



Strategies to Boost India's Agri Exports

# POTATO

Potato, the world's fourth-largest food crop after rice, wheat, and maize, is cultivated in around 100 countries and plays a vital role in global food security. Its short growing cycle, high yield, and storability, make it widely consumed year-round. Although only 3.4% of global fresh potato output is traded, value-added products like fries, chips, flakes, and starch are seeing rising global demand.

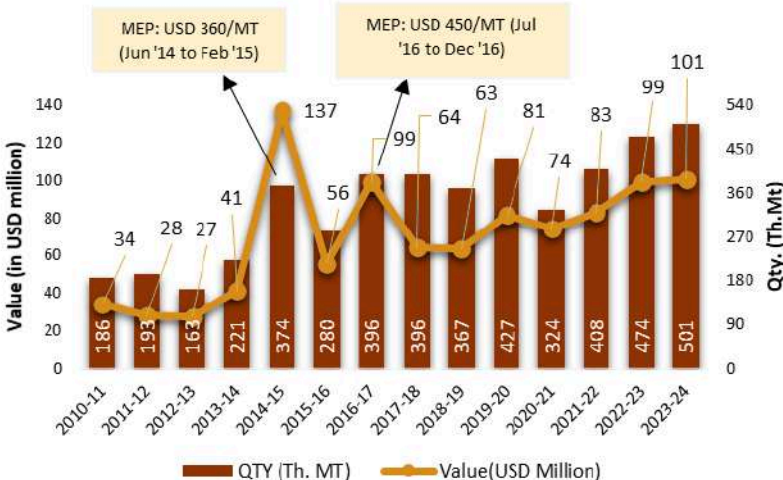


India, the second-largest producer of potatoes, exports just 0.7% of its output. However, it holds strong potential in value-added exports, particularly fries and flakes, to Middle East, Africa, ASEAN, and CIS markets. This study explores India's untapped export potential, assesses competitiveness, and outlines strategies to address value chain inefficiencies and boost global market share of both fresh and value added products of potato.

Key insights on exports of potato and its value-added products

- **Low export despite high production:** India contributes 14.2% of global potato production but accounts for only 2.8% of global exports, reflecting a significant gap between production capacity and export performance.
- **Price competitive but limited exports:** Despite being price competitive with Nominal Protection Coefficient (NPC) values <1, India faces quality, SPS, and infrastructure challenges, which limit its competitiveness and access to premium markets.
- **Export potential for fresh potato:** India exports mainly to Nepal, Oman, Saudi Arabia, Indonesia, and Vietnam; faces competition from Egypt, Pakistan, and others, and sees strong growth potential in Malaysia, UAE, Singapore, Russia, and Qatar.
- **Strong potential in processed products:** India's value-added potato exports (fries, chips, flakes, starch) grew at 55% CAGR (2019–24), far outpacing fresh potato exports (11%), highlighting greater potential if processing and quality gaps are addressed.
- **Total exports value:** Exports of potato & value-added products amounted to USD 259.8 million (TE2023-24), consisting of 36.2% fresh, 63.6% value-added and 0.2% seed varieties.
- **Quality & Traceability as major Barriers:** Lack of standardized grading, residue management, traceability systems are holding back Indian potatoes from premium markets. Egypt and China outperform India due to better compliance and certifications

India's Export of Fresh Potatoes



Source: DGFT and APEDA (2024)

Table varieties of potatoes

Traditional varieties going to Nepal and Bangladesh through land route (Nautanwal, Nepalganj, Bhimnagar ICDS)

Processable Varieties

Processable varieties exported to ASEAN, Middle East, and Far East through sea routes (Mundra, Pipavev and JNPT ports)

Potatoes in Processed Form

Value-added products: French fries, potato flakes/powder to Middle East, ASEAN through sea routes (Mundra, Pipavev, JNPT Ports)

Export Value Chain of Potatoes in India



## EXPORT DESTINATIONS & POTENTIAL REGIONS FOR INDIA

### South Asia

- Nepal (41%)
- **Potential:** Sri Lanka, Bangladesh, Maldives
- **Advantage:** Proximity, shared preferences & tastes, no major SPS issues.

