



Indian Mango

Mango (*Mangifera indica* Linn) is the most important fruit of India and is known as "King of fruits". India Rank First In Global Production & Produces around 22 Million MT in 2018-19

Latest Updates in International Market

While it is known that India is the largest producer of Mango in the world, it is equally important to understand the mango growers in the world and what do these countries do with their mangoes. This would provide Indian exporters with an insight towards value addition possibilities and look towards upgradation in the global value chain.

The global mango market is currently in a transitional period. Mexico is finishing earlier due to excessive rainfall at the end of the season and Senegal also saw its campaign ending abruptly. Brazil has been on the market for a few weeks and is likely to become the most important exporter of mangoes in the coming weeks. In the meantime, Israel is supplying the usual volumes, mainly to the European market. Since the stocks are limited at the moment and the demand for mangoes is increasing, prices should increase. However, this trend will be limited somewhat, as more and more mangoes are arriving from Brazil. In the coming weeks, the mangoes from Spain and Italy will also hit the shelves again, although the yield is expected to be lower than in the previous season.

The Netherlands: Exceptionally good time in the mango market

After a somewhat difficult period, the mango market has been going through an exceptionally good time in recent weeks, say Dutch importers. "After an abrupt end of the Senegalese season, Brazil has been on the market for a few weeks. Spain is only just starting up and Israel is supplying its usual volumes. This has resulted in a limited supply, and prices even reached a peak two weeks ago. There are no longer any such peaks, but the prices for

Brazilian mangoes are still good. The yield in Spain appears to be a little lower this year, and Israel won't be flooding the market either. Consequently, there are good prospects for the coming weeks. The market situation will undoubtedly change again, but there are no signs of that yet."

Belgium: Little supply results in high prices

The situation on the mango market is very unusual. The Senegalese season ended two to three weeks early. In addition, the start of the Israel season also took place two to three weeks late. As a result, there are currently few mangoes available. The prospect is that from this week on, more Israeli mangoes will become available. Moreover, the Brazilian mango season is also starting. Due to the low volumes on the market, prices have been high for a long time and the demand is good.

Germany: Mangoes shipped by air available in the supermarket

There is currently a sufficient supply of mangoes on the German market. Tommy Atkins mangoes arrive by ship for relatively low prices. This variety is very fibrous and the fruit is usually green, which is not really desirable. Due to the lack of quality, only small volumes of this mango are sold, according to a trader from Central Germany who also markets ready-to-eat mangoes. "The color and quality is not that good, so we have seen a sharp drop in the demand."

The mangoes that arrive by air freight are the most popular, says the expert. "Israel is currently supplying the market with good varieties and the quality of this country's mangoes continues to improve." He also sees a growing demand for mangoes in the summer months, which is a period when the demand is mostly oriented towards local summer products. The price for Israeli mangoes is very reasonable, so supermarkets are also able to include mangoes in their range. "The small sizes are cheaper compared to the fruit from Brazil or Peru," says the expert. With the summer coming to an end, the trader expects the demand to rise further until the end of September.

France: Spain will follow after the Israeli season

The Israeli season will come to an end within two weeks and a small volume of Kents is being shipped from Brazil by air. The Spanish campaign is also about to start. The Spanish mangoes that are already coming on the market are still too green. When it comes to the quality of Spanish mangoes, the prospects are good, but due to the weather conditions (little rainfall), a 20% reduction in the volume is expected.

Spain: Season kicks off with lower volumes

Last week, the harvest of the first Osteen mangoes kicked off in the province of Malaga, the most important growing region in Spain. The harvest started a bit earlier this year, albeit with lower volumes. This is an OFF-year for the older areas, which means that the yield will be lower. The younger areas are delivering slightly greater volumes this year. The total production could therefore be 30% lower. Most of the production will consist of medium sizes, which is good for the trade. Also, growers report that the quality is good and homogeneous. The most important variety is the Osteen, but later varieties, such as the Keitt and Palmer, are becoming increasingly interesting for Spanish growers.

Despite Israel's strong competition, the market is looking good for Spanish mangoes. The most important destination for Spanish exports is Europe, but distant markets, such as Canada, are also becoming more popular. This year, the South African market may also open to Spanish mangoes. The necessary inspections before an export protocol can be signed are still on-going.

Italy: Season delayed by 15 days

The demand for mangoes in Italy and Europe is still growing. Italy is the number 8 in Europe when it comes to importing mangoes. The volume of domestic mangoes is also on the rise. The majority of the total of 100 hectares devoted to mango cultivation is in Sicily. The mango season has been extended. In addition to the Kensington Pride, the early Irwin and the late Kent, Keitt and Maia are also cultivated. However, research is needed with some varieties, such as the Gleen, in order to improve the production capacity. The yield is limited and the sizes are small. With other varieties, it is necessary to combat diseases that otherwise drastically reduce the yields.

The flowering and fruit set have undergone an evident delay due to the climatic instability in April/May: about fifteen days later than the previous seasons. Harvest began in the past seasons in the week 34/35, now there are small quantities available but plentiful volumes are expected in week 37/38. It started 15 days later than the previous campaign, with the harvest kicking off in week 34/35. The volumes are now small, but there should be enough stocks by week 37/38. In spite of the delay, the supply remains stable thanks to imports from Israel and South America arriving by plane and by ship. The demand is also stable compared to last year.

South Africa: Growers concerned about dry weather in Limpopo

After the blossom, the fruit of South African mango trees has started developing. The harvest is expected for December. Last season there was an increase in the volume compared to the previous year, although the official figures are not yet available. Dry weather in the Limpopo region is a cause for concern for growers and may have an impact on the fruit's development.

Water management is looking better in the Hoedspruit cultivation region. Last year, slightly more mangoes than normal were exported to the European markets, the Middle East and a little to India. Here too, the official figures are not yet known.

United States: Transition in the demand, supply and prices

The mango market in the United States is in transition, with the switch from the Mexican season to the Brazilian one. The last mangoes from Mexico are still being shipped from the northern regions, but those will see a sharp drop in the production in the coming weeks. The Mexican season is coming to a close at a normal time of the year. California has a limited acreage devoted to mangoes. The season there runs from mid-September to mid-October.

The demand for mangoes in the US is also in a transitional period. "In the summer months, there are different types of fruit available. Suddenly, consumers then realize that there are fewer mangoes in stock," says a trader. "The popularity of mangoes is on the rise, especially among the younger consumers. Furthermore, the sale of sliced, peeled and ready-to-eat mangoes is growing, as well. This is giving an extra boost to the demand." "With both the supply and demand in transition, the price is also subject to changes. Prices were low in August, but given the shrinking stocks, they rose again at the end of the summer. Just like last year, the price is currently stable.

Mexico: Late harvest rained out

The last mangoes of the season are currently being harvested. The next campaign is expected to start in the south of the country in February. Bearing in mind that last year's production continued until October, this time the season has come to a close earlier than expected. This is due to excessive rainfall at the end of the season. Because of the earlier start of the campaign in Brazil, there is no gap in the market. In general, the season has gone well for the Mexicans, with a 2% increase in the volume compared to last year.

Brazil: The most important producer in the coming weeks

The Brazilian season has started earlier than expected and will dominate the global mango production with the Tommy Atkins. Brazil will be the market's largest supplier until early November, after which mangoes from Ecuador will also be available. Ecuador is expected to start around mid-September. Due to weather conditions, the season is expected to start late. The season usually ends in January, after which Peru comes on the market. The Brazilian product is expected to further penetrate in the United States, reaching the markets that are normally dominated by Mexico until well after the end of the season, such as Texas. The volume is expected to rise by 10% this year.

Australia: Low temperatures cause a delay in the harvest

The mango season is about to start in the north of the country. Temperatures at night remain low in the Darwin region and that will delay the harvest of the mangoes. In the Katherine region, the temperature remains cool as the fruit develops. Because of this, the harvest is not expected to start until the beginning of October. In Western Australia, the temperatures are also lower than usual, slowing down the growth of the mangoes. In addition, strong gusts of wind are expected to cause the fruit to fall from the trees. The harvest in the west is expected to start at the end of September, with a peak in October and November. The season runs from August to the end of March with changing production regions. By the end of June 2018, 83,315 tons of mangoes had been harvested in Australia. This was an increase of 36% compared to the previous year. Exports also increased by 8%, with half of them going to Hong Kong and Singapore. The most important varieties were the Kensington Pride (41%), Calypso (29%), R2E2 (14%) and Honey Gold (7%).

