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Unlocking India's banana export potential: Trends, challenges and industrial prospects

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Abstract

India, the world's largest producer of bananas, yields over 37 million tonnes annually but captures only a small portion of global banana exports. Despite notable growth in banana production and export volume—rising from 34.9 thousand tonnes in 2013-14 to 596.4 thousand tonnes in 2023-24—India's export competitiveness remains limited by high post-harvest losses, inadequate cold chain infrastructure, inconsistent quality standards, and low value addition. This study investigates the evolving production trends, export paths, and industrial uses of banana varieties in India. Major producing states like Maharashtra, Tamil Nadu, Gujarat, and Andhra Pradesh dominate output, while exports are mainly directed towards the Middle East and South Asia. Varietal differences, including Grand Naine, Robusta, and Nendran, reveal considerable potential for processing into products such as chips, flour, puree, and health supplements. However, only a small percentage—between 2% and 40%, depending on the variety—are processed industrially. The export supply chain depends on strict quality standards, temperature-controlled logistics, and standardised packaging — particularly for the G-9 (Cavendish) variety. Initiatives like the Agricultural Export Policy and MIDH are addressing key gaps by promoting FPO involvement, infrastructure development, and adherence to global standards. The report underscores the importance of comprehensive strategies encompassing better farm practices, post-harvest management, product diversification, and export facilitation. By aligning production strengths with quality-focused export strategies, India can evolve from a high-volume producer to a high-value exporter. Leveraging varietal traits and promoting banana-based industries could significantly enhance economic gains, reduce post-harvest losses, and position India as a competitive global centre for banana trade and processing.

Keywords: Banana exports, value addition, post-harvest losses, cold chain logistics, grand Naine, Nendran.

Introduction

India is the world's largest producer of bananas, accounting for a significant share of global output (MoA&FW, 2025) [3]. Despite this, its share in global banana exports remains underexploited, even as production reached 37.8 million tonnes from an area of 1 million hectares in 2023-24. This gap is mainly caused by high post-harvest losses, inadequate cold chain logistics, inconsistent quality standards, and limited value addition (APEDA, 2023).

Banana cultivation in India has demonstrated steady growth from 796 thousand hectares and 28.5 million tonnes in 2011-12 to 1 million hectares and 37.8 million tonnes in 2023-24 (MoA&FW, 2025) [3]. Leading banana-producing states such as Maharashtra, Tamil Nadu, Gujarat, and Andhra Pradesh contribute significantly to the national output. However, only about 5-10% of total banana production is processed into industrial products such as chips, puree, and banana flour (NHB, 2022) [5], while post-harvest losses range from 20-30% due to poor handling, storage, and a lack of ripening infrastructure.

Export-wise, banana shipments have increased significantly from 34.9 thousand tonnes worth ₹153.8 crore in 2013-14 to 596.4 thousand tonnes valued at ₹2,410.9 crore in 2023-24 (MoA&FW, 2025) [3]. However, this growth is mainly driven by neighbouring and Middle Eastern countries such as Iran, Iraq, the UAE, and Nepal, which collectively account for over 80% of India's banana exports (APEDA, 2024). Nonetheless, India's global market penetration remains modest due to limited shelf life, insufficient branding, and inadequate certification standards.

To address these gaps, government schemes such as the MIDH (Mission for Integrated Development of Horticulture) and the Agricultural Export Policy (2018) are encouraging infrastructure development, FPO participation, and quality improvement measures. India's varietal diversity, including Grand Naine, Robusta, Nendran, etc., offers significant potential for product differentiation, targeted marketing, and industrial applications (NHB, 2022) [5].

Strengthening post-harvest handling, expanding cold chains

and focusing on value-added processing can significantly enhance India's banana export share, converting its production strength into global market leadership.

Production of bananas in India

Over the years, India has experienced a notable rise in banana cultivation, as evidenced by the steady increase in both area and production from 2011-12 to 2023-24. The cultivation area grew from 796 to 1,000 thousand hectares, while production increased markedly from 28.5 to 37.8 million tonnes.

Table 1: Year-wise Banana production in India

Year	Area ('000 Hectare)	Production ('000 MT)	Productivity (MT/Hectare)
2011-2012	796	28,455	35.80
2012-2013	776	26,509	34.20
2013-2014	803	29,725	37.00
2014-2015	822	29,221	35.50
2015-2016	841	29,135	34.60
2016-2017	860	30,477	35.40
2017-2018	884	30,808	34.90
2018-2019	866	30,460	35.20
2019-2020	897	32,597	36.34
2020-2021	924	33,062	35.78
2021-2022	963	34,528	35.87
2022-2023	994	36,614	36.83
2023-2024	1000	37,807	37.81
CAGR (%)	2.12	2.51	0.37

Source: MoA&FW (2025) [3]

This growth underscores the rising preference for banana cultivation among Indian farmers, driven by the crop's quick returns and strong market demand. However, despite this expansion, productivity has increased only marginally, from 35.8 to 37.8 metric tonnes per hectare, highlighting the need for targeted efforts to improve yields. The modest productivity growth suggests that while more land is being cultivated and more fruit is being harvested, attention must now be directed towards adopting improved farming practices, better disease control, and efficient post-harvest handling to fully realise the crop's potential and enhance its contribution to both domestic supply and international exports.