### Middle-East

- Saudi (8%), Oman (11%), UAE (3%)
- **Competitors:** Egypt, Pakistan
- **Potential:** Qatar, UAE,
- **Advantage:** Proximity, Lenient SPS Standards

### Russia

- Negligible exports
- **Issue:** Requirement of Pest free area.
- **Competitors:** Egypt and Azerbaijan
- **Opportunity:** Huge demand for potatoes for vodka making

### ASEAN

- Indonesia (8%), Viet Nam (4%), Malaysia(6%)
- **Competitors:** China, Egypt
- **Potential:** Viet Nam, Malaysia, Singapore
- **Advantage:** Proximity, Price competitiveness



## VALUE ADDED PRODUCTS OF POTATO

### FRENCH FRIES

- Global market: USD 10.5 billion
- India's contribution: 1%
- 85% of India's exports directed towards ASEAN



### POTATO CHIPS

- Global market: USD 3.1 billion
- India's contribution: 0.1%
- Almost 51% of India's export goes to UAE & North American countries.



### POTATO FLAKES

- Global market: USD 878 million
- India's share: 3.4%
- Approx. 71% of India's export directed towards South-East Asia



### POTATO STARCH

- Global market: USD 1.1 billion
- India's share: 0.18%
- India majorly exports to Saudi Arabia (55%), Thailand (15%) & Russia (10%)



## KEY CHALLENGES

**Uncertain demand:** Volatile prices and uncertain exports due to supply dynamics, trade policies and importing nation's economic conditions

**Low yields:** Indian yields (24.3 MT/ha) low compared to key exporters: EU (40 MT/ha), Egypt (27.7 MT/ha), Pakistan (25 MT/ha)

**Market Access Issues:** India faces diverse tariff and non-tariff barriers (SPS issues, pest concerns) in many developed countries

**Low processing capacity:** Low value-addition and weak quality control limit competitiveness in export markets.

**Inadequate post-harvest management:** Inadequate cold storage, packhouses & handling practices lead to high spoilage & quality loss.

**Inconsistent Quality & Traceability:** Non uniform size, shape, and residue compliance limit access to premium markets.

## STRATEGIES

**Diversify export markets:** From Nepal to other South Asian, ASEAN, Gulf nations and Russia via competitive pricing, quality compliance and tariff negotiations; promote fries & flakes in ASEAN and South Africa by securing lower tariffs

**Collaborations:** Collaborate with global companies especially from Netherlands and Germany for high-yield seed varieties and from Belgium for technology transfer and modern processing technologies for value-added products

**Create export hubs in key regions:** Banaskantha (Lady Rosetta for Russia), UP/Bihar (Nepal), West Bengal (Bangladesh), and Sabarkantha/Arvalli (processable varieties for Gulf/ASEAN); pilot pest-free zones with CPRI, State Departments, and NPPO.

**Develop strong brand identity:** Promote distinct brand for Indian potatoes & value-added products linked to specific varieties and regions; use digital marketing and online platforms to enhance global visibility and consumer trust.

**Improve productivity through R&D:** Invest in R&D to develop high-yield, disease-resistant, climate resilient, and processing-grade potato varieties aligned with international export standards.

**Building Efficient Value Chains:** Strengthen links with value chain stakeholders (producers, processors, exporters); invest in upgrading infrastructure (cold chains, packhouses, quality systems) and develop new sea ports on India's eastern coast



## Strategies to Boost India's Agri Exports

# MANGO & PULP

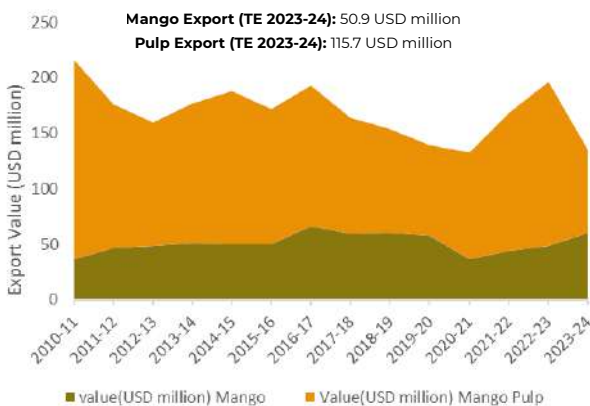


Mango has been cultivated in India for over 4,000 years. India offers more than 1,000 types, with over 500 varieties commercially grown. These include global names like Alphonso (Hapus) and Totapuri (main processed varieties contributing to 90 percent processing) and table varieties like Kesar, Bangana-palli, Sindhura, Neelum and Dasherri. Mango is recognised for its nutritional benefits, especially as an excellent source of Vitamin C. India contributes 44% of global mango production, but only 0.6% of this is exported, primarily due to high logistics cost, fragmented value chain, post-harvest losses etc. 78% of India's mango exports are in the form of pulp with the global market projected to grow to USD 2.11 billion by 2026. Processed products like juices and concentrates offer a stable, scalable export opportunity with longer shelf life. Prioritising cost optimization, sea-route expansion through sea protocol, intervention in production, Free Trade Agreement (FTA) negotiations are crucial to gain competitiveness.