Details information country-wise is appended below

Country-wise detail information

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Netherlands	NA (Transit country)	France, Portugal, Germany, Netherlands, UK, Belgium	All Year Round	Kent	Large, oval fruit with dark green skins, sometimes with a dark red blush. They have juicy, tender golden flesh with few fibers, which makes them excellent for juicing.00-900g in weight, Fibreless flesh, sweet with a good flavour	1.77	Canned, dried and frozen mangoes, dry mangoes for consumption and as ingredients, semi-processed like mango pulp, ready-to-eat mangoes, bakery and other items,mango flavoured beverages	Strict phytosanitary requirements, Re-exports to all EU countries, additional ripening as majority stock is re-exported, perceived as a healthy snack option. Preference for European consumers prefer a deep-yellow mango that develops a reddish-pink tinge.
				Keitt	Rounded Oval shaped, Yellow to light red colour, 450-800g in weight, Fibreless flesh yellow in colour, sweet flavour			
				Tommy Atkins	Oblong/Oval shaped, Orange-yellow to dark/light red in colour, 400-600g in weight, Medium fibred, Good quality flesh, Long shelf life			
				Haden	Medium Sized fruits, Orange-yellowish in colour (visually appealing), 400-600g in weight, Moderate fiber and juicy, Harvested in Jaunary-february			
				Osteen	Essentially the only variety of mangoes grown in Europe, cultivated in an organic regime, Plump mango, usually with pale green skin going to pale yellow or mottled yellow as it ripens, but often with a heavy purple-red blush as well., Mild, sweet, fragrant and fiberless, Harvested in August-November			
				Palmer	Green in colour, Coastal Fruit, Large fruits, 523g in weight, orange-yellow and has a mild and aromatic flavor, with minimal fiber, making it a late-season cultivar			
				Nam Doc Mai	Upcoming exotic variety, very little fibre, easily removable skin, strong and pleasant aroma, and very sweet taste, 250-400 gms			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Spain	Mid August- November	Germany, France, Norway, Belgium, Sweden, UK	August- December	Kent	Large, oval fruit with dark green skins, sometimes with a dark red blush. They have juicy, tender golden flesh with few fibers, which makes them excellent for juicing.00-900g in weight, Fibreless flesh, sweet with a good flavour	1.65	Freshly sliced mangoes and juices, Canned, frozen mangoes, mango pulp, bakery and other items, mango flavoured beverages	Main mango grower in EU, Main supplier of Tommy Atkins, pharma industry uses, higher priced than other countries
				Keitt	Rounded Oval shaped, Yellow to light red colour, 450-800g in weight, Fibreless flesh yellow in colour, sweet flavour			
				Tommy Atkins	Oblong/Oval shaped, Orange-yellow to dark/light red in colour, 400-600g in weight, Medium fibred good quality flesh, Long shelf life			
				Red Palme	Flattened egg shaped with an intense red colour, thin peel, excellent quality pulp, intense colour without fibres, 400-700 g			
				Irwin	Fibreless, Pleasant aroma, mild but smooth flavour, firm, juicy, smooth skin develops an eye-catching dark red blush at maturity			
				Osteen	Essentially the only variety of mangoes grown in Europe, Plump, Mild, sweet, fragrant and fiberless, Harvested in August-November			
Peru	November - April	Netherlands, USA, Spain, UK, Korea, France, Canada, Chile, Germany	November- May	Kent	High quantity of edible pulp (fruit) low content of fibre, good colour and appearance as well as very good quality and flavour		Dehydrated Mangoes, Preserved, Fresh, Juices/ Drinks/ Frozen	
				Haden				
				Tommy Atkins				
				Palmer				

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Pakistan	May-September	UAE, UK, Oman, Saudi Arabia, Qatar, Afghanistan, Germany, Norway,	MAY-OCTOBER	Langra	Size medium to large, ovate, base round to slightly flatten, shoulders equal. Beak minute but distinct, sinus slight to absence, skin green and thin, flesh fibreless, yellowish brown in color, scented, highly melting, very sweet. Stone very small, flattened, oval. 1st to 3rd week of July. Heavy yielder.		Eaten Fresh, Juices	
				Aman Dusheri	Size small to medium, oblong, ventral, shoulder higher than dorsal, beak and sinus absent, color yellow when ripe, skin thin, pulp fibreless, flesh firm, very sweet, flavor nice. Stone very small, oblong, variety good to very best, bearing heavy, mid season (July)			
				Sammar Bahist	Fruit medium, base slightly flattened, shoulders equal, sinus very light, beak point prominent, skin greenish yellow, thin, pulp yellow, very sweet, sparsely fibrous, flavor pleasant to delicious. Stone medium and oblong, oval. 13 Quality of the fruit is very good, keeping and peeling qualities well. Ripening season July-August.			
				Fajri Kalan	Size big, oblong, obliquely oval, base rounded, shoulder unequal, with ventral higher than the dorsal, beak distinct, sinus very shallow with rounded apex. Skin thin, pulp color pale, fibreless, taste sweet with pleasant flavor. Juice moderate to abundant. Stone large, oblong. Fruit quality good to very good bearing late season August			
				Muhammadwala	Size small to medium, skin thick, yellow brown, pulp sweet, juicy, stone medium sized, fiber very little, very hard variety, season early August			

				Ratul Anwar	Fruit medium, ovate, base flattened with equal shoulders, which are rounded, beak not prominent, absent in some cases, sinus absent, and apex round. Skin medium thick. Flesh firm, fibreless, flavor very pleasant, with very sweet taste. Juice moderately abundant. Some medium oval. Fruit quality very good. Ripening season in July (Mid-Season). Keeps well in storage.			
				Sindhri	Fruit shape ovalish long. Size big, length 15 cm, breadth 8 cm. Thickness 7.4 cm. Weight 14.0 oz. Base obliquely rounded, cavity absent, Ventral shoulder rising and round, dorsal ending in a curve. Skin color lemon yellow when ripe, Surface smooth. Pulp color Yellowish cadium. Texture fine and firm fibreless. Stone medium size. Flavor pleasantly aromatic, taste sweet. Heavy yielder, early season.			
				Bangalpali	Another variety of Sindh. Fruit shape is obliquely oval, Size is big, length about 14 cm. Breadth 9.1 cm Thickness 8.2 cm. Weight 22.0 oz. Base obliquely flattened. Cavity not prominent. Stalk inserted obliquely. Shoulders ventral typically razed, broader and much more higher than dorsal. Back almost rounded. Skin color dark green and glazy when unripe. Yellowish light green with very light crimson patches when ripe. Surface smooth, shining. Dots small distinct			
				Neelum	Variety of Sindh. Fruit shape ovate, size small, length 7.7cm breath 5.9cm thickness 5.6cm weight 5.0oz. The base is rounded. Stalk inserted squarely. Cavity slight to absent, Shoulders unequal. Ventral is higher than dorsal, back rounded. Sinus slight to shallow, Beak acute to obtuse. Apex rounded Skin color sea green when unripe & yellow with reddish tinge when ripe. Surface smooth. Small dots with numerous small glands			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
United States	Mar-May, Oct-Dec	Canada, UK, Mexico, Belgium	May-Jun	Haden	Fruit large (to 24 oz.), regular ovate, yellow almost covered with red, flavour mild, little fibre, Averages a little less than a pound and is quite round for a mango, with only a slightly oval shape. Its skin turns from green to yellow-orange when ripe. The flesh is yellow in colour, firm, juicy and is abundant in fibre. The flavour is rich and sweet with a weak pleasant aroma	US\$0.91 - 2.5 per piece	Consumed fresh, frozen, dried, as flavouring agents, in salads, smoothies, cakes	Consumers in the United States tend to confuse ripeness with colour, preferring red skinned mangoes to non-showy varieties. Key reasons for consumers not to buy mangoes are unfamiliarity with the fruit or lack of knowledge as to how to select a ripe mango or cut and prepare the fruits. Interestingly, 34 percent of consumers who buy mangoes state that they would buy fresh cut mangoes, while 38 percent would buy organic mangoes, if available. Americans prefer canned mangoes because they like to have something out of the ordinary. Additionally, mangoes enjoy an ethnic market among Asian and Hispanic Americans
				Irwin	Fruit medium, 12-16 oz., elongated, ovate regular in form, orange yellow with deep blush, flesh bland, fibreless.			
			Jul-Sept	Keitt	Fruit large (20-26 oz.), ovate with slightly oblique apex, green, flesh rich, fibre only around seed, green when ripe, with only a very faint yellow or rose blush. The yellow-gold flesh is juicy, fibreless except close to the seed. Light in aroma, it has a full flavour, with pronounced lemony tang and medium sweetness			
			Late Jun-Aug	Kent	Fruit large (20-26 oz.), regular ovate, greenish yellow with red shoulder, flesh rich, fibreless.			
			May-Jul	Tommy Atkins	Fruit medium to large, 16 oz. with thick skin, regular ovate, orangeyellow covered with red and heavy purple bloom. Firm, juicy, medium fibre, fair to good quality.			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Kenya	November to April	Oman, Saudi Arabia, Uganda, Tanzania, United Arab Emirates	Oman: Sep to Jan UAE: Nov to April Saudi Arabia: Sep to Jan	Kent	Ovate shaped, Greenish Yellow Colour, 600-900g in weight, Fibreless flesh, sweet with a good flavour	1.55	Mango flavoured juices, Sweetened mango soft drinks, Mango Pulps, Mango bread loaf (Singapore), Mango Puree, Concentrates, Mango sauces and chutneys, Stewed Mangoes, Used as dressing in salads, desserts and other dishes,	Kenya has seen a rise of 400% in their Mango exports between 2007-12 (ITC report)
				Keitt	Rounded Oval shaped, Yellow to light red colour, 450-800g in weight, Fibreless flesh yellow in colour, sweet flavour			
				Tommy Atkins	Oblong/Oval shaped, Orange-yellow to dark/light red in colour, 400-600g in weight, Medium fibred good quality flesh, Long shelf life			
				Haden	Medium Sized fruits, Orange-yellowish in colour (visually appealing), 400-600g in weight, Moderate fiber and juicy, Harvested in Jaunary-february			
				Apple	Coastal variety, Large,round and apple shaped fruits, Rich yellow-orange to red colour, 380g in weight, Fleshy, juicy and fiberless, Harvested in November-January			
				Ngowe	Green in colour, Coastal Fruit, Large fruits, 523g in weight.			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Australia	September to January	Hong Kong, New Zealand, Singapore and the United Arab Emirates	October to December and January to February (Asian Markets).	Kensington Pride	Oval shaped, Yellow to Orange skin, Vibrant Yellow flesh, Medium fibre content, Sweet and Tangy flavoured with a Rich juicy texture	2.9	<p>Hong Kong: Eaten with rice, Consumed in the form of shakes, used for gifting purposes, Dried mangoes.</p> <p>Singapore: A high trend of ordering mangoes online, Mango sticky rice is a delicacy, Mango bread loaf, Mango is also used in a variety of desserts</p>	<p>Australia Production Brilliance : Every mango has a barcode which can be traced to identify who packed it and its condition when it was packed. Barcodes on fruit and packing boxes store data that meets a demand for traceability and helps with yield predictions.</p> <p>Hong Kong: Large trend of millennials shifting to veganism, and hence an increase in consumption of fruits such as mangoes. Hui Lau Shan is a major mango dessert chain based out of Hong Kong primarily uses Mangoes from Philippines.</p>
				Calypso	Round shaped, Yellow coloured with a pink blush, Yellow pulp, 350-500g in weight, Sweet mild flavour			
				R2E2	Round ovate shaped, Green-Yellow flesh, Lemon Yellow pulp, 600-1000g in weight, Low on fibre content, Sweet mild flavour			
				Honey Gold	Oval shaped, Medium to large sized, Golden skin, Yellow/orange flesh, Firm fibreless juicy flesh, Rich sweet flavour			
				Keitt	Ovate shaped, Green-Yellow colour, Lemon Yellow pulp, 400-1000g in weight, Medium fibre content, Sweet-mild flavour			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Vietnam	February - May : South	China, UAE, Republic of Korea, Russian Federation, Australia	All Months	Xoai Cat	Fragrant, Sweet, No Fiber, Small seed	1.29	Freshly cut fruit after meal, Goi Xoai - green mango salad with fish and shrimp. Green mango pickle, Mango leaves in rice, Frozen mango	Imports from Indonesia, Thailand, Cambodia, Lao, China; Peak produce is in April
	May - September : North			Xoai Tuong	Green, Fragrant, (Consumed Sour in Vietnam), Ability to prevent cancer			
	November - December : Production not possible a commercial scale			Xoai Xanh	Sour			
Indonesia	June to December	China, Thailand, Vietnam, Malaysia, Hong Kong, Singapore	All Months	Harumanis	Juicy, Less Fiber, Green, Fragrant, August to December	1.24	Freshly cut fruit after meal, Mangga Apel and Golek - Roujak (Spicy fruit salad)	Peak Produce in September
				Golek	Long, Yellow on ripening, Little Fiber, Little sour when young			
				Gedong Gincu	Red Peel, Fragrant, Fibourous			
				Avocado Mango	Green, Sweet, Less Fibres, Hybrid of mango gadung and mango honey, Peels like avocado			
				Mangga Apel	Round like Apples, Two variants - Green and Red, Green - Sour, Red - Fragrant and Sweet, No fiber			

