unlocking this potential requires systematic policy interventions, investment in infrastructure, and better market integration. The state government, along with private sector stakeholders, must focus on modernizing farming techniques, improving processing and storage facilities, strengthening branding, and promoting exports.

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