

Market Access Plan for Banana

**TA-6782 IND: Enhancing Market Linkages for Farmer
Producer Organizations**

March 2023



Contents

1. Crop Background	5
1.1 Global Scenario	5
1.1.1 Global Banana Statistics	5
1.1.2 Important Banana Varieties of the World	6
1.1.3 Global Trade Scenario: Exports	8
1.1.4 Global Trade Scenario: Imports	9
1.2 Indian Scenario	10
1.2.1 National Banana Statistics	10
1.2.2 State-Wise Banana Production	10
1.2.3 Important Banana Varieties in Different States of India	11
1.2.4 India External Trade Scenario	13
1.2.5 India Internal Trade Scenario	14
1.3 Maharashtra Scenario	15
1.3.1 State Banana Statistics	15
1.3.2 Important Banana Producing Regions of Maharashtra	15
1.3.3 Maharashtra <i>Mandis</i> and Pricing	15
1.3.4 Value Chain Mapping of Banana in Maharashtra	16
2. Marketing Strategy	18
2.1 Export Markets	19
2.1.1 Characteristics of the Segment	19
2.1.2 Competitors	20
2.1.3 Maintaining quality standards and supply	23
2.1.4 Pricing	24
2.1.5 Establishing Connects	26
2.1.6 Advantages and Risks Associated	27

2.2	Domestic Markets	28
2.2.1	Characteristics of the Segment	28
2.2.2	Competitors	29
2.2.3	Maintaining Quality Standards and Supply	29
2.2.4	Pricing	30
2.2.5	Establishing connects	31
2.2.6	Advantages and risks associated.....	31
2.3	Organized Retail & eCommerce	32
2.3.1	Characteristics of the Segment	32
2.3.2	Competitors	33
2.3.3	Maintaining Quality Standards and Supply	33
2.3.4	Pricing	34
2.3.5	Establishing Connects.....	34
2.3.6	Advantages and risks associated.....	34
2.4	Processors	35
2.4.1	Characteristics of the Segment	35
2.4.2	Competitors	36
2.4.3	Maintaining Quality Standards and Supply	36
2.4.4	Pricing	36
2.4.5	Establishing Connects.....	36
2.4.6	Advantages and Risks Associated.....	37
Appendix 1: Country Profiles of top 5 banana exporters		38
Appendix 2: Country Profiles of top 2 banana importers		43
Appendix 3: Country profiles of potential export destinations from India.....		45
Appendix 4: Banana CODEX Standards for exporting bananas		49

List of Tables

Table 1: Global banana statistics (Area, Production, Productivity) (2020)	5
Table 2: Top banana exporting nations of the world (2020)	8
Table 3: Top banana importing nations of the world.....	9
Table 4: India's banana statistics (Area, Production, Productivity).....	10
Table 5: State-wise banana statistics of India (2020-21).....	10
Table 6: State-wise banana production clusters	11
Table 7: State-wise important banana varieties.....	11
Table 8: Top 5 export destinations of Indian Banana (2021-22).....	13
Table 9: Indian banana exports over past three years	13
Table 10: Important banana Mandis arrival and prices.....	14
Table 11: Maharashtra banana statistics (Area, Production, Productivity).....	15
Table 12: District-wise banana statistics of Maharashtra	15
Table 13: Maharashtra <i>Mandi</i> arrivals in 2021.....	16
Table 14: Banana import market share of Middle Eastern countries.....	21
Table 15: Banana import market share of European countries	21
Table 16: Banana quality specifications for Middle Eastern markets	23
Table 17: Banana final landing prices in Middle Eastern countries (USD/MT).....	24
Table 18: Banana final landing prices in European countries (USD/MT)	25
Table 19: Grade-wise specifications in Indian markets	29
Table 20: Market-wise requirements in Indian states	30
Table 21: Grade-wise prices in domestic market.....	31
Table 22: Banana quality specifications for retail industry.....	33

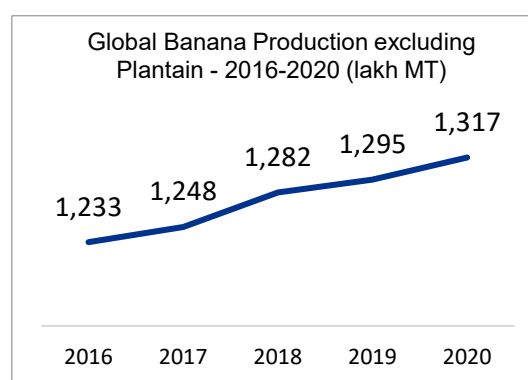
1. Crop Background

Banana (*Musa sapientum*) is a plant which is commercially cultivated in tropical zones of the world. Bananas are one of the world's oldest cultivated crops. Today Bananas are one of the most produced, traded, and consumed fruits globally. More than thousand varieties of bananas exist in the world. The most traded variety is the Cavendish banana, which accounts for over half of global production. Bananas are of prime importance in lesser developed countries, where they help in food security as a staple food along with income generation as a cash crop¹.

1.1 Global Scenario

1.1.1 Global Banana Statistics

²The global demand for bananas has seen steady rise all throughout the recent years on account of growing populations and its ever-expanding nutrition needs. Majority of producers of banana are smallholder farmers. This creates a difficulty in estimating exact area under cultivation and banana production. In addition to above impediment, bulk of the banana plants on African continent are centuries old. Their production is hard to estimate creating further problems in recording banana statistics.



Between 2000 and 2017, global production of bananas grew at an annual rate of 3.2 %, reaching a record of 114 million MT (MMT) in 2017, up from around 67 MMT in 2000. As of 2020, total production was 174.8 MMT³.

In 2020, India topped the world in terms of total area under banana cultivation and total production. India has 7% of world's area under banana cultivation but contributes to 18% of world production.

China ranks second and has 3% of area under cultivation and contributes to 7% of world production. In 2020, China produced 11.8 MMT of bananas.

S. No.	Country	Area (Ha)	Production (MT)	Productivity (MT/Ha)
1	India	8,78,000	3,15,04,000	35.9

¹ Source: FAO & Crop History

² Source: FAO

³ Source: FAO

Table 1: Global banana statistics (Area, Production, Productivity) (2020)				
S. No.	Country	Area (Ha)	Production (MT)	Productivity (MT/Ha)
2	China	3,53,548	1,18,72,600	33.6
3	Philippines	4,51,178	90,56,150	20.1
4	Indonesia	1,58,147	81,82,756	51.7
5	Ecuador	2,88,525	67,45,688	23.4
6	Brazil	4,55,004	66,37,308	14.6
7	Colombia	3,83,318	49,10,511	12.8
8	Guatemala	1,09,026	48,13,127	44.1
9	Angola	1,57,561	41,15,028	26.1
10	Tanzania	6,26,654	39,99,025	6.4
11	Costa Rica	61,059	26,13,134	42.8
World Total		1,20,73,898	17,48,22,868	14.4

Source: FAO Stat

Figure 01: World map of Top Producers of Banana (2020)



1.1.2 Important Banana Varieties of the World

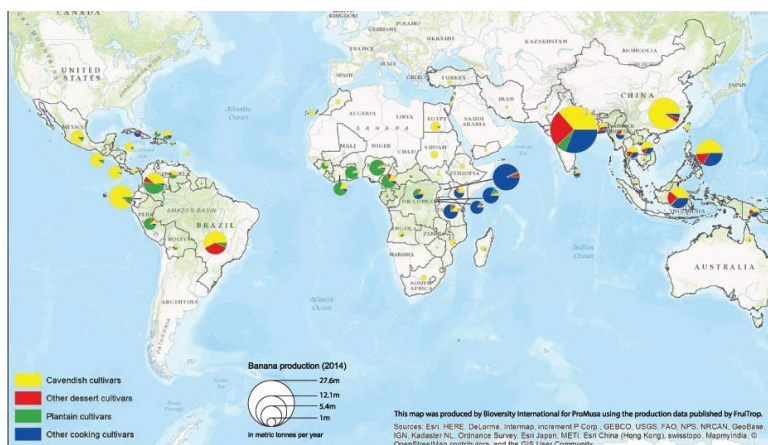
There are more than 1000 varieties of bananas produced and consumed locally in the world. Banana varietal diversity is huge as its applications and purpose vary according to tastes and preferences of local populace. Dessert type bananas (e.g., Cavendish) can be consumed for table purposes as they are sweet and easily digestible when ripe. Cooking types or plantains (e.g., Nendran) contain starch and need to be boiled, fried, or roasted to make them palatable. Some cultivars can have dual purpose.

According to the 2014 FruiTrop banana statistics curated by Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) scientist Thierry Lescot, Cavendish cultivars account for 46% of global production, Plantains 15% and the East African highland banana (EAHBs) of eastern Africa 12%. Together these three types of bananas account for nearly 75% of the global production of bananas.

1.1.2.1 Dessert types of banana varieties

There are 2 major groups in dessert types of bananas.

One major group (AA group) consists of Lakatan bananas, Lady Finger banana and Señorita banana. These are commonly found in the South-East Asia. They are maybe small/long and thicker-skinned and turn a characteristic yellow orange when ripe.



The other prominent group (AAA group) consists of Cavendish bananas, EAHBs and Gros Michel bananas. Cavendish are the most common bananas in the world as they accounted for nearly 57% of the global production in 2018. Cavendish bananas today have defined the standards for taste, yield and post-harvest characters which are most suitable for exports and global trade.

Asia produces 35% more Cavendish bananas than South & Central America combined. Only 11% of Cavendish production is exported from Asia while in South America it is 62%. Its production is gradually increasing in Africa and now has a share of 20%⁴.

1.1.2.2 Cooking types of banana varieties⁵

This group (AAB group) of bananas are also known as Plantains. Most of these varieties are starchy in nature and used for cooking purposes across the world. Total cultivars in this group are around 100. They are widely cultivated in Africa, Latin America, and Southern India. Common plantain varieties include

⁴Source: <http://www.musalit.org/seeMore.php?id=14979>

⁵Source: <http://www.promusa.org/blogpost612-Linnaeus-s-banana-legacy#bandp;>
<https://www.fruittrop.com/en/Articles-by-subject/Varieties/2020/Banana-genetic-diversity#book/4>

Nendran (South India), 'Dominico' (Colombia), Mysore banana, Pisang Raja, etc. 53% of bananas cultivated in Africa, 30% in South America and 10% in India are plantains.

1.1.3 Global Trade Scenario: Exports

Bananas are amongst one of the most widely produced, highly traded and extensively consumed fruits globally. World banana trade has estimated export volume of 21 MMT in 2019⁶.

Exports have grown over the last 2 decades due to abundant supply in the leading export countries of Ecuador and the Philippines, coupled with increase in import demand, particularly by China and the European Union (EU).

The most traded variety is the Cavendish banana. Ecuador accounted for 33% of total exports between 2014-18. Similarly, Philippines exported 13%, Costa Rica (13%), Guatemala (12%) and Colombia exported (10%) of the world's total bananas.