This table tracks banana production trends over the years, reflecting steady growth driven by high-yielding tissue-culture techniques, improved irrigation, and protective cultivation practices. Banana is a vital fruit crop due to its year-round availability, quick returns, and high demand in both domestic and global markets. Leading states such as Maharashtra, Tamil Nadu, and Gujarat contribute significantly. The table highlights the role of bananas in nutritional security and economic stability. However, susceptibility to diseases such as Panama wilt and post-harvest losses poses challenges to sustained growth. The data emphasises the need for improved packaging, ripening infrastructure, and disease-resistant varieties to enhance productivity and shelf life further.

Export Potential of Banana

India's banana export sector has seen remarkable growth over the past decade. In 2013-14, banana exports were modest, with only 34.9 thousand tonnes exported, valued at ₹15,384.95 lakh. However, over the years, both volume and value have increased significantly, reaching a peak of 596.4 thousand tonnes valued at ₹241,090.75 lakh in 2023-24. This impressive expansion reflects not only the rising global demand for Indian bananas but also advancements in production, cold-chain logistics, packaging, and export infrastructure. Major importing countries such as Iran, Iraq, the UAE, and Nepal have driven this surge. Despite this progress, India's share in the global banana export market remains below its potential, indicating further opportunities for quality improvement, better post-harvest management, and adherence to international standards to unlock more high-value markets and sustain export growth.

Table 2: Year-wise banana export from India

Year	Value (₹ Lakh)	Quantity ('000 Kg)
2013-2014	15,384.95	34,927.50
2014-2015	24,250.77	63,790.79
2015-2016	35,767.21	95,222.64
2016-2017	38,759.67	110,750.55
2017-2018	35,069.88	102,521.87
2018-2019	41,210.23	134,632.91
2019-2020	65,858.76	195,750.36
2020-2021	74,089.99	232,648.76
2021-2022	117,924.20	376,961.12
2022-2023	141,315.62	361,897.91
2023-2024	241,090.75	596,356.63

(Source: MoA&FW, 2025) [3]

This table displays India's annual banana export performance in both quantity and value. It highlights the rising demand from countries such as Iran, the UAE, Nepal, and Oman. Despite being one of the largest producers globally, India's export share remains modest, signalling underutilised potential. The growth in exports is supported by improved cold chains and increased awareness of export-grade packaging and hygiene. However, issues such as handling damage, inconsistent quality, and limited shelf life restrict market access. This table underscores the need for farmer training, GAP certifications, and dedicated export clusters to ensure consistent quality and timely deliveries, thereby enabling a competitive position in the global market.

Major export destinations for bananas

The export data for Indian bananas shows a strong presence in the Middle Eastern and South Asian markets, owing to both geographical proximity and steady demand. Fresh bananas are mainly exported to Iran, Iraq, the UAE, Oman, Uzbekistan, Saudi Arabia, Nepal, Qatar, Kuwait, and Pakistan, highlighting a focus on regions with a large Indian diaspora and regular tropical fruit consumption. Likewise, plantains (curry bananas)—used predominantly in cooking—are exported in fresh or chilled form to countries like the UAE, Iran, Qatar, Uganda, Saudi Arabia, Kenya, Australia, Bhutan, Nepal, and Bahrain. This expansion into African and Oceanic markets, such as Uganda and Australia, signifies the growing global reach of Indian banana exports. The data underscores India's comparative advantage in banana production and suggests opportunities for broader market access by improving quality standards, cold chain infrastructure, and phytosanitary compliance. As

these countries continue to import substantial volumes, targeted trade strategies and varietal adaptability can further enhance India's role in the global banana export market.

Industrial banana products

Bananas, beyond serving as a major table fruit, show significant industrial potential due to their high starch content and versatile pulp and by-product applications. Different cultivars are selectively chosen for industrial processing based on their biochemical properties, texture, and market demand. For example, Grand Naine, one of the most widely cultivated varieties in India, is mainly used for puree and baby food formulations, with about 5% of its production allocated to industrial purposes. The remaining 95% is consumed fresh (NHB, 2022) [5].