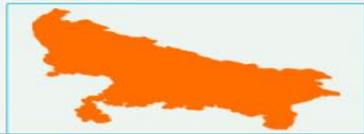
Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Mexico	Feb-August	US,Canada,Japan,Spain,France,Netherlands,Chile	June-August	Kent	Large fruit, green with occasional red blush, smooth flesh with minimal to mild fiber, very juicy with a sweet, rich flavor, (800g)	0.51	Eaten as is, Salads	For market acceptance, requires post-harvest ethylene treatment to enhance color.
			Feb-July	Tommy Atkins	Large, oblong shaped, green skin that has some hues of red, juicy flesh with a smaller pit and moderate fiber, strong and pleasant scent, (450-700g)		Eaten as is	
			March-July	Ataulfo	Kidney-shaped, no fibrous texture, velvety smooth, green to a deep golden yellow when fully ripe, sweet and full			
			March-June	Haden	Oval-round, yellow to red-orange blush when ripe, juicy and yellow pulp, sweet in flavor and have moderate fiber		Ready-to-eat	
			August-Sept	Keitt	Oval-shaped, green skin, smooth, sweet and juicy with mild fiber, flavorful aroma, smaller pit, (500-700g)			

Country	Production Period	Exporting to	Exporting Period	Varieties	Attributes/ Characteristics	Price (\$/kg)	End-Use/ Products	Additional Comments
Brazil	August-December	Netherlands, Spain, US, Portugal, UK, Canada, Russia, France, Germany, Argentina, Chile, Korea	August-December	Tommy Atkins	Large, oblong shaped, green skin that has some hues of red, juicy flesh with a smaller pit and moderate fiber, strong and pleasant scent, (450-700g)	0.81	Ready-to-eat	Occupies 80% of the cultivated area
				Haden	Rounded, yellow and red coloration with lenticels, yellow-orange flesh, slightly sour, (350-550g)			
				Palmer	Oblong in shape, with a slight apical lip, red to purple coloration, thick, tough skin, (450-700g)			
				Keitt	Oval-shaped, green skin, smooth, sweet and juicy with mild fiber, flavorful aroma, smaller pit			
				Espada	Poly-embryonic, yellow when ripe,		Juices	
				Bourbon				
				Uba				
				Rosa				

FURTHER ADDITIONAL INFORMATION



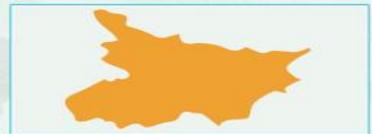
Major Producing States



Uttar Pradesh (4.5 Mill MT)



Andhra Pradesh (4.4 Mill MT)



Bihar (2.4 Mill MT)



Karnataka (1.8 Mill MT)



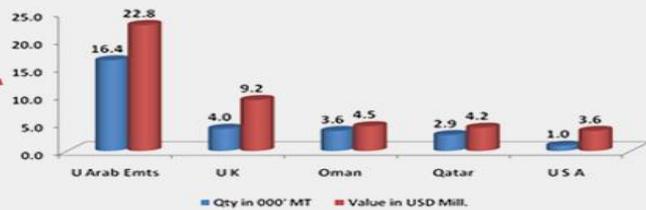
Tamil Nadu (1.2 Mill MT)

India's Export

Export of mangoes from India is 46,510.22 MT, valuing Rs. 406.50 crores during 2018-19



MAJOR DESTINATIONS



Top Mango Importer Countries



Requirement for Quarantine Treatments on Mangoes in various Countries [Irradiation Treatment, HWT (Hot Water Treatment), VHT (Vapour Heat Treatment)]



Season and Varieties



ARRIVAL PATTERN IN MARKET

State	Season of Availability	Important Cultivars
Andhra Pradesh	Mid Feb.-Mid July	Banganpalli, Totapuri, Suvarnrekha, Neelum
Gujrat	April – July	Alphonso, Kesar, Rajapuri
Karnataka	March – July	Banganpalli, Totapuri, Neelum, Alphonso, Pairi
Maharashtra	March – July	Alphonso, Kesar, Pairi
Uttar Pradesh	May – August	Bombay Green, Dashehri, Langra, Chausa, Amrapali

VARIETY OF MANGOES GROWN COMMERCIALY IN INDIA

There are near about 30 varieties of mangoes which are grown commercially. Some of the most important varieties are:

ALPHONSO

This variety is medium in size, ovate oblique in shape and orange yellow in colour. The pulp is yellow to orange in colour. It is soft, firm and fibreless. It is a mid-season variety.

KESAR

Fruits are medium sized, flesh is sweet and fibreless. Colour is apricot yellow with red blush, an early season variety.

BANGANPALLI (BENISHAN)

The flesh is firm to meaty, fibreless. Fruit is large in size and obliquely oval in shape. The colour of fruit is golden yellow. Good keeping quality and a mid season variety.

CHAUSA

Fruit is large in size, ovate to oval oblique in shape and light yellow in colour. It is a late variety.

DASHEHRI

Fruit size is medium, shape is oblong to oblong-oblique and fruit colour is yellow. The pulp is firm and fibreless and a mid season variety.

LANGRA

Fruit is of medium size, ovate shape and lettuce green in colour. The lemon-yellow flesh is juicy and flavourful. It is scarcely fibrous, a mid season variety.

TOTAPURI

Fruit size is medium to large, shape is oblong with necked base and colour is golden yellow. Flesh is cadmium yellow and fibreless, a mid season variety.



ALL YOU WANTED TO KNOW ABOUT EXPORTING MANGOES FROM INDIA

1. Why should you pick up Mangoes for exports?

HUGE EXPORT SURPLUS

India is second largest fruit producer in the world, after China with it's production of fruits and vegetables during the current year estimated to be 314.5 million tonnes emerging out of 25.87 million hectares (mh). Out of the entire basket of horticulture produce from the country, mango occupies top position in coverage of total fruit crops area (21.83%) and hold second rank in total fruits production (35.53%) next to banana crop.