In 2020, bananas were the world's 240th most traded product, with a total trade of 13.9 billion USD. Between 2019 and 2020 the exports of Bananas grew by 0.76%, from 13.7 billion USD to 13.9 billion USD. 4 of the top 5 exporters are in the Central American region depicted on the map on the right⁷.

Countries	Quantity (Million MT- MMT)	Export (billion USD)	Value
Ecuador	7.3	3.83	
Philippines	1.9	1.66	
Costa Rica	2.6	1.28	
Guatemala	2.8	1.16	
Colombia	2.2	1.07	

Source: FAO Stat

Note: The country profiles of top 5 exporting nations are provided in Appendix 1: Country Profiles of top 5 banana exporters.

⁶ Source: FAO
⁷ Source: FAOStat

1.1.4 Global Trade Scenario: Imports

The new trend that has emerged over the past few decades is that large retail chains from key importing nations are establishing direct downstream activities. They either own banana plantations or directly source bananas from growers and distributors.

The biggest importer over these years has been European Union. It has accounted for 32% of total global imports between 2010 and 2016, followed by the United States (25%). The Russian Federation (8%), Japan (6%) and China (5%) are other noteworthy importers. [The main importer of organic bananas is the United Kingdom](#). A total of 26.5 MMT of bananas were imported in 2020 worth value of 13.9 USD billion.

S. No.	Country	Quantity (MT)	Value (Million USD)
1	USA	46,71,407	2580
2	China	18,19,247	959
3	Russian Federation	15,15,711	707
4	Germany	13,23,419	796
5	Netherlands	12,74,827	779
6	Belgium	11,73,712	470
7	Japan	10,67,863	902
8	UK	9,79,420	582
9	Italy	7,81,844	465
10	France	6,95,437	438

Source: FAO stat

Plantains or cooking type bananas are also imported in small quantities by following countries:

- United States of America – 4.05 Lakh MT
- Saudi Arabia – 1.9 Lakh MT
- El Salvador – 76,000 MT
- United Kingdom – 55,000 MT
- United Arab Emirates – 42,000 MT

Note: The country profiles of top 2 importing nations are provided in Appendix 2: Country Profiles of top 2 banana importers.

1.2 Indian Scenario

1.2.1 National Banana Statistics

Banana is the second most important fruit crop in India next to mango. It is available year-round, is affordable, has varying tastes to satisfy differing consumer needs, its nutritive content has led to increase in production. In India, banana ranks first in production and third in area among all fruit crops.

In 2020, India topped the world in terms of total area under banana cultivation and total production. India has 7% of worlds area under banana cultivation but contributes to 18% of world production. Between 2000 and 2015, India nearly doubled its harvested area, and achieved an increase in yields by 48%.

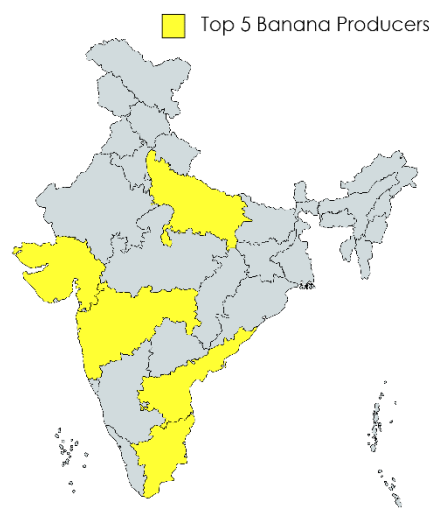


Table 4: India's banana statistics (Area, Production, Productivity) – 2017-18 to 2021-22

Year	Area under cultivation (Ha)	Production (MT)	Productivity (MT/Ha)
2017-18	8,84,000	3,08,08,000	34.85
2018-19	8,66,000	3,04,60,000	35.17
2019-20	8,97,000	3,25,97,000	36.34
2020-21	9,24,140	3,30,61,000	36.16
2021-22 (E)	9,59,260	3,51,30,000	36.89

Source: <https://agricoop.nic.in/en>

1.2.2 State-Wise Banana Production

India has a huge level of diversity of banana across various states. Both cavendish/dessert cultivars and plantain/cooking type cultivars are commonly grown.

Table 5: State-wise banana statistics of India (2020-21)

State	Area (ha)	Production (MT)	Productivity (MT/ha)
Andhra Pradesh	97,240	58,34,000	60.0
Maharashtra	84,260	42,23,000	50.1
Gujarat	59,260	39,07,000	65.9
Tamil Nadu	97,640	38,95,000	39.9
Uttar Pradesh	73,780	33,87,000	45.9
India	9,24,140	3,30,61,000	36.16

Source: Dept of Agriculture, Govt of India (GoI)

Table 6: State-wise banana production clusters		
S. No	State	Banana producing Districts
1	Andhra Pradesh	Kadapa, Anantapur, East & West Godavari, Vizianagaram, Kurnool,
2	Gujarat	Bharuch, Anand, Narmada, Surat, Vadodara, Kheda, Junagadh, Narmada
3	Tamil Nadu	Theni, Tiruchirappalli, Coimbatore, Tuticorin, Pudukkottai, Thoothukudi, Tirunelveli, Karur, Erode, Kanniyakumari
4	Uttar Pradesh	Gorakhpur, Kushinagar, Fatehpur, Kaushambi, Maharajganj
5	Karnataka	Bangalore, Chitradurga, Shivamogga, Hassan, Chikka Mangloor
6	Madhya Pradesh	Khandwa, Badwani, Khargone, Dhar
7	Orissa	Ganjam, Puri, Khurda, Gajpati, Cuttack, Dhenkanal, Angul, Sundargarh, Sambalpur, Bargarh, Deogarh, Koraput, Keonjhar, Raygada, Mayurbhanj
8	Kerala	Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha, Kottayam, Idukki, Ernakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Wayanad, Kannur

Source: ICAR-National Research Centre for Banana

Banana is cultivated in different parts of India owing to its medium range of tolerance to temperature and relative humidity factors. Availability of improved, hybrid varieties through tissue culture technology is further leading to its production on a big scale.

1.2.3 Important Banana Varieties in Different States of India⁸

India is the only country in the world to have sizeable production of both dessert type and cooking types of bananas which is a testament to its widespread geographical diversity. In India, plantains and cooking type varieties make up 12% of total banana production. Cavendish and dessert type varieties hold a share of 88% in total banana production of India.

Table 7: State-wise important banana varieties		
S. No.	State	Important Banana varieties
1	Andhra Pradesh	Dwarf Cavendish, Robusta, Rasthali, Amritpant, Thellachakrakeli, Karpoora, Poovan, Chakrakeli, Monthan and Yenagu Bontha
2	Gujarat	Dwarf Cavendish, Lacatan, Harichal (Lokhandi), Gandevi Selection, Basrai, Robusta, G-9, Harichal, Shrimati
3	Tamil Nadu	Virupakshi, Robusta, Rad Banana, Poovan, Rasthali, Nendran, Monthan, Karpuravalli, Sakkai, Peyan, Matti
4	Uttar Pradesh	G-9, Dwarf Cavendish, Alpon, Chinia, Chini Champa

⁸ Image sources: National Research Centre for Banana (NRCB)

1.2.3.1 Dwarf cavendish

It is a popular commercial cultivar grown extensively for table and processing purpose in the states of Maharashtra, Gujarat, Bihar, and West Bengal. It is also popular in Tamil Nadu, Karnataka, and Andhra Pradesh. Basrai and Grand Naine are the leading commercial variety of Cavendish group in Maharashtra and other states in India. The average bunch weight with 6-7 hands and with about 13 fruits per hand is 15-25 kg.



1.2.3.2 Robusta

It is a semi-tall variety, grown mostly in Tamil Nadu and some parts of Karnataka, Andhra Pradesh, and Maharashtra for table purpose. It is a high yielding and produces bunch of large size with well-developed fruits. Fruit is very sweet with a good aroma. Bunch weighs about 25-30 kg. Fruit has a poor keeping quality leading to a quick breakdown of pulp after ripening, hence not suited for long distance transportation.



1.2.3.3 Rasthali

It is a medium tall variety commercially grown in Tamil Nadu, Andhra Pradesh, Kerala, Karnataka, and Bihar. Its unique fruit quality has made Rasthali popular and a highly prized cultivar for table purpose. Fruit is very tasty with a good aroma.



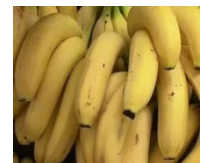
1.2.3.4 Nendran

It is a popular variety in Kerala where it is relished as a fruit as well as used for processing. Commercial cultivation of Nendran has picked up rapidly in Tamil Nadu in the recent past. Fruits remain starchy even on ripening. It is plantain type or cooking type banana cultivar and is most suitable for processing among banana cultivars.



1.2.3.5 Safed Velchi

This is considered a good quality fruit for table purpose and is cultivated in the Thane, Nashik districts of Maharashtra. It is grown under the shade of areca nut gardens in the South Kannada districts of Karnataka. This variety is medium sized.



Apart from the above-mentioned cultivars, the other important banana hybrids are Poovan, Red Banana, Virupakashi, Pachanadan, Monthan and Karpuravalli. ICAR NRC for Banana, Tiruchirapalli (TN) has launched new hybrids such as Udhyam, Kaveri Sugantham, Kaveri Saba, Kaveri Kalki, Kaveri Haritha and Javeri Kanya.

1.2.4 India External Trade Scenario

India produced 31.5 MMT banana in 2020-21. The world production of banana was 174 MMT. India was the biggest producer of bananas in the world accounting for roughly 18% share. However, its contribution in the total traded volumes of bananas is negligible. The major export destinations for Indian bananas are Gulf nations and Indian subcontinent.

Indian banana exports have come a long way over the years. In 2000, India exported only 8,629 MT of banana worth 4 million USD. In 2010, the quantity of bananas exported had increased manifold to 60,813 MT accruing a value of 25 million USD. In 2021, total bananas exported by India were 3,76,572 MT. The value accrued was 157 million USD. Thus, the quantity exported, and value generated has increased 6-fold in a matter of decade.

Though Cavendish bananas are the preferred choice of consumers, traditional bananas like Nendran, Ney Poovan and Red Banana are making a mark in the hyper malls of West Asia and Southeast Asia markets due to the settlement of ethnic population from India.

S No	Country	Quantity (MT)	Value (₹ Cr)
1	Iran	1,16,833	407
2	UAE	52,729	208
3	Iraq	49,284	153
4	Oman	32,278	108
5	Nepal	65,697	69
	TOTAL	376,572	1,179

Source: Directorate General of Commercial Intelligence and Statistics

Note: Country profiles of Iran, UAE, Iraq, and Oman are provided in Appendix 3: Country profiles of potential export destinations from India.

Despite pandemic causing supply chain disruptions, banana exports have been growing substantially.

S No	Year	Quantity (MT)	Value (₹ Cr)
1	2019-20	1,95,746	659
2	2020-21	2,32,518	740
3	2021-22	3,76,572	1,179

Indian banana exports registered a growth of 59% in 2021-22 over the previous year.

1.2.5 India Internal Trade Scenario

Domestic trade of banana in India is generally driven by the decentralized *Mandi* system. Depending on the grade of fruit, different prices are decided, and trade is facilitated between the trader and the farmer. Below table presents the data on banana arrivals and its modal price in year 2021 at some of the major Mandis for banana.