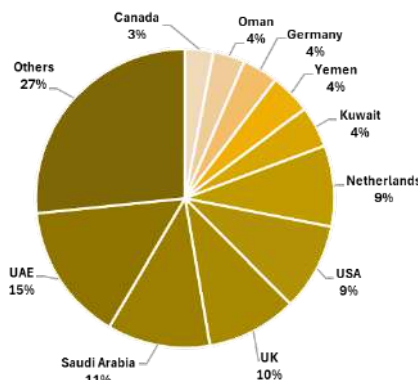
### Key insights on Mango & Mango Pulp

- **India's Global Leadership:** India accounts for 44% of global mango production, yet its share in global exports is only 5% (TE 2022), reflecting significant untapped export potential.
- **Seasonal Advantage:** India's April-July harvest offers strategic export window before competitors like Mexico and Brazil, enabling targeted exports to markets like Europe and Middle East, having a strong demand for mangoes early in the year.
- **High Logistics Costs and Short Shelf Life:** Mangoes, particularly varieties like Alphonso, Kesar and Langda, have a short shelf life after ripening, necessitating expensive air freight and limiting exports to distant markets.
- **Quality and Compliance Challenges:** Enhancing post-harvest practices, ensuring uniform quality, and adhering to global residue standards can significantly improve India's access to premium markets like the US and EU.
- **Market Access Barriers:** India's mango exports are heavily concentrated in UAE, Saudi Arabia, and the UK, with limited access or presence in high-value markets like Netherlands, Japan, and South Korea due to phytosanitary restrictions, tariff disadvantages, or lack of branding.
- **Scope for Premium Positioning:** With rising global interest in organic and natural products, India has strong potential to lead in organic mango pulp exports by leveraging certifications and R&D.

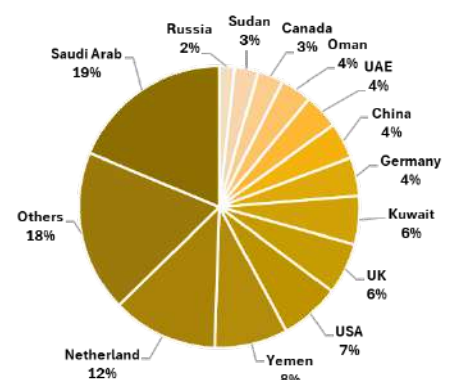
### Export of Mango & Mango Pulp from India



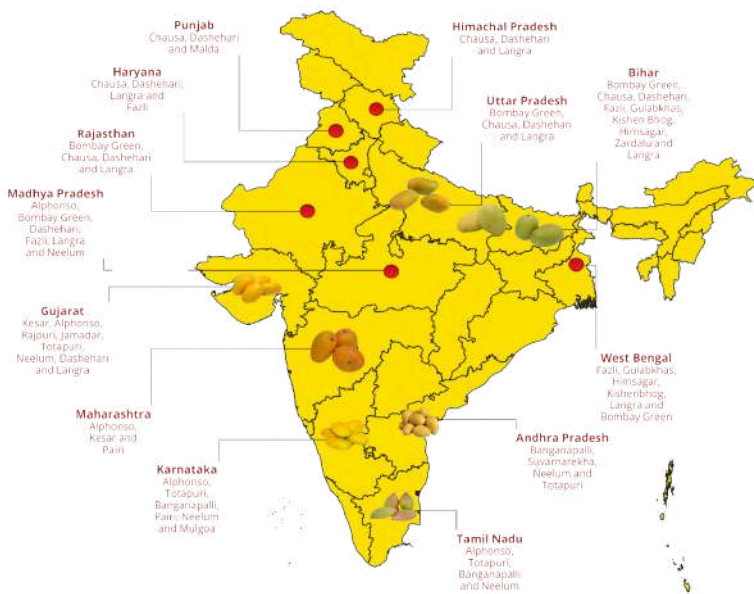
### India's Export Destinations of Mango TE 2022-23