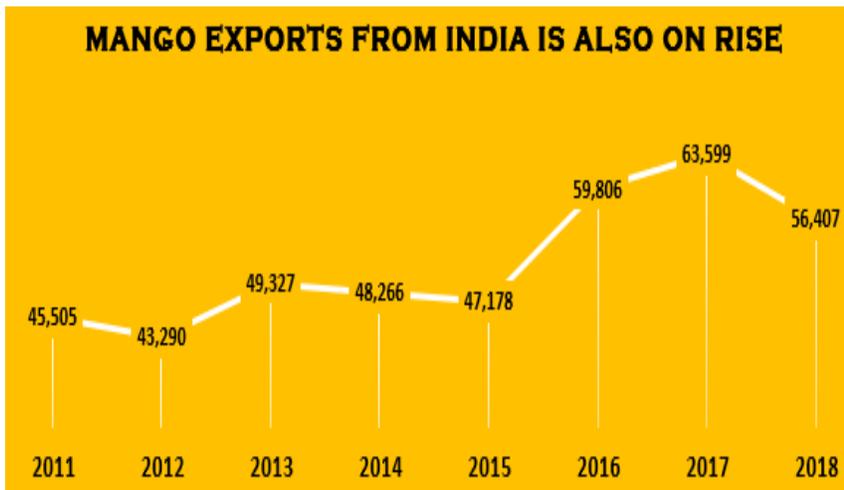


“WE ARE RELAXED SINCE WE HAVE AMPLE EXPORT SURPLUS FOR YOU TO PICK UP THE MANGOES FOR EXPORTS.

The country's mango production has been increasing every year and is estimated to be up by 8 percent to approx.. 22 million tonnes by 2018-19

There has been a focus on improving productivity of mangoes under the central sponsored scheme Mission for Integrated Development of Horticulture with special emphasis on mango production enabling India to capture 77% of the global mango production.

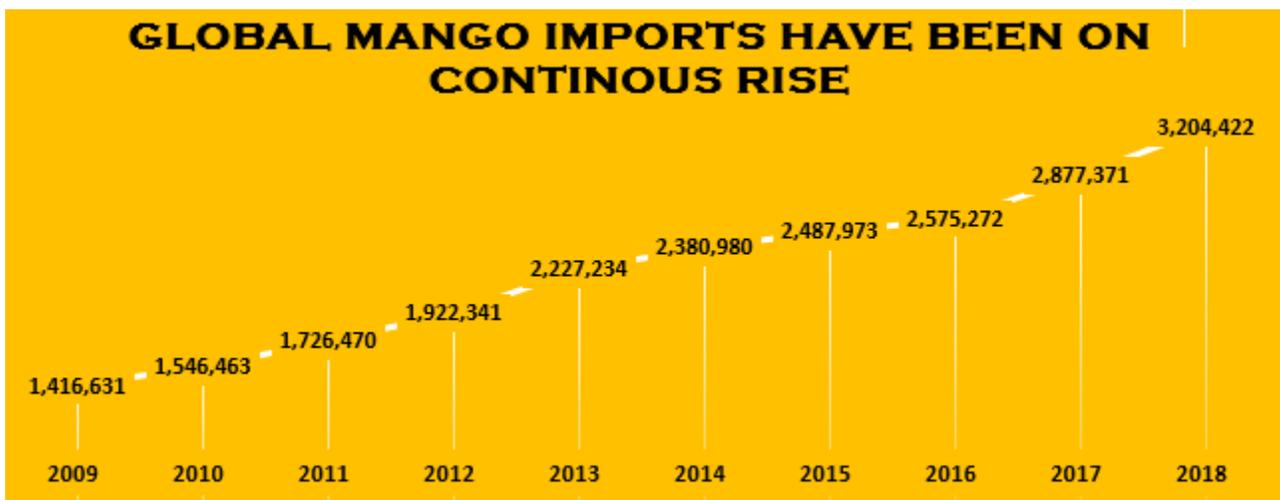
INDIAN MANGOES ARE ACCEPTED WORLD OVER (VALUES IN 000' USD)



This mega share of global production of mangoes in India has also been able to translate itself in exports depicting a continuous rising trend of exports of mangoes for over a decade now wherein mango exports from India had reached an epitome

GLOBAL DEMAND FOR FRESH MANGOES IS INCREASING (VALUES IN 000' USD)

This growth in mango exports from India would remain sustainable for years to come considering the growing import demand of fresh mangoes in the world. Global demand of mangoes which was meagre 1.4 USD million in 2009 have been facing a continuous rise reaching a promising figure of 3.2 USD million recently giving huge potential for Indian mangoes to capture the rising global demand.



IT'S NOT JUST FRESH MANGOES BUT ALSO ALLIED PRODUCTS

While the global demand for fresh mango is on rise; trade in mango allied products gives an equal great opportunity due to continuous increase in consumption of mango and mango-based products coupled with rising preference for naturally sweet fruit-based ingredients. This comes out true especially for processed mango products, wherein the recent global market size is estimated at USD 16.55 billion further projected to register a growth rate of 6.4%. Additionally, the global mango puree market has been currently valued at around USD 950 million is expected to grow by 7.7% and is expected to reach approximately USD 2,120 million by 2024. This is especially true for organic mango puree segment which is expected to dominate the global mango puree market.

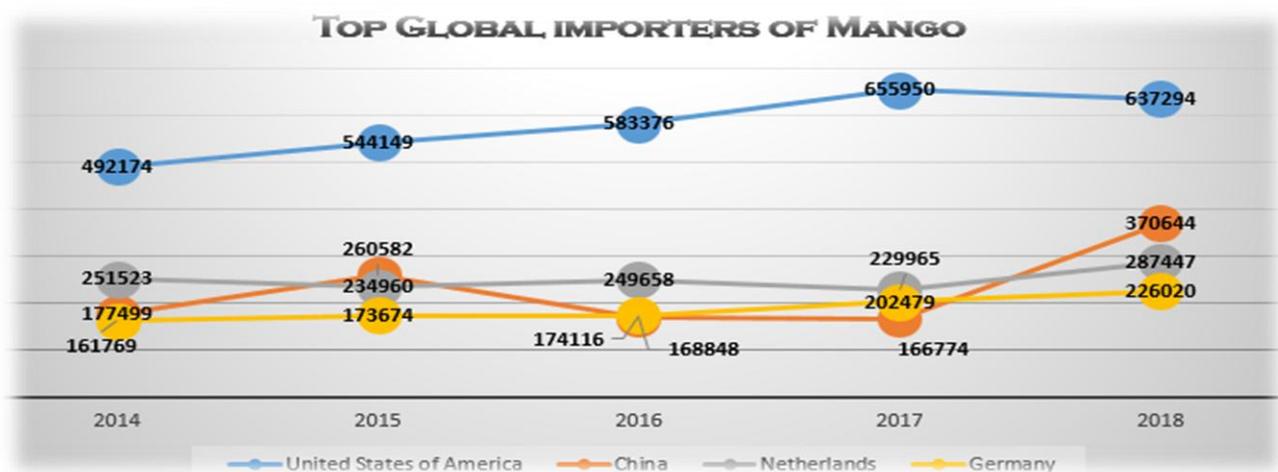
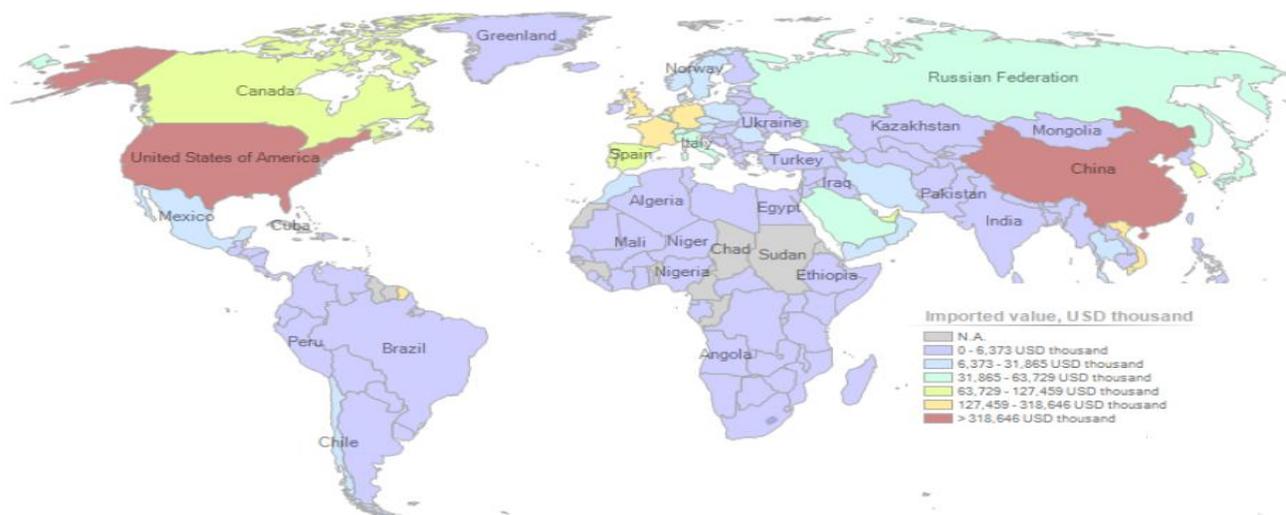
The major factor that is likely to support the growth of the mango puree market is the increased product demand from the beverage industry in the upcoming years. Various large-scale food producers have introduced products based on mango puree into the market. Various companies, such as Starbucks, McDonald's, etc., largely use fruit purees in their smoothies. These smoothies are in large demand among the consumers, which is likely to positively leverage the mango puree market in the future. Moreover, increasing consumption of flavored yogurt in various regions across the globe is anticipated to further support the growth of this market. The organic mango puree is in higher demand by consumers due to growing awareness regarding the usage of organic products. Alternatively, increasing product applications in various segments, such as ice cream and baby food, is expected to create many growth opportunities for the key players operating in the global mango puree market in the future.