<i>Mandis</i>	Arrival (MTs)	Modal Price (₹/quintal)
Burhanpur (Madhya Pradesh)	3,93,253	1,034.77
Yawal (Jalgaon, Maharashtra)	78,641	1,013.20
Agra (Uttar Pradesh)	67,189	2,151.99
Lakhimpur (Uttar Pradesh)	60,136	2,334.58
Narwal Jammu (Jammu)	58,311	2,688.92
Ravulapalem (Andhra Pradesh)	38,822	NA
Binny Mill (Bangalore, Karnataka)	33,921	1,430.43
Aligarh (Uttar Pradesh)	28,010	2,185.35
Sitapur (Uttar Pradesh)	27,819	2,317.97

Source: <https://agmarknet.gov.in>

1.3 Maharashtra Scenario

1.3.1 State Banana Statistics

Maharashtra has been at the forefront of banana production in India. It has the second largest area under banana cultivation and second largest banana production. Banana productivity in Maharashtra is above 50 MT per ha. In Maharashtra, predominantly cavendish and dessert type of banana varieties are grown.

Year	Area (ha)	Production (MT)	Productivity (MT/ha)
2019-20	76,940	41,53,646	53.99
2020-21	84,260	42,23,050	50.12
2021-22	90,815	48,85,890	53.80

Source: The Ministry of Agriculture & Farmers Welfare, Government of India

1.3.2 Important Banana Producing Regions of Maharashtra

Jalgaon is the leading district and known as the Banana capital of India. It produces around 50-60% of total bananas produced in Maharashtra. Dwarf Cavendish, Grand Naine, Basrai, Robusta, Lal Velchi, Safed Velchi, Shreemanti, Red Banana are the varieties most grown in Maharashtra.

District	Production (MT)	Area (Ha)	Productivity (MT/ Ha)
Jalgaon	31,45,000	44,930	70.00
Nanded	4,20,000	10,000	41.98
Nandurbar	3,66,000	5,800	63.10
Solapur	1,93,000	7,710	25.00
Akola	73,000	2,700	27.17
Total	48,85,890	90,815	53.80

Source: National Horticulture Board, India

1.3.3 Maharashtra Mandis and Pricing

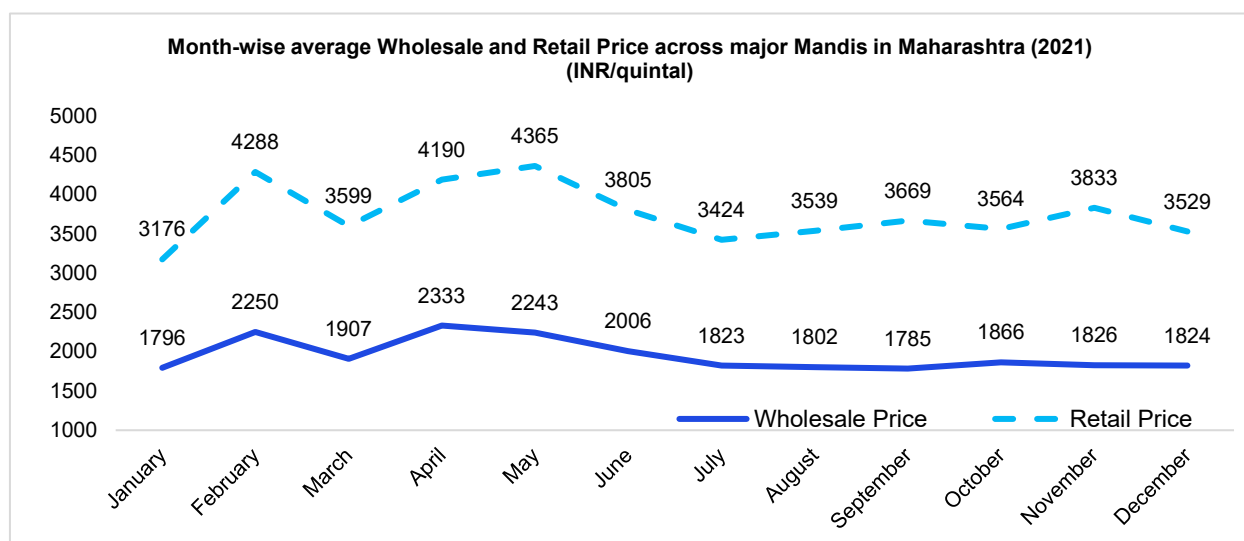
The most important *Mandis* in Maharashtra are Pune, Mumbai, Nagpur, and Nashik. Pune has recorded the highest arrivals in the State.

Table 13: Maharashtra Mandi arrivals in 2021

Months	Pune (MT)	Mumbai (MT)	Nagpur (MT)	Nashik (MT)
January	1345	1088	634	290
February	1512	1161	343	220
March	1488	1290	149	0
April	700	848	146	0
May	1317	711	201	0
June	1768	556	259	0
July	1473	964	310	233
August	1316	961	260	437
September	1674	857	275	462
October	1148	708	350	378
November	1391	631	245	350
December	1762	770	205	523
Total	16,894	10,545	3,377	2,893

Source: <https://agmarknet.gov.in>

The indicative wholesale and retail prices are mentioned below.



1.3.4 Value Chain Mapping of Banana in Maharashtra

The Banana value chain in Maharashtra consists of farmers, Farmer Producer Organizations (FPOs), local traders, preharvest contractors, commission agents, processors, and exporters.

Farmers & FPOs

The Banana farmers undertake cultivation and maintenance of orchards throughout the year. The main operation carried out by the farmers includes land preparation, irrigation, sourcing and transplanting of

planting material (tissue culture plantations are replaced every 18 months), nutrient application in form of manure/fertilizers, weeding, crop protection and harvesting.

Local traders

Local traders are most commonly village level aggregators who buy the produce for sales at local taluka or district markets. They sometimes act as suppliers of bigger traders located at nearest *Mandis*.

Pre-harvest contractor / commission agent

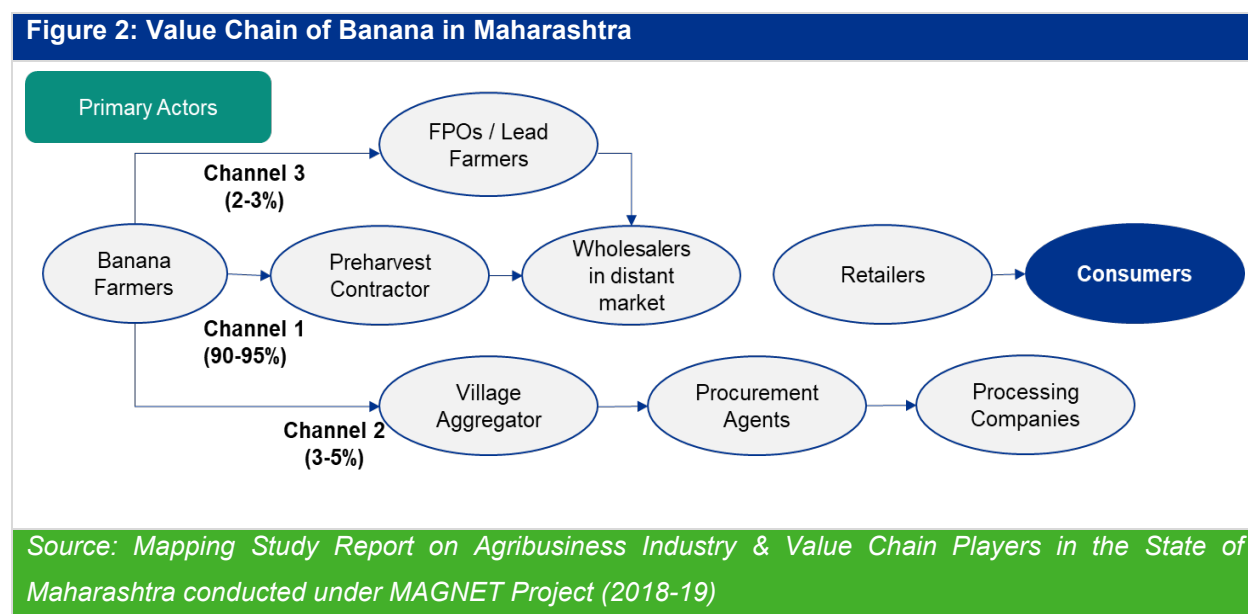
The most common market channel in Banana value chain is through pre-harvest contractor and/or commission agents. These roles are sometimes interchangeable and almost 80-90% of all bananas flows through this channel. The pre-harvest contractors conduct primary processing activities such as de-handing, washing, grading, and packing of the produce, which is then transported to nearby and distant markets in trucks/tempo.

Exporters

Exporters prefer to buy from pre-harvest contractors as compared to big traders based out of district *Mandis* as produce is available at lower rates. They prefer buying best quality grade banana.

Processors

Banana processors in Maharashtra consist of manufacturers of Banana puree, Banana powder, Banana chips and Banana concentrates. They prefer buying lower quality grades of banana produce.



2. Marketing Strategy

Individual farmers and FPOs face issues in accessing profitable markets for their produce. Key challenges for them are their remote locations, high transportation costs, limited market information / knowledge of requirements, and the lack of business skills. The following market strategy has been prepared with a focus on providing information that helps FPOs in accessing reliable and profitable markets, while ensuring their produce meets market standards. In addition, it is envisaged that the FPOs have better bargaining power, some of the value chain activities are shifted towards them and there is a win-win situation for both FPOs and associated value chain actors / market players. Also, while providing information on opportunities, associated risks have also been highlighted. Prior to a detailed market segment-wise strategy, some of the common and cross-cutting interventions that are required at the end of FPOs for better market access are given below:

Commodity resource mapping and Know Your Farmers (KYF): FPOs should keep information on acreage of cultivable land under different crops, approximate marketable crop available with the farmers in the season, etc. This will help FPOs to have an idea of the volumes to be handled in the season and plan to effectively market their produce eventually.

Aggregate large volumes of produce: FPOs can establish long-term business relationship only if they are able to consistently supply sufficient quantity of produce, as per the buyer requirements. FPOs can increase procurement catchment area to consistently meet minimum requirement quantities.

Flexibility with payment terms: Many market segment function on credit cycle, which can vary from as low as 5-7 days to as high as 30-60 days. FPOs should have sufficient working capital to made credit cycle and farmer payments.

Have good market intelligence: FPOs should have good market intelligence to decide on store / sell decisions and to determine which market to send the produce to. Market intelligence can be collected through online sources such as Government data and news articles, and through on-ground network of contacts in different parts of the country. Keeping a tab on market situations in target export markets will help FPOs in market entry and expansion.

Appointment of manager: FPOs can appoint a manager for its market linkage business. This will help in better sales planning, coordination with buyers for purchase and payment timelines. It can also appoint a manager for procurement activities. For FPOs to expand its business and supply to more buyers, it is necessary to have strong procurement, and appointment of manager can help in establishing the same.

