

Makhana Cultivation in Bihar: A Rising Opportunity with the New Budget Announcement

Makhana cultivation has become a significant contributor to Bihar's rural economy, especially in the Mithilanchal and Kosi regions, which together account for over 80% of India's *makhana* production. Renowned for its high protein, fiber, and mineral content, *makhana* has seen increasing demand both domestically and internationally due to its health benefits. In the Union Budget 2025–26, the Indian government announced the establishment of a dedicated Makhana Board in Bihar. This initiative aims to bolster the sector by supporting research, enhancing processing infrastructure, and expanding market access. Key measures include financial assistance for infrastructure development, promotion of exports, improvement of farmer welfare, and the adoption of sustainable practices. Emphasis on modernizing water management, improving seed quality, and fostering technological adoption is expected to further strengthen the industry. With robust government support, Bihar's *makhana* sector is poised for significant growth, offering farmers increased income opportunities and positioning the state as a global leader in the production of this nutritious superfood.

IN recent years, Bihar has solidified its position as a leading center for *makhana* (fox nut) cultivation, particularly in the Mithilanchal and Kosi regions. These areas contribute over 80% of India's total *makhana* production, making the state a pivotal player in the industry. *Makhana*, esteemed for its rich protein, fiber, and mineral content, has gained popularity both as a nutritious snack and as an ingredient in various culinary dishes. This surge in demand has provided a vital source of income for thousands of farmers in the region.

Recognizing *makhana*'s economic and nutritional significance, the Indian government announced the establishment of a dedicated Makhana Board in Bihar as part of the Union Budget 2025–26. This initiative aims to enhance the sector by supporting research, improving processing infrastructure, and expanding market access. Key measures include financial assistance for infrastructure development, promotion of exports, improvement of farmer welfare, and the adoption of sustainable practices. Efforts to modernize water management, improve seed quality, and foster technological adoption are expected to further strengthen the industry.

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Makhana a superfood

Makhana, scientifically known as *Euryale ferox*, is an aquatic plant native to East Asia, renowned for its edible seed. In India, it is predominantly cultivated in Bihar, Uttar Pradesh, and parts of northeastern India. The seed is extensively used in Indian cuisine, especially in snacks, soup, and dessert. Beyond their culinary applications, *makhana* seed is consumed for their numerous health benefits, making them highly sought after in both domestic and international market.

Recognized as a "superfood" due to its high nutritional value, *makhana* is rich in protein, antioxidant, fiber, and essential minerals such as calcium, magnesium, and iron. Its low-calorie content, coupled with these health benefits, has led to its increasing incorporation into weight-loss diet, diabetic-friendly snack, and gluten-free meal plans. The growing demand for *makhana* is driven not only by the Indian market but also by global consumers seeking healthier snack alternative.

Makhana cultivation in Bihar

Bihar stands as the foremost producer of *makhana* (fox nut) in India, contributing approximately 90% of the nation's output. The Mithilanchal and Kosi regions, endowed with abundant ponds, lakes, and wetlands, offer optimal conditions for *makhana* cultivation. This aquatic crop flourishes in shallow, stagnant water, making Bihar's landscape particularly conducive to its growth.

Makhana cultivation is integral to Bihar's rural economy, providing livelihoods to thousands of smallholder farmers. Traditional farming methods, passed down through generations, involve sowing seeds in water bodies, meticulously managing water levels, and harvesting after several months. The process is labor-intensive, requiring farmers to wade through muddy waters to collect the seeds, which are then cleaned, sun-dried, and roasted.

Economically, *makhana* has emerged as a lucrative crop, especially with the rising demand for health foods. Beyond farming, it has spurred the development of local industries focused on processing, packaging, and distribution, thereby generating additional employment opportunities. *Makhana*'s export to various global markets further bolsters the state's economy.

In recognition of its significance, the Indian government has implemented initiatives to support the *makhana* sector, including the establishment of a *Makhana* Board aimed at enhancing research, improving processing infrastructure, and expanding market access.

Makhana cultivation not only sustains Bihar's rural communities but also contributes substantially to the state's economic growth, underscoring its role as a cornerstone of the region's agrarian landscape.

The role of the Makhana Board: A game-changer for Bihar

The establishment of the Makhana Board in Bihar marks a significant advancement in the state's agricultural sector, particularly benefiting rural communities engaged in *makhana* (fox nut) cultivation. Announced in the Union Budget 2025–26, this initiative aims to enhance the production, processing, and marketing of *makhana*, thereby improving livelihoods and positioning Bihar as a global leader in this superfood industry.

Key objectives of the Makhana Board

- **Research and development:** The Board will invest in research to develop high-yield, disease-resistant *makhana* varieties, ensuring increased productivity and sustainability.
- **Post-harvest processing and infrastructure:** Efforts will focus on establishing modern processing units and storage facilities to reduce post-harvest losses and maintain product quality.
- **Market access and promotion:** By facilitating access to domestic and international markets, the Board aims to boost exports and enhance the global presence of Bihar's *makhana*.
- **Farmer welfare:** Initiatives include organizing farmers into Farmer Producer Organizations (FPOs), providing training, and ensuring they benefit from relevant government schemes.
- **Marketing and branding:** The Board will work on branding Bihar's *makhana* as a premium product, leveraging its Geographical Indication (GI) tag to distinguish it in competitive markets.
- Complementing these efforts, the government has also announced the establishment of a National Institute of Food Technology, Entrepreneurship, and Management in Bihar. This institute will support food processing

activities, fostering entrepreneurship and enhancing farmer incomes through value addition.

- With these strategic initiatives, Bihar's *makhana* sector is poised for significant growth, offering farmers improved income opportunities and reinforcing the state's position in the global superfood market.