### India's Export Destinations of Pulp TE-2022-23



## MAJOR COMMERCIAL FRESH MANGO VARIETIES EXPORTED FROM INDIA



Varieties	Qty (MMT) TE 2022-23	Value in USD million TE 2022-23
Other Mangoes*	16.8	27.4
Alphonso (Hapus)	4	8
Kesar	1.7	4.9
Banganapalli	1.1	2.2
Totapuri	1.1	0.1
Langda	0.8	0.1

\*Other mangoes which are the major component in volume and value terms also includes the Alphonso and Kesar varieties. Source: APEDA

### KEY CHALLENGES FOR MANGO

**Short Shelf Life & High Freight Costs:** Due to the short shelf life of mangoes, exports rely heavily on air freight. Rising air freight costs, have reduced the cost-effectiveness of exports.

**Stringent NTBs Limit Market Access:** Indian mango exports face non-tariff barriers like stringent phytosanitary rules, packaging norms, and certification demands. e.g., Irradiation for USA, VHT for Japan/Korea and HWT for the EU.

**Climate Change and Unstable Production:** Weather variability, including droughts, floods, and temperature fluctuations, impacts yield and flowering, leading to supply-demand mismatches and price instability across seasons.

**Quality & Compliance:** Use of harmful ripeners and banned pesticides leads to export rejections in strict markets like the US and EU.

### STRATEGIES FOR MANGO

**Key Varieties and Regions to focus:** Variety-wise Export Focus: Target Alphonso and Kesar (Mar–Jul) in high-end markets like the USA, UK, EU, Japan, and South Korea; promote Banganapalli (Feb–Jul) in the USA, UK, Canada, and Malaysia; and boost Langda and Chausa (May–Aug) in the Middle East, USA, and UK through focused marketing.

**Export clusters:** Establish export hubs with a dual focus—table mango in the northern belt and pulp processing in the south. Key regions include Junagadh (Kesar, Alphonso), Ratnagiri (Alphonso), Lucknow/Malihabad (Dasher, Chausa).

**Structured Sea Protocol for Mango Exports:** APEDA and ICAR-CISH should invest to develop an improved sea protocol with pre-harvest bagging, standard harvesting and cold chain.

**Collaboration with MoA&FW & State Govt.:** Strengthen coordination between APEDA, MoA&FW, and state governments to improve mango production and quality.

**Securing Market Access Through Trade Agreements:** Negotiate FTAs with major mango & mango pulp importing regions to improve access.

### KEY CHALLENGES FOR MANGO PULP

**HSN Code Mismatch:** While India exports under “mango pulp” (Chapter 8), markets like the EU classify it as “mango puree” (Chapter 20), causing higher tariffs and trade complications.

**Price Volatility and Raw Material Fluctuations:** Wide fluctuations in mango prices are pushing foreign buyers toward more stable suppliers in Latin America and Africa, weakening India’s pulp export competitiveness.

**Need for Precision Crop Data:** Lack of credible production data affects market trust; exporters recommend drone and satellite-based surveys for real-time, accurate mango forecasts—similar to APEDA’s rice model.

**Limited Innovation and Organic Focus:** Inadequate R&D, product diversification, limited organic certification hinder India’s ability to meet growing global demand for natural mango pulp.

### STRATEGIES FOR MANGO PULP

**HSN Code Standardization:** DoC and APEDA to initiate conversations with international trade bodies to standardize the classification of mango pulp & mango puree under the HSN code.

**Buyer-Seller Meets Abroad:** APEDA should organize B2B & buyer-seller meets abroad in key markets to connect Indian mango pulp exporters with global buyers.

**Precision Surveys and Digital Tools:** Collaborate with ICAR, NBSS&LUP to implement GIS and precision surveys and integrate digital technologies for accurate production forecasting.

**New & Organic Product Development:** Promote organic certification and diversify into value-added products—frozen pulp, cold-pressed juices, dried slices, and concentrates—to meet growing global demand in health-focused markets like Japan and Korea.

**Pulp Production Clusters:** Strengthen mango pulp clusters like Chittoor and Krishnagiri with financial support and advanced processing facilities.