Diversify supply options: All types of markets and customers come with both opportunity and risks for FPOs. This document also details on potential risks that FPOs might face in each market. To mitigate risks, FPOs should ensure that it deals in multiple markets and with multiple customers in each market. In addition, to get quality commensurate pricing, FPOs need to supply each market with its required quality of produce.

This section details out the strategy that the FPOs can adopt to supply banana in the major market segments, namely, 1) Export Markets, 2) Domestic Markets, 3) Organized retail and eCommerce, and 4) Processors. Key components of this section are:



2.1 Export Markets

Banana is the most popular and traded fruit in the world and the total export value of the banana trade was estimated to be 13.9 billion USD in 2021. Thus, export of banana is one of the most lucrative marketing channels. Exports market for banana can be roughly divided into 4 regions around the globe- The Middle East, East Asia, European Union, and North America. These regions have high per capita consumption of bananas and thus provide a huge opportunity. However, the market dynamics and prevalent competition must be considered before entering these markets.

2.1.1 Characteristics of the Segment

2.1.1.1 The Middle East

The Middle East is a geographical region consisting of a group of countries including Saudi Arabia, UAE, Kuwait, Qatar, Oman, Bahrain, Yemen, Iran, Iraq, Turkey, Jordan, Israel, Egypt, Algeria, and few other surrounding countries.

The countries which make up the Middle East are predominantly oil dependent economies. These countries have dry, arid weathers which are unsuitable for large scale cultivation of crops. Thus, their economies in the past century have been characterized by a single theme – export of crude oil and import of agricultural commodities.

High income countries in the Middle East such as UAE, Saudi Arabia, Kuwait, Qatar, Oman, and Bahrain have shortage of manpower and thus have a huge immigrant population. The native population ranges from 10-25% and the immigrant population makes up the remaining 75-90%. This immigrant population consists of majority of people from Indian subcontinent. Hence, this market has significant demand for many Indian horticulture crops. The purchasing power of consumers in these markets are also high, and they demand high quality fruits and vegetables.

The major banana markets in the Middle East are Saudi Arabia (200 million USD) Iraq (150 million USD), Iran (125 million USD) and UAE (110 million USD). The smaller banana markets are Kuwait, Qatar, Syria, Jordan, and Oman whose value ranges between 20-30 million USD⁹.

2.1.1.2 Europe¹⁰

The European Union (EU) is a union of 27 member countries in Europe. EU and UK together form the largest importers of banana in the world.

Banana imports by the European Union (EU-27) were approximately 5.1 MMT in 2021, which were slightly lower than the previous year. Despite the decline, import quantities stayed at a very high level in absolute terms as demand continued to be supported by COVID 19 related health concerns and higher consumer awareness of the importance of healthy eating.

There is significant demand for organic bananas in major EU 27 markets. Dominican Republic is a major supplier of organic bananas. Organic bananas are not separately classified and hence estimating organic bananas trade volumes is difficult.

The major banana importing nations in Europe are Germany (796 million USD), the Netherlands (779 million USD), Russia (707 million USD), United Kingdom (582 million USD), Belgium (470 million USD), Italy (465 million USD), France (438 million USD), Spain (285 million USD) and Poland (259 million USD).

2.1.2 Competitors

2.1.2.1 The Middle East

Many countries in the Middle East are high income countries and is an important market for all major banana producing countries. Bananas are imported primarily from Ecuador and Philippines. These two countries supply more than 50% of total bananas imported in the Middle East. Dwarf Cavendish and Grand Naine are the main varieties that are supplied by Ecuador and Philippines. The quality of produce provided by

⁹ Agricultural and Processed Food Products Export Development Authority (APEDA), India; ITC Trademap)

¹⁰ APEDA, ITC Trademap, FAOstat

these two countries is considered a benchmark in the market. This is due to excellent physical appearance and uniformity observed in bananas from Ecuador and Philippines.

Indian banana has good taste but lacks in physical appeal. There is prevalence of black spots on banana skin which reduces its visual appeal. Cavendish and Grand Naine varieties are exported from Maharashtra and Gujarat to the Middle East. Nendran variety is also consumed in Middle East which is supplied by Tamil Nadu and Kerala.

Table 14: Banana import market share of Middle Eastern countries							
Importing Nation	Import Value (Million USD)	Top Banana exporting nations					
		Country	Share (%)	Country	Share (%)	Country	Share (%)
Saudi Arabia	199	Ecuador	56	Philippines	27	Costa Rica	8
Iraq	153	Ecuador	46	Turkey	32	Philippines	10
Iran	125	Philippines	37	India	32	Turkey	30
UAE	110	Ecuador	52	Philippines	26	India	20
Kuwait	33	Ecuador	53	Philippines	35	India	6
Qatar	30	Philippines	51	Ecuador	20	Sri Lanka	15
Oman	21	India	49	Philippines	32	Ecuador	4

2.1.2.2 Europe¹¹

The major exporters to European continent are countries from South & Central America. Ecuador and Colombia are the most important exporters of banana. The others major exporters include Panama and Dominican Republic. Ivory Coast is the only major African nation which supplies banana to Europe. It supplies bananas to France (38%).

Table 15: Banana import market share of European countries							
Importing Nation	Import Value (Million USD)	Top Banana exporting nations					
		Country	Share (%)	Country	Share (%)	Country	Share (%)
Germany	796	Ecuador	22	Dominican Rep	11	-	-
Netherlands	779	Panama	27	Ecuador	18	Costa Rica	16
Russia	707	Ecuador	96	Others	4	-	-

¹¹ Trademap, APEDA

Table 15: Banana import market share of European countries							
Importing Nation	Import Value (Million USD)	Top Banana exporting nations					
		Country	Share (%)	Country	Share (%)	Country	Share (%)
United Kingdom	582	Colombia	28	Costa Rica	19	Dominican Rep	17
Belgium	470	Colombia	36	Ecuador	23	Costa Rica	16
Italy	465	Ecuador	41	Colombia	26	Costa Rica	18
France	438	Cote d'Ivoire	38	Colombia	5	Ghana	4
Spain	285	Costa Rica	22	Cote d'Ivoire	13	Colombia	12
Poland	259	Colombia	17	Ecuador	15	Panama	5

European market has the highest quality requirements, and its inspection norms are very stringent. The South and Central American nations have geographical proximity, huge banana plantations, good economies of scale and ability to conform to MRL requirements. Due to these reasons, they are better placed than Asian countries to supply bananas to Europe.

Other best post-harvest practices followed in South and Central American countries include on-farm packaging to minimize damage during transportation, covering of bunches in plastic bags to prevent pest attacks, foam layers in-between bunches to minimize transit damage, washing of fruits to remove field dirt, and citric acid treatment to prevent browning.

2.1.2.2.1 Competitive advantage with Ecuador (the largest exporter of banana) for banana exports¹²

Ecuador has created the Buenas Prácticas Agrícolas (BPA) national certification to promote good agricultural practices, market access, and competitiveness for producers who receive a tax benefit for its adoption (MAGAP 2021). In 2021, BPA achieved equivalence with GLOBAL G.A.P. (MAGAP 2021). Additionally, Ecuador has also formally received mutual equivalence recognition for organic production with the EU as a strategy to reduce the regulatory challenges for its value chain actors.

Ecuadorian export companies also receive significant support from the government export promotion organization, 'Pro Ecuador' that has more than 30 sales offices across the world, helping companies link with European companies. Pro Ecuador helps the Ecuadorian companies to participate in the major European trade events.

The production cycle in Ecuador is also aligned with the export market demand. During the winter months in Europe, when the demand increases, the banana harvest also increases. On the contrary, when European demand reduces in the summer, the banana harvest in Ecuador also declines (by 20-25%).

¹² Source: Springer Nature | FreshPlaza | Centre for the Promotion of Imports from developing countries

Considering the increasing focus on sustainability for exports, Ecuadorian banana sector is further seeking to increase its international competitiveness with the application of the Occupational Health and Safety Manual for the banana industry, and an agreement with the University of California, Davis to carry out a sustainability study.

2.1.3 Maintaining quality standards and supply

2.1.3.1 The Middle East

The Middle East market demands high quality fruits and vegetables, hence only Grade A banana from India is suitable for the market. Many a time, Grade A bananas sold from India are categorized as Grade B in the Middle East due to presence of black spots. The common market requirements for quality bananas are:

Parameter	Specification
Color	Green
Size	7-9 inches in length
Variety	G9 Cavendish
Net weight	13-13.5 Kg per carton box 4-6 hands per box
Gross weight	14.1 kg per box
Packing Type	Export quality corrugated carton box
Storage	13-14° C

The other banana varieties which are exported to the Middle East are Shreemanti, Basrai, Robusta, Lal Velchi, Safed Velchi, Rajeli Nendran. To maintain quality supply, FPOs should invest in infrastructure for cleaning, sorting, and packaging of bananas. Spotless, disease free bananas with good visual appeal will fetch better prices in market. Facilities for pre-cooling and cold storage is also required, so that bananas can be prepared for the long transit duration to the Middle East markets. It takes around 2-3 days for bananas from Mumbai port to reach their destinations in the Middle East.

2.1.3.2 Europe

European quality parameters are defined under CODEX standards. The quality requirements are quite strict to ensure that only the best banana production reaches the consumers. In all classes, subject to the special provisions for each class and the tolerances allowed, the bananas must be whole, sound, clean, free from pests and damages, free from bruises, free of external matter. The bananas must have pistils removed with stalk intact without bending, fungal damage or desiccation. Bananas are classified into 3 grades: Extra class, Class I and Class II. *The detailed quality parameters defined under CODEX standards are provided in Appendix 4: Banana CODEX Standards for exporting bananas.*

2.1.4 Pricing

2.1.4.1 The Middle East¹³

The prices that Maharashtra farmers get for export grade (grade A) is the highest as compared to other grades used for domestic trade and processing in India. Generally, the price ranges from ₹ 7 per kg to ₹ 12 per kg. When the demand is high this price can be as high as ₹ 25 per kg. FPOs and farmers engaging in primary processing activities get higher prices than prevalent market rate.

However, Indian banana in the Middle East market is expensive in comparison to that of Ecuador and Philippines. Indian bananas Cost, Insurance, and Freight (CIF) cost or landed cost ranges from 1000-1200 USD per MT in UAE and Saudi Arabia. The landed cost of Ecuador and Philippines is 600-700 USD per MT. Thus, a difference of 300-400 USD per MT makes Indian bananas uncompetitive.

Importing Countries	Exporting countries		
	Ecuador	Philippines	India
UAE	690	700	1118
Saudi Arabia	616	710	1128
Oman	470	304	512

Ecuador and Philippines banana gets priority and premium in the Middle East market. Indian banana is ordered to fulfill the gap left by other countries exports. Presence of Indian expat population also increases the bargaining power.

Indian farmers and exporters must work towards reducing this cost deficit by creating direct market linkages. Farmers and FPOs must take lead in starting export operations. The high cost of Indian banana is due to high number of market intermediaries present in the banana value chain.