Mango-flavored beverages such as Frooti and Maaza are expected to witness significant growth over the forecast period. These beverages require mango pulp as one of the major flavoring ingredients. As a result, manufacturers like Coca-Cola, PepsiCo, and Nestle are driving the demand for mango pulp and taking initiatives for improving mango production. Recently, Coca-Cola, launched a program with Jain Irrigations, a major market player for processed mango products in India, to improve yields. Such initiatives are expected to drive the demand for primary processed mango products like mango pulp and Individually Quick Frozen (IQF) mango.

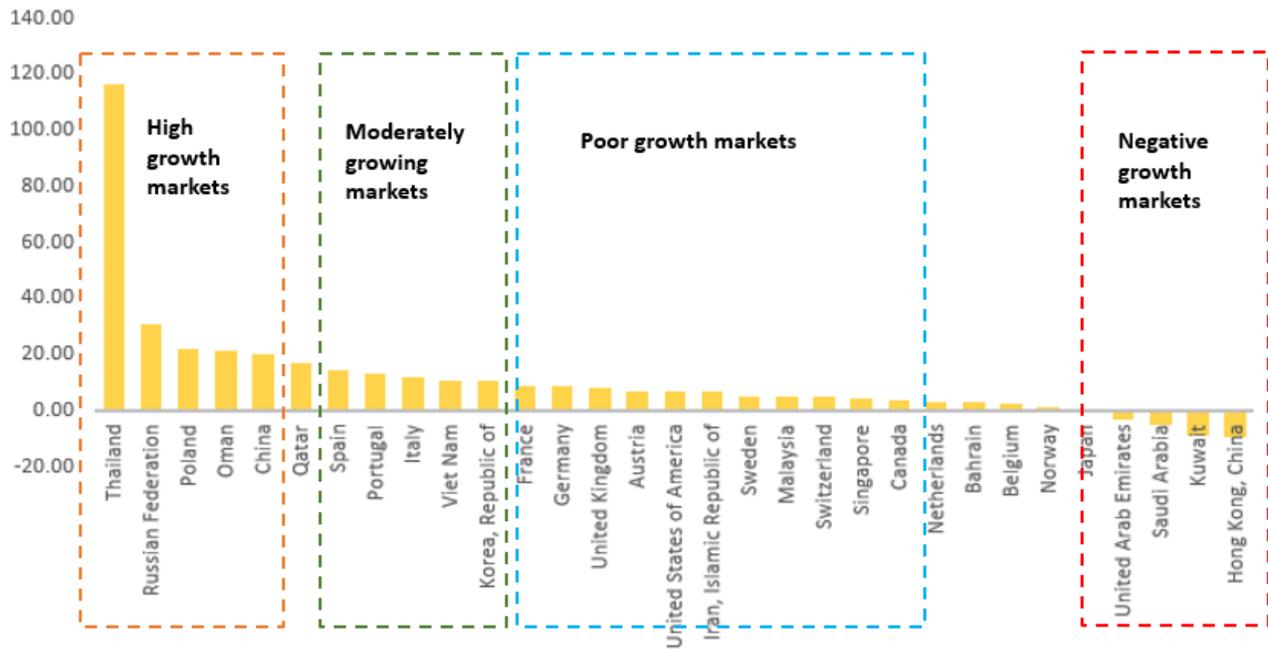
WHICH EXPORT MARKETS SHOULD YOU TARGET?

Appreciating the fact that global import demand of mangoes is on rise, let's see which are the countries in the world where import demands on rise where you should target your exports. While the absolute value and volumes of imports are highest in the USA, China, Canada, Spain and Russian Federation; certain newer markets where Indian exporters of mango can look into are Thailand, Russia, Poland and Oman.

CHINA AND USA ARE TOPMOST IMPORTERS OF MANGO IN THE WORLD



Middle Eastern markets which have always been target and dream destinations for Indian mangoes are on a declining import trend for past three years.



GLOBAL IMPORT TRENDS OF MANGO: COUNTRY POSITIONS(USD 000)

Importers	2014	2015	2016	2017	2018	Trend	Remarks
United States of America	492174	544149	583376	655950	637294	Increasing	
China	177499	260582	168848	166774	370644	Increasing	
Netherlands	251523	234960	249658	229965	287447	Increasing	
Germany	161769	173674	174116	202479	226020	Increasing	
Viet Nam	124588	69231	97220	235217	188301	Increasing	
United Kingdom	131111	163656	170770	170907	179473	Increasing	
France	103515	101433	127883	133468	145645	Increasing	
Canada	88832	87175	88071	105641	101821	Increasing	
Spain	59104	65324	71177	82968	100715	Increasing	
United Arab Emirates	100146	95158	106209	98370	87266	Increasing	
Portugal	42803	43273	50208	57352	70329	Increasing	
Korea, Republic of	46142	55563	48263	53891	68827	Increasing	
Belgium	52430	47339	50809	55607	57511	Increasing	
Russian Federation	17352	9765	11718	24261	50815	Increasing	
Hong Kong, China	74233	66774	56165	58097	49207	Decreasing	
Switzerland	38602	41346	43877	47077	46403	Increasing	
Saudi Arabia	52283	55180	52675	59828	42106	Decreasing	
Singapore	30322	30955	29365	31394	35729	Increasing	
Japan	36293	29303	29260	31357	35361	Increasing	