Challenges in *makhana* cultivation in Bihar

Despite its vast potential, the *makhana* industry in Bihar faces several pressing challenges that must be addressed to unlock its full growth prospects:

Water management constraints: *Makhana* cultivation is highly dependent on stable water levels, which are often disrupted due to erratic rainfall and inadequate irrigation systems. Farmers frequently encounter difficulties in maintaining optimal water conditions. The Makhana Board's initiatives to enhance water management infrastructure are expected to alleviate these issues.

Lack of modern processing units: Bihar suffers from a shortage of advanced *makhana* processing facilities, resulting in minimal value addition and significant post-harvest losses. Many farmers lack access to proper drying and roasting technologies crucial for maintaining product quality. Investment in modern processing infrastructure by the Makhana Board is essential to overcome this challenge.

Low technological penetration: The practice of *makhana* farming in Bihar remains largely traditional. Many farmers are not equipped with modern agricultural tools or knowledge. The Makhana Board is working to bridge this gap by promoting awareness and access to advanced farming techniques, which can lead to improved productivity and crop quality.

Unstable market access and price volatility: Despite increasing demand, farmers often face challenges in accessing reliable markets and are vulnerable to exploitation by intermediaries. To address this, the Makhana Board is focusing on strengthening direct market linkages and positioning Bihar's *makhana* as a global brand, enabling farmers to secure fair and stable prices for their produce.

The Impact of the New Budget Announcement

The 2025 Union Budget has placed significant focus on the advancement of the agricultural sector, with particular emphasis on supporting *makhana* farmers in Bihar. The budget outlines several measures expected to have a positive impact on this sector:

Formation of the Makhana Board: The government has dedicated a substantial portion of the agricultural budget to the establishment of the Makhana Board, which will focus on the comprehensive development of the *makhana* industry. This Board will function as both a regulatory and developmental authority, overseeing production, processing, and export activities. It will ensure compliance with quality standards while assisting farmers in enhancing their profitability. Additionally, the Board will provide training programs to farmers and encourage the adoption of organic farming practices within *makhana* cultivation.

Financial assistance for infrastructure development: A major part of the budget has been allocated to develop modern infrastructure that supports *makhana* cultivation. This involves constructing processing units, storage facilities, and cold storage chains designed to maintain product quality and minimize post-harvest losses. Significant investment will also go towards setting up value-added processing units to produce diverse *makhana*-based products such as snacks, roasted seeds, and powders. This infrastructure expansion aims to empower farmers to add value to their crops and thereby increase their income.

Research and development for makhana cultivation: The budget includes provisions to promote research and development activities focused on improving seed quality, crop yield, and resistance to diseases. The Makhana Board will collaborate with agricultural research institutions to identify and implement enhanced farming techniques, pest control strategies, and improved water management practices. Moreover, R&D efforts will concentrate on making *makhana* crops more resilient to the challenges posed by climate change and other environmental factors.

Promotion of makhana exports: The Indian government recognizes the increasing global demand for healthy snacks and superfoods, with *makhana* gaining popularity in this category. As part of the budget's export promotion strategy, the Makhana Board will take steps to facilitate *makhana* exports through the development of export-friendly policies, quality certification processes, and enhanced market access. The government will assist farmers in meeting international standards, thus expanding Bihar's *makhana* presence in global markets.

Farmer welfare and financial support: A vital component of the budget dedicated to the Makhana Board is the enhancement of farmer welfare. Financial subsidies will be provided for essential inputs such as seeds, fertilizers, and water management equipment, enabling farmers to adopt more efficient and modern cultivation practices. Additionally, insurance schemes will be introduced to protect farmers against losses resulting from unforeseen events like floods or droughts. Training programs facilitated by the Makhana Board will help improve farmers' technical expertise, leading to better yields and improved produce quality.

Branding and marketing of Bihar's makhana: Resources have been allocated to brand and market *makhana* as a premium product. The government aims to establish Bihar's *makhana* as an organic, high-quality item that appeals to buyers worldwide. The Makhana

Board will develop a cohesive branding strategy to raise awareness about *makhana*'s nutritional benefits and promote it as a healthy and environmentally friendly snack. This marketing initiative is expected to create new opportunities for farmers to expand their sales both domestically and internationally.

Sustainable and organic farming practices: The budget promotes the adoption of sustainable farming practices for crops like *makhana*. Since *makhana* is naturally an organic crop, efforts will focus on enhancing organic certification and positioning it as a natural, eco-friendly product. The Makhana Board will work to encourage organic farming methods and assist farmers in obtaining organic certifications, enabling them to enter premium organic food markets.

Climate-resilient farming techniques: Given the significant threats climate change poses to agriculture, the budget highlights the necessity of developing climate-resilient farming methods. The Makhana Board will collaborate with experts to devise strategies to help farmers adapt to shifting weather patterns, including rainwater harvesting, efficient irrigation methods, and drought-resistant crop varieties. These initiatives aim to ensure that *makhana* cultivation remains sustainable and profitable despite adverse climatic conditions.

CONCLUSION

Makhana cultivation holds the promise to transform Bihar's agricultural sector significantly. As the top producer of this nutritious superfood, the state has a unique opportunity to broaden its market presence, boost farmers' incomes, and strengthen its standing in the global food market. The creation of the Makhana Board will integrate the entire *makhana* value chain—from farming and processing to export—thereby fostering a more resilient and sustainable industry. This development will improve the livelihoods of farmers while contributing positively to Bihar's overall economy. With continued government backing, Bihar's *makhana* is well-positioned to gain recognition as a premium product in both domestic and international markets, ensuring the state maintains a leading role in this expanding sector for years ahead.

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