Exporting from Maharashtra has the benefit of availability of good infrastructure in the form of roads and ports. FPOs will have to spend ₹ 1500-2000 on obtaining Phytosanitary Certificate (PSC), Origin certificate, Certificate of conformance (COC). The handling charges of Customs House Agent (CHA) vary according to the agent and costs approximately ₹ 8000-10, 000. The other costs include container seal charges, terminal handling charges, Bill of Lading, toll charges, war risk surcharge which can together cost around ₹ 40,000-60,000. Finally, the cost of sea freight from Mumbai to Dubai (UAE) will be in the range of 1500-2500 USD per container. Transit time is 3-4 days. *(Note: these are indicative prices gathered from primary sources and exporters and may vary depending on season, supply demand dynamics and government policy.)*

¹³ Trademap, APEDA

2.1.4.2 Europe

Indian exporters have a hard time exporting to Europe as the quality norms are high and the supply quantities from India are low. These reasons combined with longer distances to Europe and high freight costs are the major hindrances.

European banana market is highly competitive. Despite the relatively stable overall performance of banana imports into the European Union in 2021, industry sources reported severe difficulties for importers arising from the higher costs along global supply chains as well as from the depreciation of the Euro against the US dollar in the second half of the year, since bananas are mostly sold in US dollars at the export stage.

Importing countries	Exporting countries			
	Ecuador	Colombia	Costa Rica	India
United Kingdom	574	763	644	1556
Germany	681	790	815	No Sale
Russia	764	754	750	No Sale
Italy	771	626	690	No Sale
France	1003	781	-	No Sale
Belgium	1044	962	962	No Sale
Poland	699	624	718	685
Netherlands	733	NA	NA	1000
Spain	810	627	608	No Sale

Against this background of lower exports, rising costs and relatively stable demand, import prices in the European Union displayed a tendency to increase in 2021, averaging USD 924 per MT, some 3 % higher than in 2020, with a seasonal drop in July 2021 when competition from summer fruits was once again high¹⁴.

Indian exporters' final landed price in UK is 1500 USD per MT making it tough for Indian exporters to sell bananas in Europe.

The average sea freight from Mumbai to Rotterdam port (Netherlands) ranges between 5000-7000 USD per container. The time taken for transit is approximately 26 days.

(Note: these are indicative prices gathered from primary sources and exporters and may vary depending on season, supply demand dynamics and government policy.)

¹⁴ Trademap, APEDA

2.1.5 Establishing Connects

To export produce, it is necessary to understand the major export routes and to establish connects with relevant companies / personnel. The selection of export route for an FPO should be done as per the quality of produce available for export, human capital to handle export related compliances, financial capabilities, and risk-taking ability. Exports can be done mainly through two routes:

Export Route	Description
Through an exporter from India	Companies / individuals specialize in exporting of agriculture and horticulture commodities to specific export markets. FPOs can supply produce as per required quality specifications to the exporters. The exporters buy the produce from FPOs and then exports the products.
Through an importer at the importing country	FPOs can identify importers in the importing country. Importers are companies / individuals that obtained the necessary permissions in the importing country to import specific agriculture and horticulture produce

The third option of “exporting through an own importing office at the importing country” is not suggested for FPOs, as it requires significant investments in terms of capital and manpower. It is more suited for businesses that operate at a very large scale and across different categories such as fresh fruits and vegetables, food grains, processed products, etc.

S. No.	Export Route	How to establish connects?
1	Through an exporter from India	<ul style="list-style-type: none"> • Trade fairs (physical and virtual) conduct by APEDA. Details are published on www.apeda.gov.in • Other National Trade Fairs conducted by various Organizations / Association. Krishi Jagran publishes list of such events on its website – www.krishijagran.com • Online trade websites such as www.indiamart.com and www.exportersindia.com • Buyer-Seller meets organized under the MAGNET project • A directory of select banana exporters from Maharashtra is provided along with this document

S. No.	Export Route	How to establish connects?
2	Through an importer at the importing country	<ul style="list-style-type: none"> ● Trade fairs (physical and virtual) conduct by APEDA. Details are published on https://apeda.gov.in/apedawebsite/trade_promotion/International_trade_event ● Other National Trade Fairs conducted by various Organizations / Association. These events are published on various platforms such as: <ul style="list-style-type: none"> ○ https://krishijagran.com/events ○ https://www.kisaanhelpline.com/agriculture-events ○ https://www.2exhibitions.com/agriculture-and-forestry/ ● International Trade Fairs such as: <ul style="list-style-type: none"> ○ Fruit Logistica: yearly event at Berlin, Germany is one of the most important events for fruit trade across the world ○ Asia Fruit Logistica: yearly event conducted in Asia – at Hong Kong / Bangkok ○ Fruit Attraction: yearly event at Madrid, Spain ● International events on horticulture trade are regularly published on the website of CBI – a centre for promotion of imports from developing countries to Europe. www.cbi.eu/events ● www.freshplaza.com, and https://www.hcisingapore.gov.in/events also provides an event calendar on important global fairs for horticulture crops

2.1.6 Advantages and Risks Associated

Each export route mentioned in the above sub-section comes with its risks. Not all export routes are suitable for all FPOs, and it is necessary for FPOs to understand the risks before pursuing exports through any of the routes.

Export Route	Risks / Disadvantages	Advantages
Through an exporter from India	<ul style="list-style-type: none"> ● Significant margin from the final export price is taken by the exporter ● FPO cannot make significant export-oriented investments as export orders may not be assured. Exporter can procure equivalent quality from any other seller at lower prices, if available 	<ul style="list-style-type: none"> ● Exporting through this route is suitable for all FPOs, especially for FPOs that handle small quantities ● Payment terms from exporters to FPOs can be for shorter credit time ● Export compliance is handled by the exporter – only quality adherence is taken care by FPOs

Export Route	Risks / Disadvantages	Advantages
Through an importer in the importing country	<ul style="list-style-type: none"> ● FPO should be able to send the minimum required quantity per consignment consistently. This is possible only through strong procurement (from its member farmers, and other growing regions) ● Payment default by importers in case the FPO does not take precautionary measures like Letter of Credit ● Credit timelines for payment from the importer can be as high 30 to 60 days ● FPO requires proper and complete knowledge on export compliance requirements of the importing country 	<ul style="list-style-type: none"> ● Higher margins ● Long-term business opportunity. FPO can become an exporter for other FPOs / market players ● Increase exports through volume and by adding other crops FPO is dealing in

2.2 Domestic Markets

Domestic markets here are the Government notified *Mandis* and private traders in large cities across the country.

2.2.1 Characteristics of the Segment

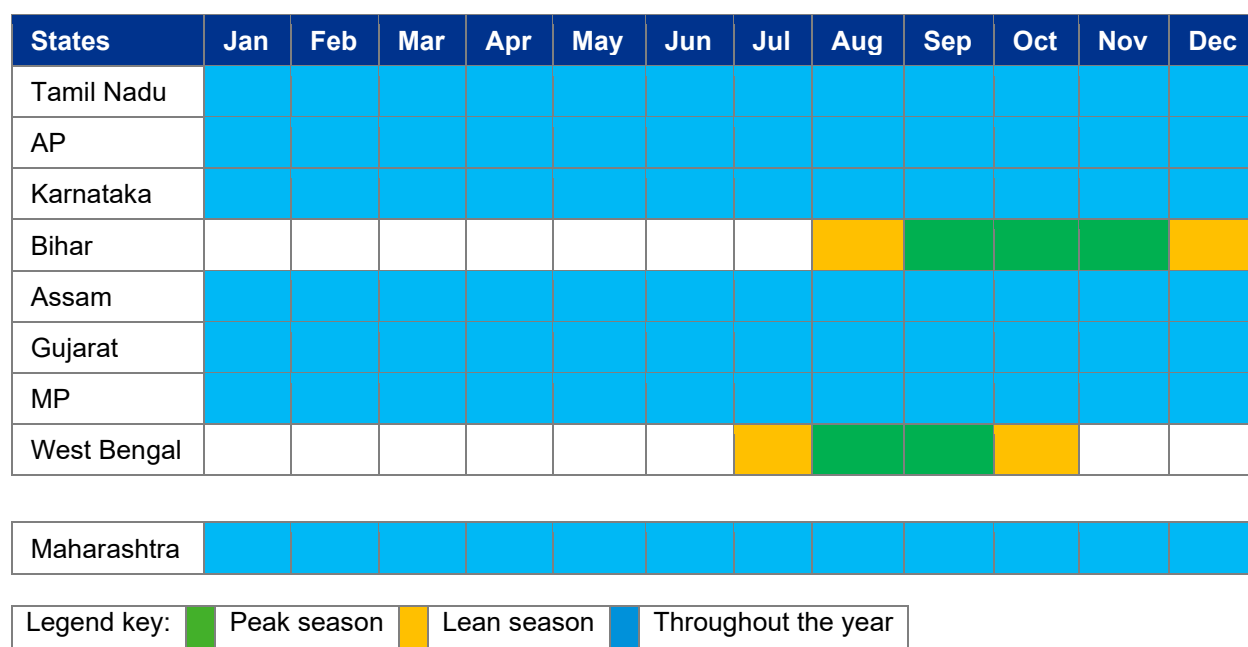
Domestic markets consume all grades of bananas, as it has a wide range of customer segment from exporters to retailers to HoReCa. The most prominent grades are B and C. Bananas have become a year-

round crop and their availability has been increasing every year. Bananas today are consumed across India. Traders from different regions engage to make bananas available throughout the year.

2.2.2 Competitors

The competitors for domestic market are growers and traders from other major banana producing States. The major states which have a sizeable banana production apart from Maharashtra are Andhra Pradesh, Gujarat, Tamil Nadu, Uttar Pradesh, Karnataka, and Madhya Pradesh.

Gujarat is a major direct competitor of Maharashtra as it produces the same varieties available here i.e., Dwarf Cavendish, Grand Naine, Basrai and Robusta. Andhra Pradesh supplies Dwarf Cavendish, Rasthali and Poovan. Tamil Nadu and Kerala provide Nendran banana. Yellaki is a staple variety grown in Karnataka and Tamil Nadu.



2.2.3 Maintaining Quality Standards and Supply

Quality standards in domestic market are not as well defined as that of export market. Generally, grade A is utilized for exports. Grade B is utilized by organized retail and traders of metropolitan areas. Grade C also known as rejection grade in laymen terms is used by processors to make value added products. However, domestic trade makes use of all 3 grades (A, B and C) depending upon availability and demand dynamics in different regions of India. The grading is done based on size, roundness, and general appearance of fruit.

Table 19: Grade-wise specifications in Indian markets

Grade	Specifications
A (Superior)	Above 9 inches
B (Medium)	6-7 inches
C (Inferior)	Less than 6 inches

Roundness parameter is important for smaller size varieties of banana (Velchi / Elaichi). Roundness parameter is judged based on visibility of stripes on banana fruit. If not visible, then it is considered round. Traders generally buy all grades and qualities of bananas to cater to different market segment.

They prefer banana with good visual appearance which is free from black spots. Quality requirements of various markets to which bananas from Maharashtra are supplied are provided in the table below.