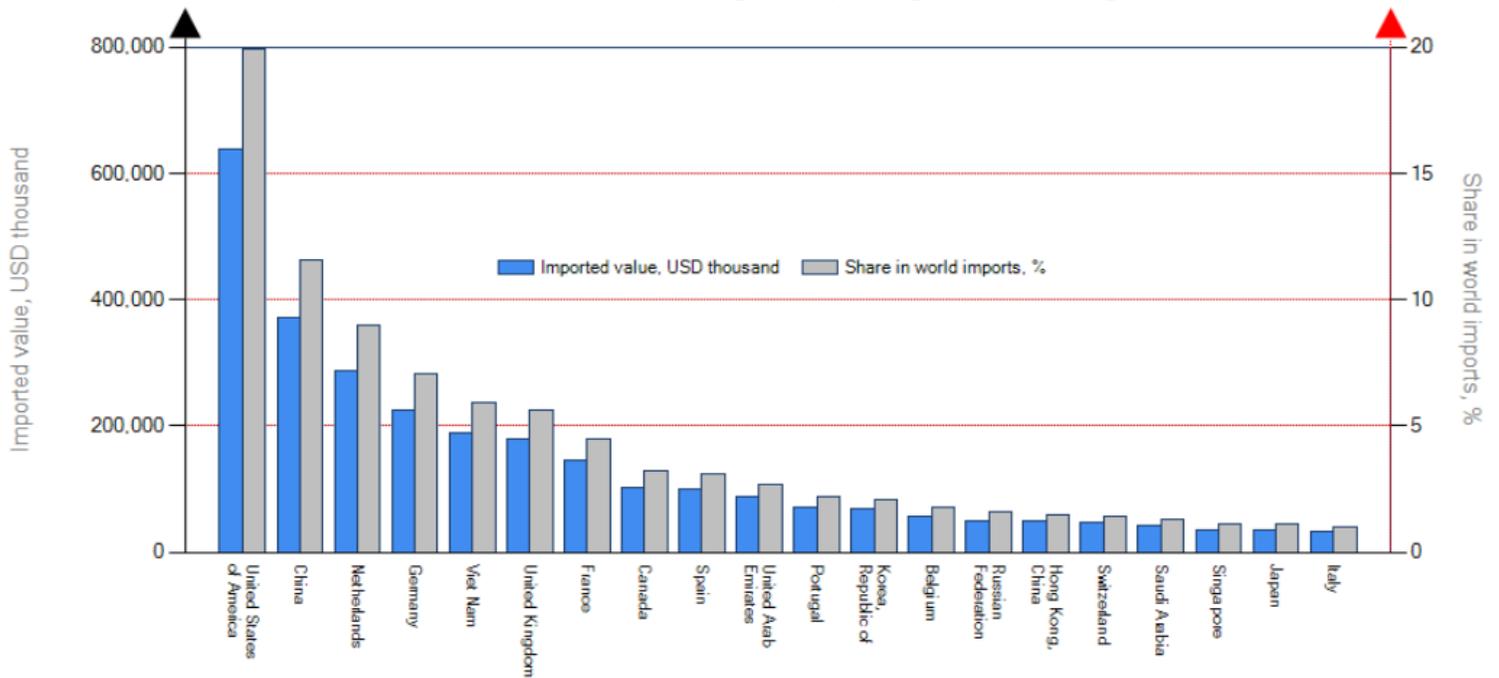
Increasing imports



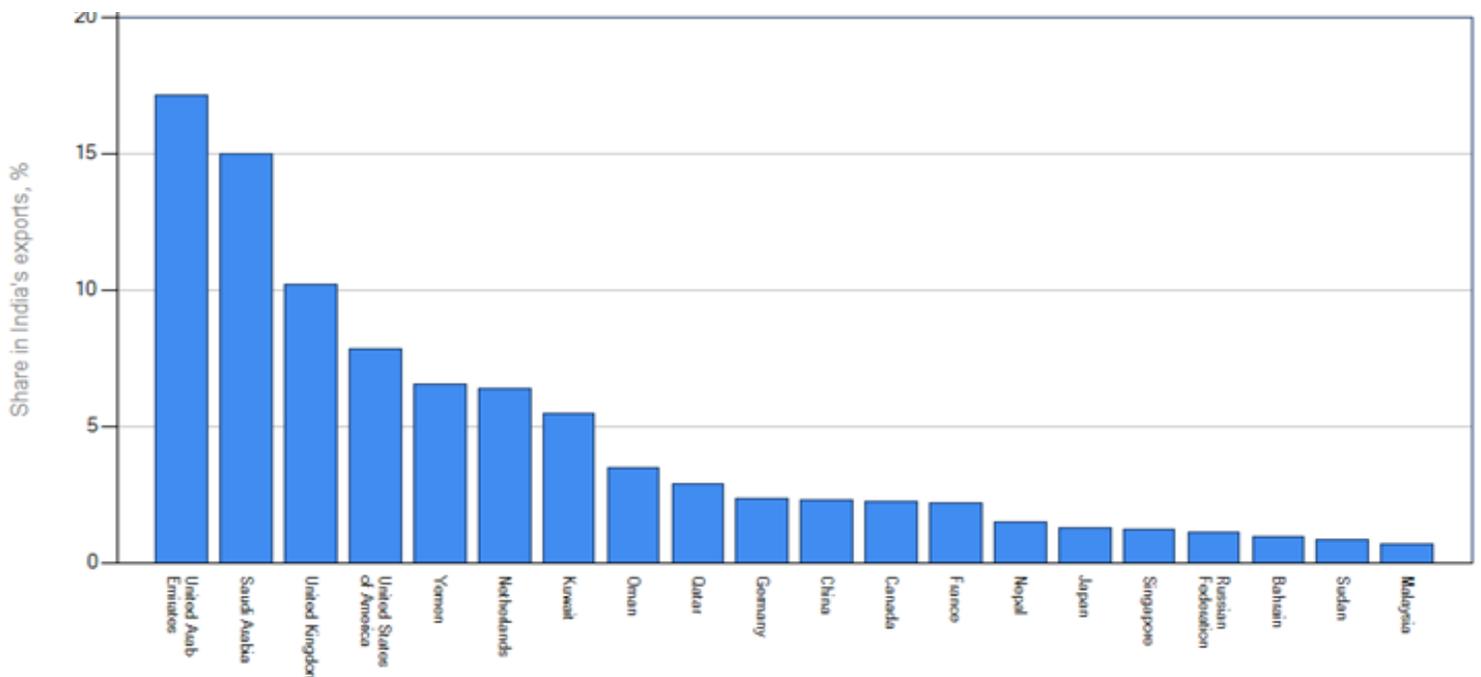
Decreasing imports

INDIAN EXPORTERS NEED TO DIVERSIFY THEIR EXISTING EXPORT MARKETS TO NEWER ONES

PRIME GLOBAL IMPORTERS

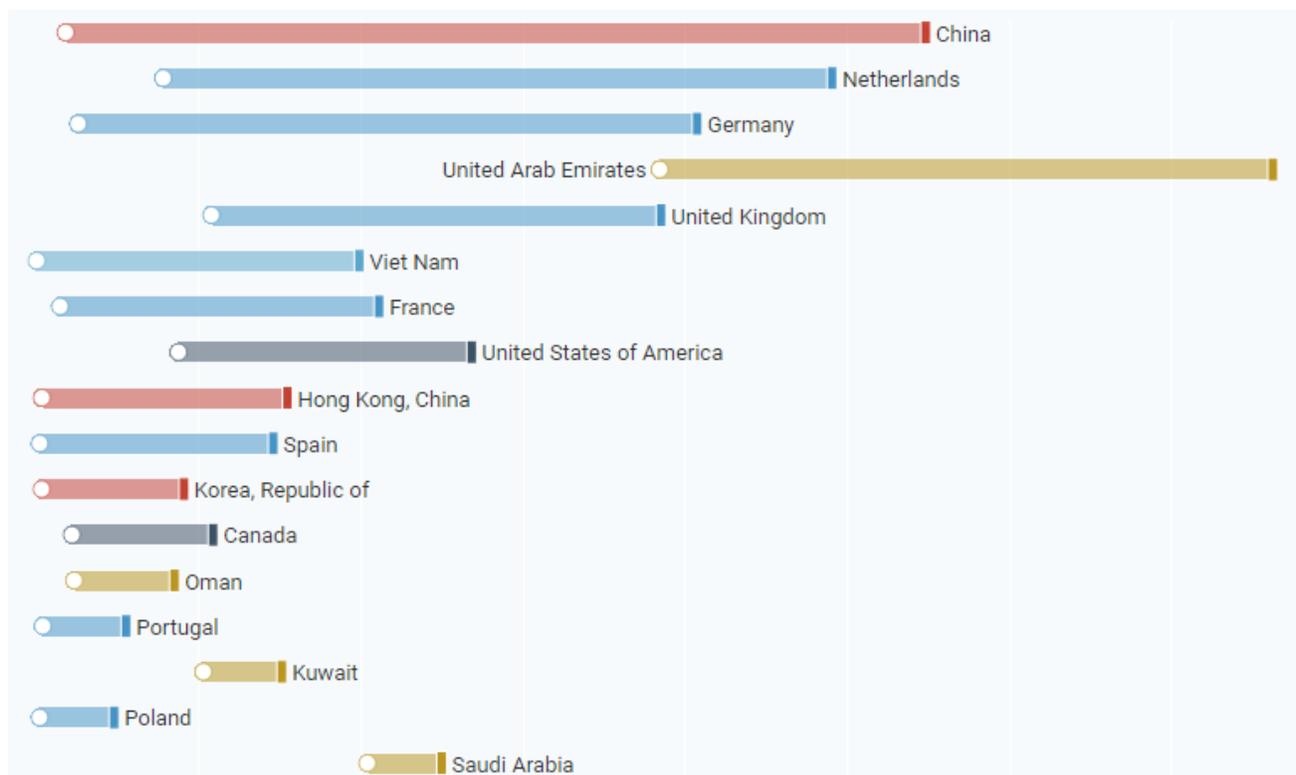


PRIME EXPORT MARKETS FOR INDIA



As can be witnessed, India’s major export markets include primarily UAE, Saudi Arabia, UK etc, focus needs a shift and possible diversification to newer markets in Asia Pacific zones including China, Vietnam and Korea and Canada and Spain amongst the developed markets.

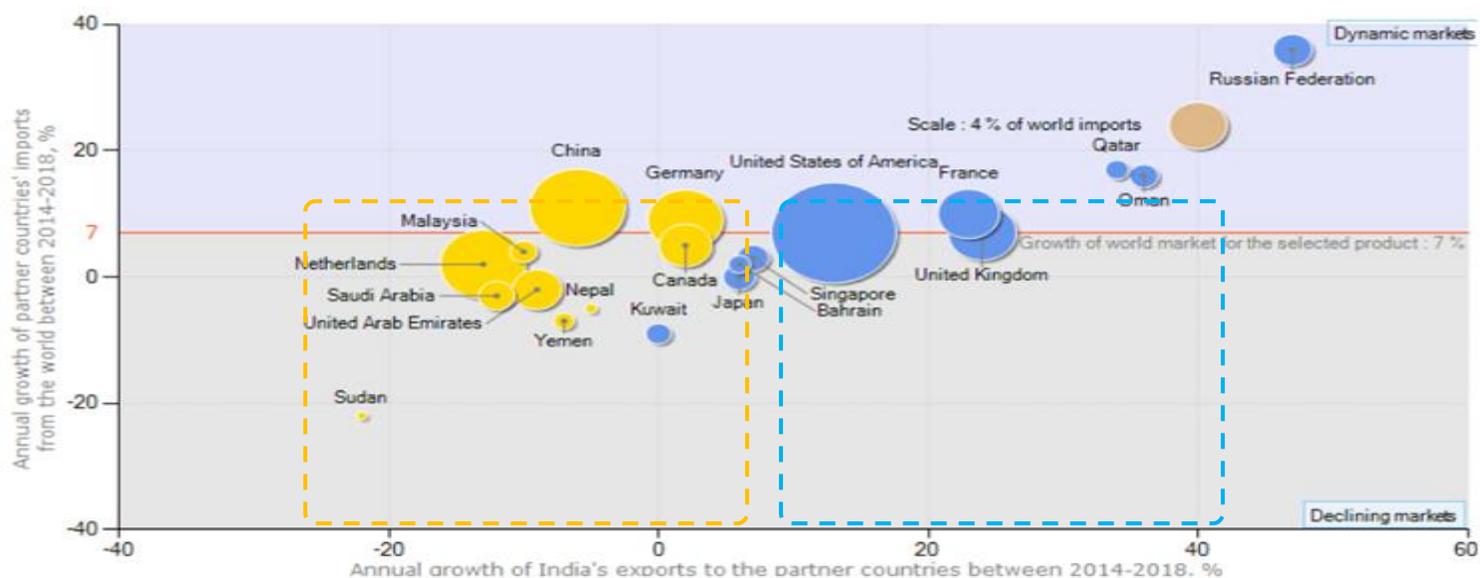
GAP ANALYSIS BETWEEN INDIA’S EXPORTS VERSUS ACTUAL IMPORTS OF MANGO: COUNTRYWISE ANALYSIS



The markets with greatest potential for India’s exports of mangoes & mangosteens, fresh or dried are United Arab Emirates, China and Netherlands. China shows the largest absolute difference between potential and actual exports in value terms, leaving room to realize additional exports worth \$52.3 mn.

