



## The Royal Fruit of Bihar: Litchi Production and Its Path to Improvement

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In the humid, fertile plains of North Bihar, late May brings with it a distinctive aroma—the sweet, intoxicating fragrance of ripening litchis. For farmers in Muzaffarpur, Samastipur, Vaishali, and East Champaran, this season is both a celebration and a struggle. Bihar produces nearly 40% of India's litchi, with the prized Shahi variety leading the pack, yet the state's farmers face a paradox: high demand but low returns, premium quality but poor infrastructure. This article examines the current state of litchi production in Bihar, the legal and policy framework supporting it, and the concrete steps needed to transform this horticultural gem into a sustainable engine of rural prosperity.

### Current Production Scenario

#### Area and Output

Bihar remains India's largest litchi-producing state, cultivating the fruit across approximately 34,000 hectares [1]. The state's annual production hovers around 2.8–3.0 lakh metric tonnes in normal years, though recent data shows alarming fluctuations. In 2024–25, production plummeted to just 1.35 lakh tonnes—a 50% drop attributed to erratic weather patterns and unseasonal rainfall during the critical flowering period (February–April). The Shahi Litchi, granted the Geographical Indication (GI) tag in 2018, is the crown jewel of this production. Known for its bright red skin, small seed, translucent pulp, and distinctive sweetness, Shahi Litchi is cultivated primarily in Muzaffarpur and adjoining districts, where the alluvial soil and subtropical climate create ideal growing conditions.

#### Productivity Concerns

Despite steady expansion in cultivated area, productivity has stagnated at around 8.2 metric tonnes per hectare—far below the 10+ MT/ha achieved in Punjab and Uttarakhand. This gap stems from multiple factors:

**Aging orchards:** Nearly 40% of litchi trees in Muzaffarpur are over 25 years old, showing declining yields due to physiological fatigue and poor pruning.

**Traditional farming practices:** Over 70% of farmers continue with conventional methods, lacking exposure to canopy management, soil testing, and integrated pest management.

**Inadequate irrigation:** Less than 12% of orchards use micro-irrigation systems, leaving crops vulnerable to water stress during fruit development.

**Climatic vulnerability:** Heatwaves and unseasonal rains during flowering have become more frequent, with the 2021 season recording 8–10% yield losses due to temperature spikes exceeding 41°C.

### Legal and Policy Framework

#### Geographical Indication (GI) Tag

The GI tag awarded to Shahi Litchi in 2018 represents a landmark legal protection under the Geographical Indications of Goods (Registration and Protection) Act, 1999. This intellectual property right:

Legally safeguards the exclusivity of Shahi Litchi grown in specified geographical areas (Muzaffarpur, Samastipur, Vaishali, East Champaran, and Begusarai).

Prevents unauthorized use of the "Shahi" brand by producers outside these regions.

Enhances export potential by certifying origin and quality to international buyers.

However, the benefits of GI tagging remain largely unrealized. A 2025 study found that only 18% of litchi farmers in Muzaffarpur were aware of the GI tag's export relevance, and less than 10% had received training on export standards.

### Government Schemes and Subsidies

Multiple central and state schemes support litchi cultivation, though implementation gaps persist:

| Scheme | Benefit | Status in Bihar |

| Mission for Integrated Development of Horticulture (MIDH) | 40–50% subsidy on cold storage, packhouses, drip irrigation | Low uptake due to procedural complexity |

| PM-FME (Pradhan Mantri Formalisation of Micro Food Processing Enterprises) | Financial assistance for processing units | Only 5–7% of litchi production undergoes processing |

| Mango & Litchi Area Expansion Scheme (2025–26) | ₹80,000 subsidy per farmer for new plantations | Recently launched, online applications open |

| Litchi Export Promotion Initiative | 50% subsidy on setting up export units, 6 pack houses constructed in Muzaffarpur | Operational since 2023, facilitating air cargo exports |

The Bihar government has also constructed six cold houses and six pack houses in Muzaffarpur's key blocks (Manika, Sarchian, Badgaon, Ganj Bazar, and Anandpur) to reduce post-harvest losses.

### Institutional Support

The National Research Centre on Litchi (NRCL), located in Muzaffarpur under ICAR, serves as the apex research institution for litchi-specific innovations. Since 2001, NRCL has developed:

Disease-free planting material through tissue culture

Integrated Pest Management (IPM) protocols

Post-harvest handling guidelines

Weather-based crop advisories

Yet, extension remains weak—only 22% of registered litchi growers received official technical support in the past three years.

## Challenges Across the Value Chain

### Pre-Harvest Issues

1. Pest and Disease Infestation: Litchi mite (*Aceria litchii*), fruit borer (*Conopomorpha sinensis*), and anthracnose fungus cause up to 25% yield losses in unmanaged orchards.

2. Soil Nutrient Imbalance: Long-term cultivation without proper amendments has led to boron and zinc deficiencies, affecting fruit quality and shelf life.

3. Lack of Quality Planting Material: Farmers rely on informal sources for saplings, propagating inferior stock instead of NRCL-certified disease-free plants.

### Post-Harvest Losses

Litchi's perishability is its greatest curse. With a shelf life of just 3–5 days at ambient temperature, post-harvest losses range between 25–35%. The root causes:

Scarce cold chain infrastructure: Fewer than 10 dedicated pre-cooling and cold storage units exist in Muzaffarpur district.