Market	Requirements	Varieties preferred
Jaipur, Rajasthan	Grade A and mixed quality	All
Udaipur, Rajasthan	Grade A and mixed quality	All
Azadpur <i>Mandj</i> , Delhi	Grade A	All
Delhi	All sizes, clean, free from spots	Grand Naine
Lucknow, Uttar Pradesh	Grade A and mixed quality	All
Punjab	Bigger size banana, clean, spotless	Grand Naine
Kanpur, Uttar Pradesh	Grade A and mixed quality	All
Guna, Madhya Pradesh	Grade A and mixed quality	All

Various activities are performed by different market players in the banana value chain. De-handing is done by farmers while sorting & grading is done by commission agents. In some cases, these activities are also done by traders. The activities which involve resources (man, machinery, money) such as packaging, precooling, storage, ripening, and transportation are done by traders. FPOs can also take up these activities and set up infrastructure to create primary processing facilities like sorting, grading, precooling, and ripening.

It is difficult for individual farmers to directly cater to *Mandis* out of the State as it involves a considerable storage and logistics cost. However, FPOs that can aggregate banana volumes, build good rapport with local or national traders in Rajasthan, Delhi, Punjab, UP and MP can fetch higher prices. In terms of seasonality, all farmers in banana producing states have started year-round harvesting.

2.2.4 Pricing

Pricing in domestic markets depends on the day-to-day supply-demand dynamics. Hence, FPOs can command good price only by supplying good quality produce to the market or supplying when the overall

supply in the market is low. FPOs can sort and grade their produce and get premium pricing for top grade produce.

Table 21: Grade-wise prices in domestic market		
Grade	Peak Season – Price Range	Lean Season – Price Range
Grade A	₹ 10-12 per kg	₹ 15 per kg
Grade B	₹ 5-8 per kg	₹ 10-11 per kg
Grade C	₹ 1-2 per kg	₹ 2-3 per kg

www.agmarket.gov.in is the Government portal that provides information on the maximum price, minimum price, and modal price of banana at all markets in a particular day / week / month where banana is being traded. FPOs can use the portal to understand the pricing trend before sending their produce to distant *Mandis*.

India is the largest producer of bananas. The domestic production is enough to suffice the local demand. Hence import of bananas is not done by traders.

2.2.5 Establishing connects

FPOs can supply to domestic markets either by taking their produce for auction at *Mandis* or by directly supplying to traders in different markets. Connects can be established through visits to *Mandis* in different cities to meet Commission Agents. It can also be done by seeking help from other FPOs or traders dealing in banana in surrounding geography.

Agriculture / horticulture commodities focused marketplace platforms are effective tool for FPOs to find buyers across the country. Trading option for banana is available on **Bijak** mobile application. Online B2B platforms / trade websites such as www.enam.gov.in, www.farmerconnect.apeda.gov.in, www.kisanmandi.com, www.farmersmandi.in, www.indiamart.com and www.tradeindia.com can also be used for listing of banana.

2.2.6 Advantages and risks associated

Selling to major domestic markets decreases the price risk significantly. When prices are low in nearby markets, FPOs can sell their produce to other domestic markets wherever feasible. Consistent supply to major domestic markets is necessary for FPOs to build long-term relationship with buyers. This acts as a significant hedge against price variations in the nearby markets.

Risk of delayed payments or payment defaults is higher when selling to distant domestic markets in comparison to selling in nearby markets. FPOs should also be able to send a complete truck load for optimal logistics cost, thereby should have strong procurement and consistent supply.

2.3 Organized Retail & eCommerce

Organized retail and eCommerce are the fastest growing marketing channel for horticulture crops. Organized retail includes large national retail players like Reliance, More, and DMart, and other regional retail companies. Major eCommerce companies dealing in horticulture crops are BigBasket, Swiggy, Amazon, and Flipkart. Agri supply chain startups that procure from farmers and supply to various channels such as WayCool and Ninjacart are also categorized as eCommerce.

2.3.1 Characteristics of the Segment

Fruits & Vegetables retailing in India is slowly renovating with organized players reworking on their supply chain model at every step of the value chain to streamline it further. The organized retail and eCommerce

market targets the mid-premium to premium consumer categories. Hence, there is significant focus on quality of the produce.

The companies in this market usually procure from *Mandis* and from traders / village-level aggregators. Over the recent years, there is significant focus from these companies to procure directly from farmers / FPOs to reduce costs and have more control over quality. With this aim, many retail outlets have setup own facilities and collection centers in fruits & vegetables catchment areas in Maharashtra also.

Some retail chains buy directly from farmers while most of them prefer designated vendors who buy fruits and vegetables on their behalf. The major collection centers of retail chains are located at Nashik, Narayangaon & Moshi in Pune, and Sangola in Solapur.

2.3.2 Competitors

FPOs looking to supply to customers in this segment are competing with *Mandis* and traders across the country. These customers procure across the country, where required quality at the right price is available. Retail organizations prefer buying Cavendish banana from Maharashtra and Gujarat due to availability of sufficient quantity and good quality. They buy Yellaki banana from Karnataka.

Maharashtra has the highest number of retail outlets, shops, supermarkets, and hypermarkets in India on account of a thriving population with relatively high-income households. So, the retail organizations prefer procurement of bananas from Maharashtra to reduce costs by minimizing distance between procurement centre and points of sale.

2.3.3 Maintaining Quality Standards and Supply

Organized retail and E-commerce platforms prefer buying Grade A and Grade B bananas. The key to establish business relationship with this market is to consistently supply the required quality of bananas. The quality parameters for banana varieties for supplying to this market segment are mentioned below.

Table 22: Banana quality specifications for retail industry			
Variety	Cavendish/Robusta	Yellaki	Nendran
Size	Length: 15-17 cm Diameter: 35-40 mm	Length: 8-9 cm Diameter: 30 mm	Length: 23-27 cm Diameter: 40-45 mm
Colour	Light greenish yellow	Light greenish yellow	Light green

The common criteria for rejection are full green colour, damaged, cut pieces, cracks, pressure damage, doubling, broken banana or fruit without stalks.

2.3.4 Pricing

The pricing for this category is dependent on the prevalent domestic market prices. Since these customers procure from different States to meet their demand, they can easily offset price increase in one market from procuring from another market.

Most retail players in Maharashtra prefer to buy Grand Naine, Dwarf Cavendish, Robusta from Maharashtra, Yellaki from Karnataka, and Nendran from Tamil Nadu.

The average price quoted by retail players during peak season in Maharashtra is ₹ 10-15 per kg. When the supply is less and demand is high, the price ranges from ₹ 20-22 per kg.

2.3.5 Establishing Connects

Many customers in the Organized retail and eCommerce segment are actively working towards procuring from farmers and FPOs. They procure from major production regions for each crop, and hence procure bananas from Jalgaon, Nashik, Solapur, and Pune. FPOs working in these regions are better positioned to establish tie-ups with this customer segment.

FPOs can try to establish connects with this customer segment:

- Through procurement centers of companies in surrounding region
- Through mutual connects who supply to such companies
- Listing on online trade websites such as www.indiamart.com and www.tradeindia.com
- Listing on agriculture / horticulture specific eCommerce platforms such as Bijak
- Various Government Departments / schemes conduct Buyer-Seller meets. FPOs can meet representatives from companies in this segment
- MAGNET project's Buyer-Seller meets. These Buyer-Seller meets offer platform for FPOs to interact with various market players including Organized retailers and eCommerce players
- Krishi Jagran website provides updates on expos and buyer-seller meets that happen across the country - <https://krishijagran.com/events>

2.3.6 Advantages and risks associated

FPOs that have / can invest in building good post-harvest infrastructure can get good value for their Grade A and B bananas. This segment is growing rapidly, hence making good business relationship with customers of this segment can lead to long term benefits for FPOs. Some companies in these segments also invest in capacity building and post-harvest infrastructure, which the FPOs can leverage. FPOs can enter formal contracts with these customers and sell at profitable prices at reduced risk. Payment default risk is lower with these customers.

These customers function on credit terms, though credit terms can be as short as 7 days to 30 days. Some retail players have payments terms of 2-3 days only. Rejections and price cuts due to quality issues can be common occurrence as they can have strict quality norms. Since these customers procure from different banana production regions and numerous buyers, the pricing power with FPOs is low during negotiations.

2.4 Processors

Processors are manufacturing units of secondary or tertiary processed products of bananas. They can be big processing units, MSMEs or cottage industries.

2.4.1 Characteristics of the Segment

Processors are highly price sensitive customers, and usually procure low grade bananas for processing. Size of processors vary widely from industrial processors to cottage industries; thus, their requirement also

varies. Large scale banana processing factories are found in South India (Tamil Nadu & Kerala). Maharashtra has majority of small-scale banana processing units used for making banana chips and pulp.

2.4.2 Competitors

For an FPO looking to supply to processors, its competitors are the local *Mandis*, wholesalers, and traders. The processors also tend to have long-standing relationship with select suppliers, as the suppliers understand their requirements.

2.4.3 Maintaining Quality Standards and Supply

Bananas can be broadly categorized into 2 major groups: Cavendish & Plantains. Maharashtra produces Cavendish type of banana. It is a dessert type banana which is suitable for fresh / table consumption.

Plantain bananas like Nendran have high starch content which makes them suitable for processing purposes. These bananas are commonly used for making banana chips and value-added products.

Colour	Unripe bananas are preferred, ripe bananas used when other is not available
Size	No preferences

In Maharashtra, processors procure bananas in large quantities at low rates. They have tie-ups with big traders who supply to exporters. The Grade C and lower banana rejected by exporters and domestic traders is procured by processors at low rates. Selected FPOs also supply to such processors but the price realization is very low.

2.4.4 Pricing

Industrial processors tend to maintain a procurement price of which is generally lower than the market price. This is because of the large quantities they usually procure, thus giving an assured market for the suppliers. Prices paid by processors range from ₹ 2-5 per kg.

Small scale processors and cottage industries operate at the day-to-day market prices. FPOs supplying to them must match the prices that are prevailing the market for the required grade of bananas.

2.4.5 Establishing Connects

FPOs can supply bananas to processors in its region. Connects can be established with such companies through online trade websites such as www.indiamart.com and www.tradeindia.com. Details of select processors in Maharashtra is provided along with this document.

FPOs can also approach small manufacturing units and cottage industries manufacturing banana-based products such as chips, pulp in their region to establish business connects.

2.4.6 Advantages and Risks Associated

Long-term business association with processors ensures a steady market for the lower grade banana produce. Supply to processors can be done in batches as and when sufficient quantity of required quality banana is available with the FPO. Logistics cost can be minimized by doing batch transportation.

Processors usually function on long credit cycles from 15-60 days, leading to payment default risk. Industrial processing units may procure in large quantities. Though this might provide FPOs with a large business opportunity, this increases the risk of over dependence on single / handful of customers.