## Strategies to Boost India's Agri Exports

# BANANA

Bananas (*Musa spp.*), first domesticated in Southeast Asia and the Pacific more than 7,000 years ago, are large perennial herbs with trunk-like pseudo stems. They flourish in tropical climates and are the most widely consumed staple fruit globally. Over 1,000 banana varieties are cultivated around the world. Nutritionally, bananas typically contain around four times the protein, twice the carbohydrates, roughly double the phosphorus, five times the vitamin A and iron, and substantially more potassium and other minerals compared with average fruits especially apples (ICAR, 2020).



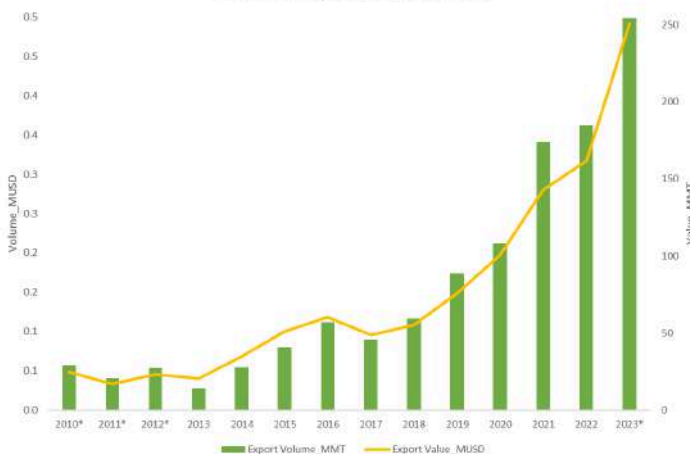
### GLOBAL SCENARIO

Bananas are cultivated in over 150 countries, covering approximately 6 million hectares (Mha) as of 2022. Between 2010 and 2022, global production grew at an average annual rate of about 2%, reaching 131.3 million metric tonnes (MMT) in 2022, with yields averaging 22.5t/ha. India is the largest producer accounting for 25% share, followed by China (9%), Indonesia (7%), Nigeria, Brazil, Ecuador and Philippines at 5% each in TE 2022. Banana exports have grown rapidly from 9 MMT in 2012 to 20.6 MMT in 2023, valued at USD 14.3 billion in TE 2023. Ecuador is the largest exporter accounting for 29% share followed by the Philippines (9%), Costa Rica (9%), Guatemala, Columbia and Netherlands at 7% etc. On the import side, the United States is the top market, accounting for roughly 18% of imports, followed by China (8%), Russia (7%), Germany (7%), Japan (6%), and the Netherlands (6%).

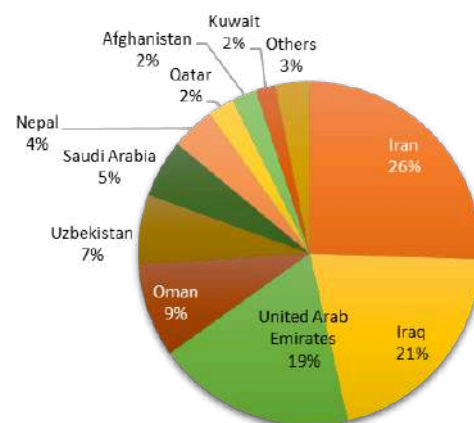
### DOMESTIC SCENARIO

Banana production in India has surged from 29.7 MMT in 2010 to 34.5 MMT in 2022, registering an average annual growth of 1.33%, and yielding approximately 36.8t/ha in 2022. Andhra Pradesh is the leading producer accounting for nearly 17% of the country's total banana production, followed by Maharashtra (14%), Tamil Nadu (12%), Gujarat (12%), and Uttar Pradesh (10%). While Indian banana exports have surged from just USD 24.8 million in 2010 to around USD 251 million in 2023 (Figure 1), they still represent only about 1.2% of global banana trade, as most of the fruit is consumed domestically. The primary export markets in 2023 included Iraq (26%), Iran (21%), the UAE (19%), and Oman (9%) (Figure 2). Unlike major exporters like Ecuador, the Philippines, and Costa Rica—whose peak export seasons run from December through May, India benefits from year-round harvests, with arrivals beginning in April and peaking between June and October. This timing affords India a seasonal window during months when Latin American supplies taper off, offering critical global demand coverage and enhancing export potential.