Varieties like Robusta and Nendran are more industrially important because of their firmer texture and higher dry matter content. Robusta accounts for nearly 30% of its yield, used to make banana chips and flour. In contrast, Nendran, mainly cultivated in Kerala, is widely used (up to 40%) for traditional snacks, powders, and dehydrated products. Dwarf Cavendish, although primarily eaten fresh, also has limited uses in starch extraction and animal feed. Niche varieties like Poovan and Yelakki are processed into sweets, beverages, and premium snack items. In contrast, Red Banana is processed into health supplements because of its unique antioxidant properties and nutritional profile.

Industrial products derived from bananas include:

- Banana puree and pulp - used in infant food, bakery and dairy applications.
- Banana chips and slices - produced via deep frying or vacuum frying methods for snack industries.
- Banana flour and powder - rich in resistant starch, used in gluten-free baking and health foods.
- Banana-based beverages - processed into smoothies and flavoured drinks.
- Banana starch - extracted from unripe fruits for use in biodegradable packaging and pharmaceutical carriers.

Furthermore, banana pseudo-stems and peels are emerging sources of fibre and pectin with potential uses in textiles, biofilm production, and cosmeceuticals. These value-added products not only boost economic returns but also promote a circular bio economy by reducing post-harvest waste. The shift towards banana-based industrial processing highlights the importance of variety selection, post-harvest infrastructure, and technology adoption in strengthening India's banana value chain (NHB, 2022) [5].

Export Specifications for Banana

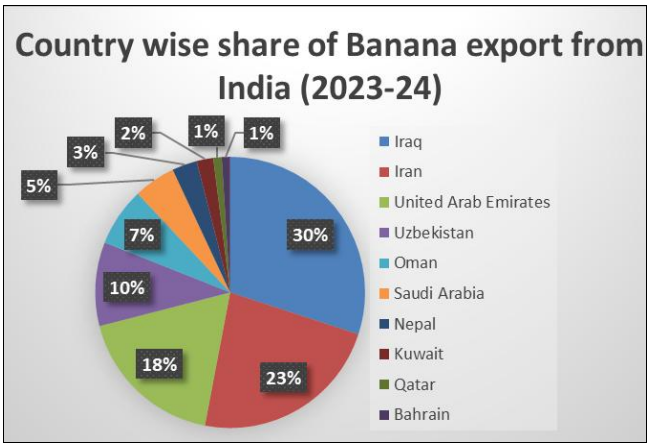
Banana exports, especially to Middle Eastern markets, adhere to specific quality and logistical standards to meet market regulations and ensure product shelf life. The G-9 variety, a popular clone of the Cavendish group, is the preferred choice for export because of its uniformity, high yield potential, and post-harvest resilience. In the Middle East, the fruit must be green, weigh approximately 2.5 kg per bunch, and preferably be straight, aligning with market preferences for a uniform appearance and ease of handling.

The packaging standard typically uses 13 kg corrugated fibreboard (CFB) boxes, which provide protection and optimal ventilation during long-distance transportation. To keep bananas fresh and reduce spoilage, they are stored at a controlled temperature of 13-14°C, which helps delay ripening and prolong shelf life. Export consignments are typically shipped by sea, using refrigerated containers (reefers) to maintain a consistent cold chain from origin to destination.

These specifications, outlined by APEDA (2022-23), are crucial for upholding India's export quality standards and competitiveness in international markets. Following these parameters not only guarantees customer satisfaction but also decreases post-harvest losses and enhances India's reputation as a dependable exporter of tropical fruits.

Country-wise Share of Banana Export from India

India's banana exports for 2023-24 were led by Iraq and Iran, together accounting for over half of total shipments, with shares of 30% and 23%, respectively. The United Arab Emirates also played a significant role, accounting for 18% of exports. Other importing countries included Uzbekistan (10%) and Oman (7%), which contributed notable portions to the overall trade. Smaller shares were taken by Saudi Arabia (5%), Nepal (3%), Kuwait (2%), Qatar (1%), and Bahrain (1%). This distribution highlights India's strong presence in the Middle Eastern and neighbouring markets, showing the region's consistent demand for Indian bananas.



(Source: APEDA, 2024)

Industrial and Domestic Utilisation of Banana Varieties in India

India cultivates a wide range of banana varieties, each exhibiting distinct patterns of domestic consumption and industrial utilisation. Grand Naine is the most widely produced variety, yielding 18-19 million tonnes annually, with 95% consumed directly as fresh fruit and 5% processed into products such as puree and baby food. Robusta, with a production volume of 5-6 million tonnes, is notable for its significant industrial use: 30% is directed toward chip and flour production, due to its firm texture and starch content.

Nendran, mainly cultivated in southern India, has a production range of 2.5-3 million tonnes and accounts for 40% of industrial use. It is typically processed into chips, powder, and traditional snack items. Dwarf Cavendish, producing approximately 3-3.5 million tonnes, is mainly consumed fresh (85%), but also supports the animal feed and starch industries, with 15% of its yield used for industrial purposes.