Appendix 1: Country Profiles of top 5 banana exporters

Ecuador: Banana Export Profile¹⁵



Location: South America, bordering Colombia & Peru
Capital: Quito

Banana Acreage	Banana Production	Banana Exports 2020 (Quantity & Value)	
2,88,525 Ha	6.74 MMT	7.3 MMT	3.83 billion USD

- Ecuador is the world's largest exporter of bananas. In 2020, it produced 6.74 MMT, and exported more than 7.3 MMT with estimated value of 3.83 billion USD. Ecuador accounted for 27.7 % of global trade.
- Russia imported 680 million USD (17%) and USA imported 586 million USD (15%) worth of bananas from Ecuador. The other important importers were Turkey (7%), Italy (5%), Germany (4.6%), China (4%) and Netherlands (3.6%).
- The fastest growing markets for Ecuador banana exports was USA, Turkey, and Italy while the fastest declining markets were China, Kuwait, and Belarus.
- Ecuador, accounted for an annual average of one-third of total global banana export volume between 2014 and 2018.
- Three provinces produce most of the bananas (80-90%) for export: Los Rios, El Oro and Guayas according to figures from the Ministry of Agriculture. Most of the export supply is controlled by large growers with high level technical skills.
- 30% of the plantations are in the hands of small producers who sell their production to large exporting groups through a cooperative system. In El Oro province, the production structure is very traditional: small planters cultivate small, scattered fields on hilly lands.
- Banana used to contribute 24% of agricultural production value and 47% of agricultural exports in 2013. As of 2019, Bananas occupied 15% of total exports value of Ecuador.
- Ecuador produces almost 90% Cavendish/dessert bananas and 10% Plantain/cooking bananas.

Ecuador banana market overview – 2021

- Ecuador exported 7.03 MMT of Banana worth 3.83 billion USD in 2020
- However, in 2021 registered an estimated 4% decline in shipments, to approximately 6.8 MMT
- Ecuador was affected by higher expenditures stemming from mitigation measures to combat outbreaks of TR4 (Panama disease tropical race 4 aka Panama TR4)
- New maximum residue level regulations in some key destination markets such as the United States posed further obstacles
- The average unit price of bananas supplied by Ecuador to the European Union over the first nine months of 2021 stood at EUR 593/MT, while the average import unit values to the European Union from all origins was EUR 777/MT, showing better competitiveness of Ecuador

¹⁵ ITC Trademap, FAO

Philippines: Banana Export Profile¹⁶



Location: Island nation of South-East Asia in Pacific Ocean

Capital: Manila

Banana Acreage	Banana Production	Banana Exports 2020 (Quantity & Value)	
4,51,178 Ha	9.05 MMT	1.9 MMT	1.66 billion USD

- The Philippines is one of the top five exporters of bananas, with 1.9 MMT exported in 2020 worth 1.66 billion USD.
- 90 % of Asian banana exports originate in the Philippines, which ranks as the second leading global banana exporter behind Ecuador.
- The top 2 importers of bananas from Philippines are – Japan (749 million USD, 45%) and China (453 million USD, 27.3%).
- The other countries which imported bananas from Philippines are – South Korea (12.3%), Saudi Arabia (3.18%) and Iran (2.8%).
- Fastest growing markets were Qatar, New Zealand and Brunei while declining markets were China, South Korea and Saudi Arabia.
- The varietal spread across Philippines is dominated by Cavendish cultivars accounting for about 52% of total banana production, Saba (27%) and Lakatan (10%). Thus cavendish/ dessert type cultivars make up 66% while plantains/cooking varieties are 33%.
- 84% of the bananas (and 99% of the Cavendish cultivars) were produced on the island of Mindanao, with Davao region, Northern Mindanao and Soccskargen as the top three regions.
- Cavendish cultivars are grown in small to large commercial plantations for the domestic and export markets. Export bananas are produced by Filipino-owned firms and multinational corporations.
- The small- and medium-scale farmers producing bananas for export either sell to multinationals or directly to traders.
- Smallholder farmers commonly grow bananas primarily for home consumption in backyard gardens.
- Philippines accounted for an annual average 13 percent volume share of world banana exports between 2010 and 2016.
- As of 2019, bananas contribute to 2.2% value to Philippines exports.
- In 2013, bananas used to contribute 11% of total agricultural production value and 20% of total agricultural export value for Philippines. (*Source: FAO stat, Filipino news articles*)

Philippine's banana market overview- 2021

- Philippine's 2020 production was severely affected by impact of COVID-19, spread of TR4, hurricane damage and high input costs
- Importers from China, a major destination for bananas from the Philippines, reportedly reduced their orders from smaller producers substantially due to quality concerns

¹⁶ ITC Trademap, FAO

Costa Rica: Export Profile¹⁷

Location: Central American nation
 Capital: San José



Banana Acreage	Banana Production	Banana Exports 2020 (Quantity & Value)	
61,059 Ha	2.6 MMT	2.6 MMT	1.28 billion USD

- Bananas, coffee, and pineapples account for most of Costa Rica's annual agricultural exports.
- In 2020, Costa Rica exported 2.6 MMT of bananas worth 1.28 billion USD.
- Costa Rica contributed to 9.2% of total bananas exported in the world.
- United States of America (USA) was the biggest importer. Costa Rica exported 33% of its total exports to USA worth 417 million USD.
- The second largest importer of banana from Costa Rica was Netherlands occupying 9.5% share worth 122 million USD.
- United Kingdom was 3rd largest importer with 8.75% share and imports worth 112 million USD.
- The other major importers of bananas from Costa Rica were Italy (6.6%), Belgium (5.7%), Germany (5.3%), Spain (4.8%)
- In 2020, fastest growing overseas market for Costa Rica were USA, Netherlands and Ukraine while declining markets were China, Greece and Sweden.
- Production and export of Costa Rica bananas are dominated by private players like Chiquita, Del Monte and Dole, and national company Grupo Acon. The industry employs directly more than 40,000 people.
- In 2011, the *Banano de Costa Rica* became the country's first registered geographical indication (GI).
- With a GI in hand, they are now well-equipped to differentiate Costa Rican bananas from those produced elsewhere.
- Bananas in 2019 accounted for 9.06% of total exports of Costa Rica.
- 99% of cultivars grown in Costa Rica belong to cavendish type and dessert type.
- Plantain/ cooking type banana varieties are not preferred by farmers.
- Between 2014-18, Costa Rica exported 13% of worlds banana. (Source: FAO stat)

Costa Rica's banana market overview - 2021

- Exports from Costa Rica to European Union (EU) remained relatively stable
- Retail prices for bananas in most of the EU-27 displayed a tendency to decline in 2021, which put elevated pressure on the margins of the Costa Rican banana value chain

¹⁷ ITC Trademap, FAO

Guatemala: Export Profile

Location: Central American nation
Capital: Guatemala City



Banana Acreage	Banana Production	Banana Exports 2020 (Quantity & Value)	
1,09,026 Ha	4.8 MMT	2.8 MMT	0.95 billion USD

- Guatemala is an important exporter of Banana in world trade. Total exports were 2.8 MMT worth 0.95 billion USD in 2020.
- The top importer of Guatemalan bananas was USA. It imported 78.6% of bananas worth 908 million USD.
- The second largest importer of bananas was Canada with 13% share and exports amounting to 151 million USD.
- Guatemala currently provides around 40% of all bananas entering the North American market.
- The above data shows that Guatemala has one of the lowest diversifications in terms of its export partners as USA and Canada make up 91% of its export destinations.
- The fastest growing export destinations were USA, El Salvador, and Germany.
- The declining markets for Guatemalan bananas were Mexico, Nicaragua, and Costa Rica.
- Currently, 80% of the banana production and a quarter of its exports are carried out by Guatemalan national companies.
- From the late 1990s, the banana industry underwent a major expansion in the Southern Pacific coastal plain, enabling the country to overtake Colombia and Costa Rica and establish itself as the major banana exporter.
- Izabal, in the North of the country on the Caribbean coast now produces only 20% of total banana exports.
- There are at least 30,000 direct jobs in the banana industry.
- The varietal distribution is dominated by cavendish/dessert type cultivars with 90% share. (*Source: FAO stat*)

Guatemala banana market overview- 2021

- Exports from Guatemala saw decline of 2.1 percent in 2021 as it faced difficulty arising from the higher costs of inputs and transportation
- Aside from COVID-19 related difficulties, shipments from the country were hampered by production shortages caused by back-to-back Hurricanes Eta and Iota that had passed through Central America in November 2020

Colombia: Export Profile¹⁸

Location: South American nation
Capital: Bogotá



Banana Acreage	Banana Production	Banana Exports 2020 (Quantity & Value)	
3,83,318 Ha	4.9 MMT	2.2 MMT	0.99 billion USD

- Colombia is one of the top 5 exporters of Banana in the world. Bananas directly employ 1.5 lakh people in Colombia. It exported 2.2 MMT in 2020 worth 0.99 billion USD.
- In 2020, The top importer of bananas from Colombia was Belgium with 16% share worth 171 million USD.
- The second biggest importer was USA with 15.7% share worth 186 million USD of bananas.
- The other important importers of Colombian bananas were United Kingdom (15%), Italy (11.2%) and Germany (6.08%).
- Uniban (in a joint venture with Fyffes), Banacol, Banafrut, Chiquita Brands International, Dole Food Company, and Del Monte Fresh Produce are the most important banana-marketing companies in Colombia.
- The fastest growing markets for banana exports from Colombia were Poland, Austria, and USA.
- The fastest declining markets were Belgium, Germany, and United Kingdom.
- SINTRAINAGRO, Colombia's agricultural workers' union, is the largest in Latin America, representing over 18,000 banana workers in 266 medium- and large-scale banana plantations, as well as workers in other agricultural industries.
- Colombia is also an important source of Fairtrade certified bananas, especially for the British supermarkets.
- Between 2014-18 Colombia exported 10% of the world's bananas.
- Colombia is an important exporter of organic bananas.
- Plantains and cooking type – 41% & Cavendish/dessert type cultivars – 59

Colombia banana market overview- 2021

- Exports from Colombia saw growth of 3.4 percent in 2021.
- The country successfully implemented disease mitigation strategies pertaining to the impact of COVID-19 and the containment of the TR4 outbreak
- Bananas imported from Central America (except for Belize), Colombia and Peru paid a reduced rate of 75 EUR/MT in 2020 under the Central America Agreement and the European Union-Andean agreements

¹⁸ ITC Trademap, FAO

Appendix 2: Country Profiles of top 2 banana importers

USA: Importer Profile¹⁹



Location: North American nation
Capital: Washington

Major exporters of Banana to USA (2020-21):

Exporting Nation	Value (Million USD)	Share (%)
Guatemala	908	35.2
Ecuador	586	22.7
Costa Rica	417	16
Honduras	224	8.7
Mexico	219	8.5

- USA imported roughly 4.6 MMT bananas and 4 Lakh MT plantains. Total Banana imports are approximately 5 MMT. The imported value of bananas is 2.58 billion USD.
- USA has a share of 18.6% in global banana imports.
- In 2020, imports from Ecuador, Bermuda and Bahamas reduced considerably.
- Between 2010 and 2016, USA accounted for 25% of global banana imports.
- There are five big multinational trading companies, which engage in the production, purchase, transport, and marketing of bananas.
- These are Chiquita, which recently moved its headquarters to Geneva, Switzerland, Fresh Del Monte, Dole, Fyffes and Noboa. Fyffes, which is based in Ireland, primarily supplies bananas to Europe.
- Aside from these players, major supermarket chains in the United States and the European Union are extending their bargaining power in global trade as they are increasingly purchasing from smaller wholesalers or even directly from growers.
- Import prices in United States have been stable at around USD 0.90-1 per kilogram in recent years.