Primitive packaging: Traditional bamboo baskets and plastic crates without ventilation cause mechanical damage.

No processing capacity: Only 5–7% of production is converted into value-added products like pulp, juice, or frozen arils.

### Marketing and Price Realization

The litchi trade in Bihar is dominated by pre-harvest contractors who purchase entire orchards before maturity, often at 25–35% of the final retail price [1]. A 2022 survey found

that 72% of farmers sell through these middlemen, receiving minimal profit despite bearing all production risks.

Compounding this:

- \* No Minimum Support Price (MSP) exists for litchi.
- \* Functional Farmer Producer Organizations (FPOs) are absent.
- \* No organized presence in e-commerce or modern retail chains.

## Recent Improvements and Success Stories

### Export Breakthrough

In 2025, Bihar achieved a milestone by exporting 250 tonnes of Shahi Litchi—a 108% increase over the previous year's 120 tonnes [2][1]. Dispatched via Darbhanga airport through SpiceJet, Indigo, and Akasa Air, the fruit reached Mumbai, Delhi, Hyderabad, and Bengaluru within hours of harvest.

This success was enabled by:

- \* Bureau of Civil Aviation Security clearance for perishable cargo
- \* Collaboration between Airports Authority of India (AAI), airlines, and state horticulture departments
- \* Streamlined logistics reducing transit time and spoilage

Experts estimate that with proper cold chain and quarantine facilities, Bihar could export over 5,000 MT annually, significantly boosting farmer incomes.

### New Varieties and Diversification

To address productivity gaps, the state government and NRCL are encouraging farmers to adopt newly developed varieties alongside Shahi, including China, Bedana, and Late Shahi, which offer staggered maturity and better disease resistance. Districts like Banka, Jamui, Aurangabad, Purnea, and Sitamarhi have been identified as having "very suitable" soil and climate for litchi expansion.

## Recommendations for Sustainable Improvement

### 1. Orchard Rejuvenation and Scientific Cultivation

- \* Launch a time-bound program to replace or graft aging trees with NRCL-certified, high-yielding, climate-resilient planting material.
- \* Mandate soil testing and micronutrient supplementation (especially boron and zinc) across all litchi blocks.
- \* Scale up training on canopy management, pruning, and IPM through Krishi Vigyan Kendras (KVKs) and mobile extension units.

### 2. Cold Chain and Processing Infrastructure

- \* Accelerate public-private partnerships to establish APEDA-certified packhouses, pre-cooling centers, and cold storages in Muzaffarpur, Samastipur, and Vaishali.
- \* Provide soft loans and capital subsidies under MIDH and PMFME for entrepreneurs setting up processing units for litchi pulp, juice, jam, and frozen arils.
- \* Introduce vapor heat treatment (VHT) and irradiation facilities to meet phytosanitary requirements of the EU, USA, and Japan.

### 3. Strengthening Farmer Collectives

- \* Promote and register litchi-specific Farmer Producer Organizations (FPOs) to aggregate produce, negotiate better prices, and reduce middlemen dependency.
- \* Link FPOs directly with institutional buyers, supermarkets, and exporters through e-NAM and other digital platforms.

### 4. Leveraging the GI Tag

- \* Launch aggressive domestic and international branding campaigns highlighting Shahi Litchi's GI status, unique flavor, and origin story.
- \* Develop traceability systems (QR codes, blockchain) to authenticate GI-certified produce and build consumer trust.
- \* Showcase Shahi Litchi at international food fairs through Indian embassies and APEDA-led trade delegations.

### 5. Dedicated Litchi Development Mission

Bihar should establish a Litchi Development Mission on the lines of successful mango and banana missions in other states. This mission would:

- \* Coordinate inter-departmental efforts (horticulture, agriculture, commerce, transport).
- \* Monitor scheme implementation and fund utilization.
- \* Serve as a think tank for sustainable practices and climate adaptation strategies.

### 6. Climate Resilience and Insurance

- \* Develop weather-based crop advisories using real-time data from NRCL and IMD.
- \* Introduce parametric insurance products tailored to litchi, covering losses from heatwaves, hailstorms, and unseasonal rains.

### 7. Agro-Tourism and Brand Building

- \* Organize annual "Litchi Festivals" in Muzaffarpur during harvest season, attracting tourists, buyers, and media.
- \* Develop "Litchi Trails" connecting orchards, processing units, and local markets to promote eco-tourism and direct sales.

## Conclusion

The Shahi Litchi of Bihar is more than a fruit—it is a symbol of the state's horticultural heritage, economic potential, and agro-climatic uniqueness. With its GI-certified identity and distinctive flavor, it has carved a niche in domestic and international markets. Yet, the journey from orchard to global acclaim remains fraught with challenges: aging trees, weak cold chains, exploitative middlemen, and unrealized export potential. The path forward demands a holistic, multi-stakeholder approach. Science-led farming, infrastructure modernization, policy convergence, and brand-driven export orientation can transform Bihar from a raw produce supplier into a global hub of premium-quality litchi. The 2025 export breakthrough proves that change is possible. What is needed now is sustained political will, institutional coordination, and community participation to turn this vision into a sustainable reality—one that uplifts farmer incomes, enhances rural livelihoods, and reinforces Bihar's place on the world map as the proud home of the Shahi Litchi. As climate change intensifies and market dynamics shift, the time to act is now. For Bihar's litchi farmers, the difference between stagnation and prosperity lies not in the soil they till, but in the systems they build around it.

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