Poovan, recognised for its sweetness and aromatic profile, contributes 1.5-2 million tonnes and is utilised industrially at 10% for producing sweets and beverages. Red Banana, with limited production (1 million tonnes), is mainly consumed fresh (98%) and a small portion is processed into health supplements due to its rich nutritional profile. Yelakki, producing 0.5-0.8 million tonnes, is primarily eaten as fresh fruit (95%), with 5% used in premium snack products.

These utilisation patterns illustrate the dual role of bananas in India's food economy, functioning as both a staple fruit and a raw material for value-added processing. Variation in industrial use among cultivars highlights the potential to expand banana-based industries by matching varietal suitability to specific uses.

Table 3: Industrial and Domestic Utilization of Banana Varieties in India

Variety	Total Production (MT)	Direct Consumption (%)	Industrial Use (%)	Key Industrial Products
Grand Naine	18-19	95	5	Puree, baby food
Robusta	5-6	70	30	Chips, flour
Nendran	2.5-3	60	40	Chips, powder, traditional snacks
Dwarf Cavendish	3-3.5	85	15	Animal feed, starch
Poovan	1.5-2	90	10	Sweets, beverages
Red Banana	1	98	2	Health supplements
Yelakki	0.5-0.8	95	5	Premium snacks

Source: NHB (2022) [5]

This table classifies banana varieties by their uses: for table consumption, for processed products such as chips and puree, and for feed or fibre applications. Varieties such as Nendran and Monthan are suitable for industrial use due to their texture and starch content, whereas Cavendish is ideal for fresh markets. This classification is essential for processors, retailers, and growers to align supply with market demand. It also reveals opportunities for banana-based industries, especially in regions with surplus production. The table highlights the potential of banana fibre for non-food uses, such as banana fibre textiles and biodegradable products, fostering zero-waste practices and circular economy principles in the banana value chain.

Conclusion

Banana holds a strategic position in India's horticultural landscape as the largest fruit crop in terms of both production and consumption. With over 37 million tonnes produced annually and an increasing area under cultivation, the crop is vital for food security, farmer income, and livelihoods. Despite being the world's top producer, India's global export share has only recently begun to gain momentum, with significant growth in both quantity and value—particularly to Middle Eastern and South Asian countries such as Iraq, Iran, and the UAE.

However, challenges such as high post-harvest losses, limited cold chain infrastructure, and underutilised processing capacity continue to restrict the sector's full potential. The industrial utilisation of bananas remains relatively low overall, though specific varieties such as Nendran and Robusta show promising diversification into chips, flour, starch, beverages, and health products. Government initiatives, improved varietal selection, adherence to international export standards, and increased focus on value addition are gradually transforming bananas from a staple fruit into a commercially vibrant agri-industrial commodity.

Moving forward, a more integrated approach—including modern farming practices, post-harvest management, market connectivity, and export support—will be vital. With its year-round availability, diverse varietal base, and growing global demand, India is well placed to not only lead in banana production but also to become a worldwide centre for banana exports and agri-processing innovation.

References

1. Anonymous. APEDA products, fresh fruit and vegetables data. 2024. https://apeda.gov.in/FreshFruitsAndVegetables (accessed 2025 Apr 5).
2. Directorate General of Commercial Intelligence and Statistics (DGCIS). Export data of agricultural products. Ministry of Commerce & Industry, Government of India; 2024. Accessed 2025 Apr 1.
3. Ministry of Agriculture & Farmers Welfare (MoA&FW). Horticultural statistics. Government of India; 2025. https://agricoop.nic.in (accessed 2025 Apr 9).
4. Ministry of Commerce and Industry (MoCI). Agri export zones in India. Government of India; 2019. https://www.commerce.gov.in/ (accessed 2025 Apr 10).
5. National Horticulture Board (NHB). Horticulture statistics database. Ministry of Agriculture & Farmers Welfare; 2022. https://nhb.gov.in (accessed 2025 Apr 8).
6. Priyanka R, Sharma A, Meena MK. Growth and instability in fruit exports from India: A temporal analysis. Agric Situ India. 2024;80(3):47-58.
7. Priyanka T, Kerur N, Naik BK, Yeledhalli R, Venugopal C. Export of fruits, vegetables and their products from India: A study on growth rate and instability index. J Farm Sci. 2024;37(1):59-63.
8. Reportlinker. World fruit production report 2023. 2023. https://www.reportlinker.com (accessed 2025 Apr 20).
9. Sah RP, Dubey A, Sinha R. Performance of horticulture produce exports from India. J Dev Agric Econ. 2022;14(3):87-95.
10. Tradeimax. Global fruit trade intelligence report. 2025. https://www.tradeimax.in (accessed 2025 May 20).