Banana Exports from India



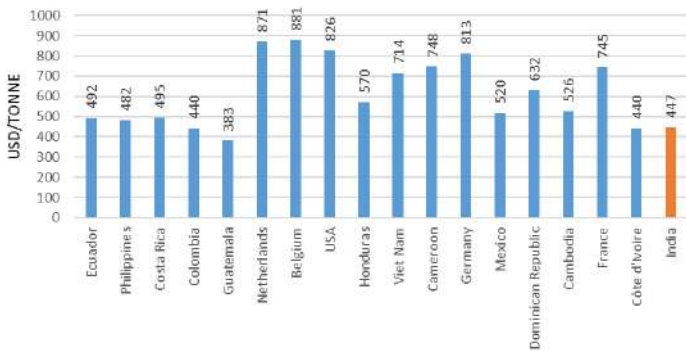
Value-Wise Top 10 Export Destinations of India (TE 2023)  
Total Export Value : 185 MUSD



Source: Created using data from UN Comtrade (2024)

## PRICE COMPETITIVENESS

Global Price Scenario of Banana in 2022 (in USD/tonne)



Source: ITC Trade Map, 2024

India's bananas commanded a competitive export price of USD 447/tonne in 2022 and achieved an average Nominal Protection Coefficient (NPC) of 0.5 over the 14-year period (2010-2023) in key market (Middle East), reflecting strong export competitiveness as domestic prices remain below international levels. This pricing advantage underpins the impressive export growth from USD 25 million in 2010 to around USD 250.6 million in 2023, representing a nearly tenfold increase.

In contrast, top exporters like Ecuador averaged USD 492/tonne and the Philippines USD 482/tonne in 2022—demonstrating their positioning based on quality differentiation. While multi-year analysis is necessary to draw deeper conclusions, the data clearly highlight India's strong cost-competitiveness, an asset that, when strategically leveraged, can further boost its global market presence.

## KEY CHALLENGES

**Low Export Base:** Even though we produce a lot, most bananas are consumed domestically, only 0.4% of India's production is exported.

**Lack of Export Infrastructure and fragmented supply chain:** India lacks mechanized packhouses, cold storage, sorting systems, and ripening facilities in key growing areas. Even the supply chain is highly fragmented, with minimal adoption of traceability systems, making it difficult to meet international buyers' expectations, especially in regions like EU & USA

**Quality Issues:** Indian bananas often do not match global standards for having smaller size, skin blemishes, bruising and chemical residue, making them less attractive to global buyers.

**Branding Weakness:** Indian bananas have poor global brand recognition. They are not associated with premium quality, unlike Ecuadorian or Philippine bananas.

**Market Access Barriers:** Unlike Ecuador or Costa Rica, India doesn't have free trade agreements (FTAs) with large markets like the US or EU. India's bananas face tariffs of 26% in the US, 18.07% in EU, while Ecuador and Costa Rica pay just 10% in the US and 11.89% in EU through preferential trade agreements.

## STRATEGIES

**Market expansion to Middle East:** This region offers favorable conditions due to proximity, lower logistics costs and less stringent non-tariff measures. In UAE, India's share is mere 12% while Ecuador dominates with 78% share. This requires a focused approach to capture larger portion of the Middle East Market like collaboration with supermarkets and branded retailers, by organising export missions, in store tasting product display and promotions etc.

**Negotiate market access in the EU and USA:** APEDA should initiate FTA negotiations with the EU and US to lower tariffs, similar to those enjoyed by Latin American countries under agreements like the Geneva Banana Agreement and CAFTA-DR.

**Branding and Marketing:** APEDA and the Indian Brand Equity Foundation (IBEF) should work closely in developing brand recognition for Indian fruits and vegetable including bananas.

**Market expansion to Russia:** India should strategically tap into Russia's sizeable USD 1-billion banana market, particularly now that geopolitical tensions have disrupted Ecuador's supplies. This could be done through focused export missions, participation in food expos and trade shows, and stringent quality assurance.

**Development of Export Hubs:** Establish model banana export hubs in Jalgaon, Solapur (Maharashtra), and Anantapur/Kadapa (Andhra Pradesh), equipped with export oriented infrastructure, ensuring round-the-year supply

**Highlight Nutritional Value of Varieties:** Showcase banana varieties like Yelakki as superfoods, emphasizing their role in baby nutrition and ability to provide 30% of daily nutritional needs, enhancing demand in niche markets.