Possibilities of export diversification for Indian Mangoes as stated in the figure below indicates in countries including China, Netherlands, Malaysia, Saudi Arabia and UAE; exports from India need to grow at faster rate since it’s not catching up with the growth in imports of mango in these countries.

POSSIBILITIES OF EXPORT DIVERSIFICATION FOR INDIAN MANGOES



1. ARE IMPORT DEMANDS IN THESE MARKETS SUSTAINABLE?

Import Penetration Index which indicates the extent to which domestic demand is satisfied through imports; highlights highest import demands fulfilled via imports in case of Singapore followed by UAE, Switzerland and UK. Self-sufficient markets where huge consumption status may not necessarily mean export opportunity since low IPI includes Canada, Saudi Arabia and Italy.

	IPI index
Singapore	1.049
UAE	0.014
Switzerland	0.013
UK	0.009
Oman	0.007
USA	0.004
Canada	0.004
Saudi Arabia	0.001
Italy	0.001

$$MPEN_i = \frac{impo_i}{prod_i - expo_i + impo_i} \times 100$$

For a given country, a value close to 100 in a certain industry, implies that domestic demand is mainly fulfilled by imports and domestic production tends to be exported. A value close to 0 means self-sufficient, i.e. domestic demand is mainly satisfied by domestic production. A value above 100 illustrates measurement problems which may occur when combining production and trade data. It is important to bear in mind that exports can exceed production.

2. KNOW YOUR COMPETITORS IN THESE MARKETS: understand your viability in prime importing countries of mango

In the above identified markets where import penetration indexes are high, acceptance of India's mango as against its competitors are depicted by Trade Intensity Index¹ values as depicted below. Higher values of Trade Intensity Index as against the competing suppliers certainly indicates an opportunity for Indian mango exporters in the markets. Such markets includes, UK, Canada, USA, Saudi and Italy.

TII values of Indian Mangoes versus competing suppliers in prime importing destinations
Export values in 000'USD

		2014	2015	2016	2017	2018	Trend	Remarks
UK	India	4.44	6.95	9.26	8.08	7.85		Buying behavior in favor of India
	Brazil	7.16	7.42	6.86	5.87	3.80		
Canada	India	17.86	17.77	21.74	15.65	13.28		India has better TII than Mexico in Canada
	Mexico	11.85	9.58	7.55	5.08	6.93		
USA	India	0.96	1.19	2.04	1.59	4.43		India has better TII than Mexico in the
	Mexico	2.02	2.10	2.11	1.88	2.18		
UAE	India	3.14	2.75	2.22	2.31	2.19		India loses against Pakistan in UAE
	Pakistan	7.91	8.31	10.02	10.10	13.05		
Switzerland	India	4.98	1.52	2.42	2.20	2.14		India loses against Peru in Switzerland
	Peru	32.12	28.24	27.52	27.08	26.60		
Saudi Arabia	India	7.52	6.82	5.85	4.36	6.35		Indian mangoes better than Yemen in Saudi
	Yemen	7.91	6.91					
Singapore	India	2.53	2.67	2.58	2.12	2.16		Indian mangoes loses against Thai in Singapore
	Thailand	4.17	4.30	3.89	3.84	5.76		
Italy	India	3.18	4.10	9.83	8.43	16.78		Indian mangoes gaining in Italy against Netherlands
	Netherlands	7.99	7.06	5.80	6.66	5.57		
Oman	India	2.61	2.05	2.04	1.28	0.14		Both India and Pak losing in Oman
	Pakistan	11.91	10.08	10.30	6.60	0.72		

¹Trade intensity index is the ratio of a trading partner's share to a country/region's total trade and the share of world trade with the same trading partner. It is calculated as:

$$TII_{ij} = \frac{t_{ij} / T_{iw}}{t_{wj} / T_{ww}}$$

where t_{ij} is the dollar value of total trade of country/region i with country/region j , T_{iw} is the dollar value of the total trade of country/region i with the world, t_{wj} is the dollar value of world trade with country/region j , and T_{ww} is the dollar value of world trade. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade.

3. Understand your consumers

While it's important to understand the growing markets globally, it is equally important to understand the consumption pattern of mango in these importing countries.

What is the best time of the year to export to these countries?

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Europe												
France												
Germany												
UK												
USA												
South East Asia												

CONSUMER BEHAVIOUR OF MANGO ACROSS BUYERS

Thailand	<ul style="list-style-type: none"> Green, unripe mango - crunchy texture and slightly sweet nutty taste. In Thailand, a dessert known as <i>kao niow ma-muang</i> is prepared by mixing fresh mango slices with sweet sticky rice and coconut cream.
Singapore	<ul style="list-style-type: none"> Mangifera Indica is imported from south of India Alphonso mangoes imported from Ratnagiri, India <p>Mango Dishes</p> <ul style="list-style-type: none"> Mango Sticky Rice Green Mango Salad Mango Pudding Mango Sago Mango Bread Loaf Mango Royale
Indonesia	<ul style="list-style-type: none"> Mangga Arumanis - fragrant and sweet, dark green skin coated with thin grayish natural wax, The flesh is deep yellow, thick, and soft with little to no fiber. Mangga Arumanis is best eaten when ripe Mangga Indramayu - strong aroma with a little bit of strong sweet flavour, bigger in shape, green and yellowish skin. It has thick, slightly watery flesh and prominent fibers, making it best consumed during dry season. Mangga Golek - longer shape, green-yellowish skin with light brown dots, not too sour and the flesh is crispy and thick yet soft, not too watery and fibrous, tastes sweet and has deep yellow to orange colour Mangga Kweni - flesh is mushy with a lot of water and fibers. Usually, young

	<p>Mangga Kweni is mixed in Rujak, while ripe Mangga Kweni is mixed in Es Campur (fruit cocktail with ice and syrups).</p> <ul style="list-style-type: none"> • Mangga Manalagi - Ripe Mangga Manalagi has sweet taste with thick, heavy, and fibrous flesh. It's best eaten fresh. • Mangga Apel - shape is round, just like apple, skin is green and slightly reddish on the upper part. Young Mangga Apel tastes sour and has crispy texture, ripe Mangga Apel tastes sweet and has soft texture. best consumed as Rujak. • Mangga Gedong Gincu - smaller size and a little bit flat, green, yellow, or red. A ripe Mangga Gedong Gincu has reddish skin and fragrant aroma. The flesh is yellow-colored and fibrous, difficult to cut.
Malaysia	<ul style="list-style-type: none"> • Fruit Salad, Rojak • Mango chicken • Sticky rice
South Africa	<p>South Africans prefer having anti-oxidant diets</p> <p>Breakfast –</p> <ul style="list-style-type: none"> • Grilled mango with French toast, mango parfait, (Ripe mangos used) • Snacks – (used as semi-ripe: with a taste of sour) • Mango & chicken – waldorf salad • Mango ham • Mango & blue cheese salad • Mango sweet chilli salad <p>As BBQ mango</p> <ul style="list-style-type: none"> • Drinks • Lassi, Mojito, Granita, Smoothie, <p>Desserts :</p> <p>Mango yogurt popsicles, pudding, mango icings on cake etc</p>
Nigeria	<ul style="list-style-type: none"> • <i>Ogbono</i> is the seed of the African wild mango. The seed is dried and then milled for <i>ogbono soup</i> powder. This is one of the easiest and fastest Nigerian soups to prepare • Nigerians prefer high content of beta carotene
Morocco	<p>An important detail in Moroccan gastronomy is that every meal is followed by a fruit. Breakfast, lunch, and dinner styles in the Moroccan gastronomic culture were also found in the Ottoman culture.</p>
Mauritius	<ul style="list-style-type: none"> • Raw mango – grated for salads, along with chilli and other spices –

	<p>used with rice dishes</p> <ul style="list-style-type: none"> • mango pickles • It can be consumed either raw, ripe or blended as a juice. <p>Mauritians almost always demand pickles when having their meal. There are several ways of making mango pickles. Some people prefer it grated, known as “Kutchu” by the locals, or diced into small pieces and mixed with all the required spices known as “Achar”. Another style of pickled mangos is drying diced and salted mangoes in the sun, before being mixed with oil and other spices and then preserved in a pot for further use</p> <ul style="list-style-type: none"> • Dried Mango Pickles <p>Pickled mangos can also be done with dried mangoes. The procedure of roasting the spices as well as the mangoes</p> <ul style="list-style-type: none"> • Confit- Spicy Mango Salad <p>A combination of raw mango and pineapple along with cucumbers mixed with salt, chili powder and vinegar is known as “confit” by most of the locals. It is one of the most popular street foods on Mauritian streets. It is a real feast to the mouth!</p>
Tanzania	<p>1/3rd population dominated by Muslims – lot of fruits consumed in the Ramadan month</p> <p>1/3rd population dominated by Hindus.</p> <p>Tanzania traditional after-meal custom for guest : served with fresh fruits.</p> <p>Mango cashew pudding – use of ripe mangoes</p> <p>Urojo soup – mango and ginger</p>
Seychelles	mango and corn salad+ bat rice dish
Switzerland	mango swiss role, mango and coconut smoothies
New Zealand	<ul style="list-style-type: none"> • Sorbet, Milkshakes, Icecream, • Mango+ maple syrup • Mango+ hot chilli, • Mango + peanuts+ beans+ green papaya and garlic <i>Brush mango cheeks with oil and chargrill them before sauteeing them in the pan with butter, seeds of a vanilla pod and sugar to accompany toffee brioche and crumbled Amaretti biscuits, tropical take on Venice's famous peach Bellini, chill the pureed flesh of one mango and spoon 3/4 cup into a jug, then slowly pour in a bottle of Prosecco</i> • SPICED CHICKEN & MANGO SALAD, ARMAGNAC AND MANGO CREPES, Mango with coconut sushi rice, fresh herb crust and mango salsa with mussels, Pork chops with Cajun rub and apple-mango compote • Lettuce cups filled with bright prawns and topped with mango salsa and a hint of chilli, smoothies with mango and yoghurt