USA banana market overview- 2021

- Exports from Ecuador to USA have declined 23% year on year in 2021
- Mexico emerged as 2nd largest supplier of organic bananas behind Ecuador
- Net imports into the United States remained almost unchanged in 2021
- USA wholesale prices and retail prices in 2021 rose by 5% and 3% compared to 2020

¹⁹ ITC Trademap, FAO

China: Importer Profile²⁰

Location: East Asian nation
Capital: Beijing



Major exporters of Banana to China (2020-21):

Exporting Nation	Value (Million USD)	Share (%)
Philippines	453	47.3
Ecuador	157	16.4
Vietnam	134	13.9
Cambodia	120	12.5
Burma	42	4.3

- China is the second largest importer of bananas in the world.
- Between 2010-2016 China imported 5% of globally traded bananas.
- In 2020 China imported 1.8 MMT of bananas worth 959 million USD.
- Philippines, Ecuador, Vietnam, Cambodia and Burma are the major suppliers of banana.
- China saw declining trend in imports from North Korea and Russia.
- China is also the second largest producer of Bananas but imports bananas as its domestic production is not sufficient to fulfill consumption.
- Importers from China reduced orders from Philippines due to quality concerns.
- Imports by China expanded at a comparatively fast rate in response to strong domestic demand.
- China considerably raised imports from Viet Nam and Cambodia, where an upsurge in Chinese owned banana plantations has been seen in recent years. (Source: FAO stat)

Chinese banana market overview- 2021

- Net imports by China grew by 5.2 percent in 2021
- Thus, China imported around 7% of globally traded banana
- Chinese procurements from Ecuador saw decline of 35% while those from Vietnam and Cambodia increased significantly
- China typically procures some 50 to 75% of its total banana imports from the Philippines, but this share dropped to 45 percent in 2021

²⁰ ITC Trademap, FAO

Appendix 3: Country profiles of potential export destinations from India

Iran

Location: Persian Gulf (Asia)
Capital: Tehran



Banana exporters to Iran (2020):

Exporting Nation	Value (Million USD)	Share (%)
Philippines	46.6	37.4
India	39.4	31.6
Turkey	38	30.5

Major ports: Bandar Abbas & Bandar Khomeini
Distance: 1057 (2 days, 14 hours) & 1525 (3 days, 18 hours) nautical miles from Mumbai

- Iran imported bananas worth 125 million USD in 2020. Iran has a very small diversification of banana imports. India is a major player in banana exports to Iran.
- India is the closest supplier to Iran. It takes 2-3 days to reach both ports from Mumbai. Thus, India requires less time, less cost to transport bananas to Iran as compared to Turkey and Philippines.
- However, landed cost of Indian bananas is more than that of Philippines.

Potential Importers based out of Iran:

Company	Import Items	Contact
Sepehr shargh co.	Fresh fruits	info@sepehrshargh.net
Mounte Fruits, Tehran	Fresh fruits	info@Montefruits.com
Alireza Sanati Trading Company	Fresh fruits	a.sanati85@yahoo.com
SALIMTAT Food stuff industries	Fresh fruits	salimtat.export@gmail.com
Zohreh Rajabi, Tehran	Fresh fruits	rajabi@uni-pars.com
Ayandeh Pouyan Atlas (APA)	Fresh fruits	marketing@apacotrade.com
Mehregan Amir Negar Trade	Fresh fruits	mehregan.trade@yahoo.com

United Arab Emirates

Location: Gulf **Nation** (Asia)
Capital: Abu Dhabi



Banana exporters to UAE (2020):

Exporting Nation	Value (Million USD)	Share (%)
Ecuador	56.7	51.6
Philippines	28.7	26
India	21.4	19.5

Major ports: Dubai
Distance: 1112 nautical miles (2 days, 17 hours) from Mumbai

- UAE imported bananas worth 110 million USD in 2020.
- The price points of India are the reason why Ecuador and Philippines export more in spite of being far away from UAE.
- Apart from above 3, the other nations exporting bananas to UAE are Sri Lanka and Indonesia.
- Indian banana landed cost is roughly 1100 USD/MT. It is very high compared to Ecuador (700 USD/MT) and Philippines (690 USD/MT).

Potential Importers based out of UAE:

Company	Import Items	Contact
Al Metha Trading Fze, Dubai	Banana	al.metha@hotmail.com
Global Impex Food Stuff LLC, Dubai	Banana	gfoodsduhai@gmail.com
Sun Floritech International LLC	Fresh fruits	Al-Aweer, Dubai – 44332
Green Dunes	Fresh fruits	Al Khazana Centre, Karama, Dubai
Alpine Sells LLC	Fresh fruits	Sabkah Building, Deira, Dubai
AAMV LLC	Fresh fruits	P.O.BOX 21574, Dubai

Iraq



Location: Middle East (Asia)
Capital: Baghdad

Banana exporters to Iraq (2020):

Exporting Nation	Value (Million \$)	Share (%)
Ecuador	70.2	46
Turkey	49.5	32.4
Philippines	15.7	10.3
India	7.42	4.8

Major ports: Umm Qasr

Distance: 1533 nautical miles (3 days,18 hours) from Mumbai

Iraq imported bananas worth 153 million USD. Of the top 5 exporting nations, India had the highest price of banana. While price of Indian banana was 485 USD/MT, the price of Ecuador was 509 USD/MT and that of Philippines banana was 269 USD/MT.

Oman



Location: Gulf Nation (Asia)
Capital: Muscat

Banana exporters to Oman (2020):

Exporting Nation	Value (Million USD)	Share (%)
India	10.4	49
Philippines	6.8	32
UAE	2.32	11

Major ports: Muscat

Distance: 846 nautical miles (2 days,2 hours) from Mumbai

1. Landed price of Indian banana is 512 USD/MT while that of Philippines is 304 USD/MT.

Potential Importers based out of Oman:

Company	Import Items	Contact
ALNUR FRO MARKETING	Fruits	P.O. BOX 706, MASQAT – 1111
Anhar Al Fayha Trading	Banana	www.anharalfayha.com
FAIDH UNITED TRADING	Banana	+968 99266531
FALCON TRADING LLC	Banana	+968 25650855

Apart from the above 4 countries there are other potential markets which can be further explored for expansion.

- China is 2nd biggest market worth 959 million USD. It imports bananas from Philippines, Cambodia and Ecuador and hence it is difficult for Indian traders to enter into.
- Turkey imports 320 million USD worth of banana and 90% share is dominated by Ecuador.
- Saudi Arabia – 200 million USD market currently serviced by Ecuador, Philippines and Sri Lanka. India has good scope of increasing exports to this nation.

Appendix 4: Banana CODEX Standards for exporting bananas

European quality parameters are defined under CODEX standards. The quality requirements are quite strict to ensure that only the best banana production reaches the consumers. In all classes, subject to the special provisions for each class and the tolerances allowed, the bananas must be:

- whole (taking the finger as the reference) and firm
- sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- clean, practically free of any visible foreign matter
- practically free of pests affecting the general appearance of the produce
- practically free of damage caused by pests
- free of abnormal external moisture, excluding condensation following removal from cold storage, and bananas packed under modified atmosphere conditions
- free of any foreign smell and/or taste
- free of damage caused by low temperatures
- practically free of bruises
- free of malformation or abnormal curvature of the fingers
- with pistils removed
- with the stalk intact, without bending, fungal damage or desiccation

1) Bananas are classified in three classes defined below:

Extra Class

Bananas in this class must be of superior quality. They must be characteristic of the variety and/or commercial type. The fingers must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

Class I

Bananas in this class must be of good quality. They must be characteristic of the variety. The following slight defects of the fingers, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- slight defects in shape and colour
- slight skin defects due to rubbing and other superficial defects not exceeding 2 cm of the total surface area

The defects must not, in any case, affect the flesh of the fruit.

Class II

This class includes bananas which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Section 2.1 above. The following defects, however, may be allowed, provided the bananas retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape and colour, provided the product retains the normal characteristics of bananas
- skin defects due to scraping, scabs, rubbing, blemishes or other causes not exceeding 4 cm of the total surface area

The defects must not, in any case, affect the flesh of the fruit.

2) Provisions concerning sizing

- The length of the fingers is determined along the outside curve from the blossom end to the base of the pedicel where the edible pulp ends, and the diameter is defined as the thickness of a transverse section between the lateral faces.
- The reference fruit for measurement of the length and grade is:
 - for hands, the median finger on the outer row of the hand
 - for clusters, the finger next to the cut section of the hand, on the outer row of the cluster
- The minimum length should not be less than 14.0 cm and the minimum grade not less than 2.7 cm

3) Classification-wise quality tolerance parameters

- Extra Class

5% by number or weight of bananas not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class

- Class I

10% by number or weight of bananas not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class

- Class II

10% by number or weight of bananas satisfying neither the requirements of the class nor the minimum requirements, except for produce affected by rotting, major imperfections or any other deterioration rendering it unfit for consumption.

4) Uniformity

- The contents of each package must be uniform and contain only bananas of the same origin, variety, and quality
- The visible part of the contents of the package must be representative of the entire contents

5) Packaging

- Bananas must be packed in such a way as to protect the produce properly
- The materials used inside the package must be new¹, clean, and of a quality such as to avoid causing any external or internal damage to the produce
- The use of materials, particularly of paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.
- Bananas shall be packed in each container in compliance with the Recommended International Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables (CAC/RCP 44-1995, Amd. 1-2004)

6) Description of Containers

- The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the bananas.
- Packages must be free of all foreign matter and smell

3. Presentation

- The bananas must be presented in hands and clusters (parts of hands) of at least four fingers
- Bananas may also be presented as single fingers
- Clusters with no more than two missing fingers are allowed, provided the stalk is not torn but cleanly cut, without damage to the neighboring fingers
- Not more than one cluster of three fingers with the same characteristics as the other fruit in the package may be present per row

4. Consumer package

- In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991), the following specific provisions apply
- Nature of Produce: If the produce is not visible from the outside, each package shall be labelled as to the name of the produce and may be labelled as to name of the variety

5. Non-retail containers

- Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, or in the documents accompanying the shipment.
- Identification: Name and address of exporter, packer and/or dispatcher. Identification code (optional).
- Nature of Produce: Name of the produce if the contents are not visible from the outside. Name of the variety or commercial type (optional).
- Origin of Produce: Country of origin and, optionally, district where grown or national, regional or local place name.
- Commercial Identification: Bananas in fingers (when appropriate); Class; Net weight (optional);
- Official Inspection Mark (optional)

6. Contaminants

- HEAVY METALS: Bananas shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for this commodity.
- PESTICIDE RESIDUES: Bananas shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

7. Hygiene

- It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4-2003), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.
- The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