China	<p>Consumption: Mango Pudding, Mango Tapioca Gel, Mango Shrimp, Mango fruit</p> <p>Traditions: The mangoes were held up as a symbol of Chairman Mao's love for the workers and quickly became holy relics themselves. According to traditional Chinese medicine, mango regenerates the body's fluids, stops coughs, and strengthens digestion. It has also been found to have incredible anti-inflammatory properties, hormone-regulating vitamin E, blood-building iron, and bone-strengthening minerals</p> <p>Patterns: Consumers prefer bigger mango sizes</p>
Korea Republic	<p>Consumption: Silken mango mousse, spread of mini mango pavlovas, dainty pots of mango 'pudding', mango coconut smoothies, and mango ice cream with fresh mango topping, fish with Tuna and avocado</p>
Bangladesh	<p>Consumption: Raw mango jam, Green Mango Juice, Mango Chutney, Mango Shake, Mango Yoghurt, Mango Pickle, Kairi ka Panna, Kairi Sharbat</p>
Bhutan	<p>Consumption: Raw mango jam, Green Mango Juice, Mango Chutney, Mango Shake, Mango Yoghurt, Mango Pickle, Kairi ka Panna, Kairi Sharbat</p>
Hong Kong	<p>Consumption: Mango pudding is a very popular dessert</p>
Sri Lanka	<p>Consumption: Some varieties you can have a raw mango juice which tastes a little like a june berry (amberella) juice. Raw mangoes can also be cooked as a curry and when it is close to ripening, can be made into achcharu – a popular and delicious roadside snack made with salt, chili powder, vinegar and sometimes a splash of sugar. Then there is chutney, ice cream and it is an essential in the Sri Lankan fruit salad.</p> <p>Mango achcharu - Famed among our street food, mango achcharu tastes best when barely ripe raw mangoes are used and mixed in with an ample fusion of pepper, salt and chili powder.</p> <p>A serving of mango curry or mango chutney is always welcome on plate of rice and curry.</p>
Pakistan	<p>Consumption: Mango lassi frozen yogurt, Mango bread, Mango-mint limeade, Mango chicken salad, Mango iced tea, Mango pancakes, Mango sorbet with lemon thyme, Mango milkshake</p>
Maldives	<p>Consumption: Tuna Curry with ginger, cinnamon, mango and coconut</p>

WHERE CAN YOU PROCURE MANGOES WITHIN INDIA?

Variable geological and geographical conditions existing in India are very much favorable for growing a large array of horticultural crops throughout the country.

There are nearly 1000 mango varieties in India. However, only about 20 varieties are

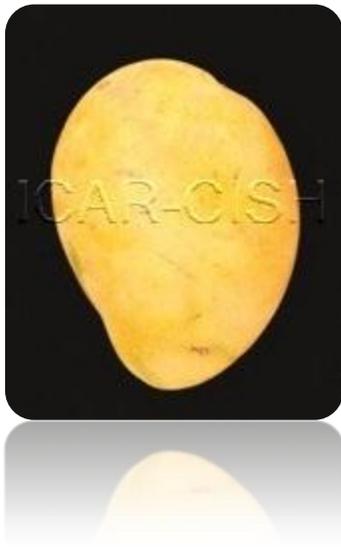
grown commercially. Most of the Indian mango varieties have specific ecogeographical requirements for optimum growth and fruiting.

Dashehari, Langra, Chausa, Bombay Green and Fazri in north India; Banganapalli, Totapuri, Neelum, Pairi, Suvarnakha, Mulgoa, Kalapadi and Rumani in south India; Alphonso, Kesar, Mankurad, Fernandin and Vanraj in western India and Langra, Fazri; Chausa, Zardalu, Himsagar and Malda in eastern India are grown commercially. Brief characteristics of these varieties are given below:

Commercial Varieties

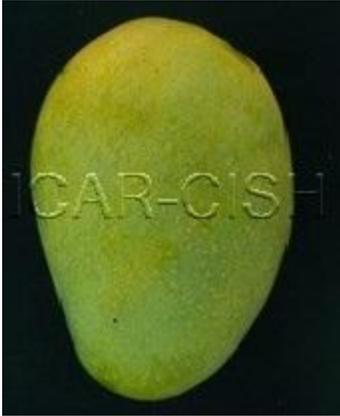
Characteristics of important commercial mango varieties are as under:

1. Banganapalli (Baneshan, Safeda):



- State: Andhra Pradesh and Tamil Nadu.
- It is a commercial variety of Andhra Pradesh and Tamil Nadu.
- It is also known as Chapta, Safeda, Baneshan and Chapai.
- Fruit is large in size and obliquely oval in shape.
- The colour of the fruit is golden yellow.
- Fruit quality and keeping quality are good. It is a mid season variety and is good for canning. Variety suited for dry areas and biennial in habit.

2. Bombay Green



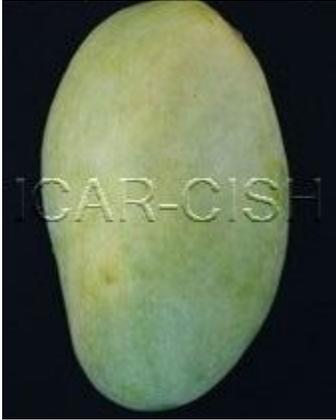
- State: Uttar Pradesh and Haryana
- Bombay Green: It is commonly grown in north India due to its early fruiting quality. Fruit size is medium, shape ovate oblong and fruit colour is spinach green. Fruit quality is good and keeping quality is medium. It is a very early season variety, biennial in habit, highly susceptible to both vegetative and floral malformation.

3. Dashehari



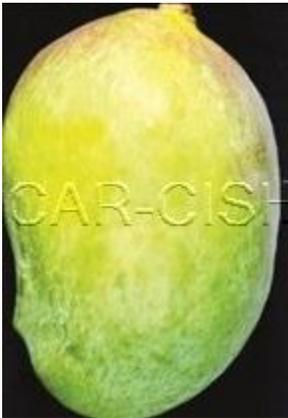
- State: Uttar Pradesh, Haryana and Punjab.
- Dashehari: This variety derives its name from the village Dashehari near Lucknow. It is a leading commercial variety of north India and one of the best varieties of our country. The fruit size is small to medium, shape is oblong oblique and fruit colour is yellow. Fruit quality is excellent and keeping quality is good. It is a mid season variety and is mainly used for table purpose. Dashehari is susceptible to mango malformation. Dashehari 51 is regular bearing and yielding clone of Dashehari.

4.Fajri



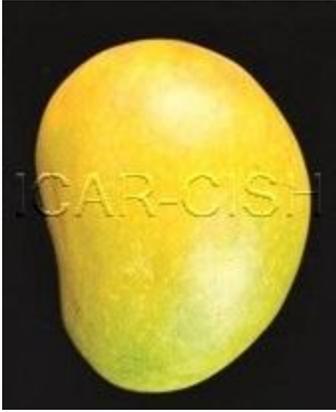
- State:Uttar Pradesh, Bihar and West Bengal.
- Fajri: Fruit is very large, obliquely oval in shape. Fruit colour is light chrome. Fruit quality and keeping quality are medium. This is a late season variety.

5.Fernandin



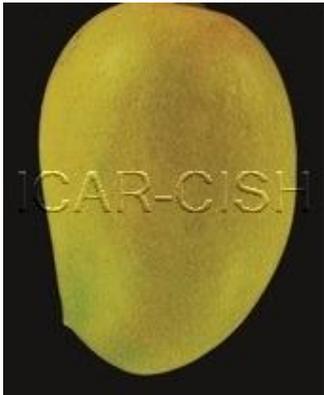
- State: Goa
- Fernandin: This is one of the oldest varieties of Bombay. Some people think that this variety originated in Goa. Fruit size is medium to large, fruit shape is oval to obliquely oval and fruit colour is yellow with a blush of red on shoulders. Fruit quality and keeping quality are medium. It is a late season variety mostly used for table purpose.

6.Himsagar



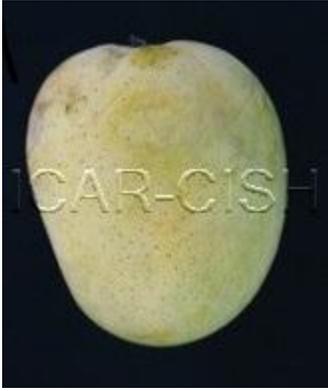
- State: West Bengal and Bihar
- Himsagar: This variety is indigenous to Bengal. This is one of the choicest varieties of Bengal and has gained extensive popularity. Fruit is of medium size, ovate to ovate oblique in shape. Fruit colour is yellow. Fruit quality and keeping quality are good. It is an early season variety.

7. Kesar



- State: Gujarat
- Kesar: This is a leading variety of Gujarat with a red blush on the shoulders. Fruit size is medium, shape oblong and keeping quality is good. It is an early season variety, ideal for pulping and juice concentrates.

8. Kishen Bhog



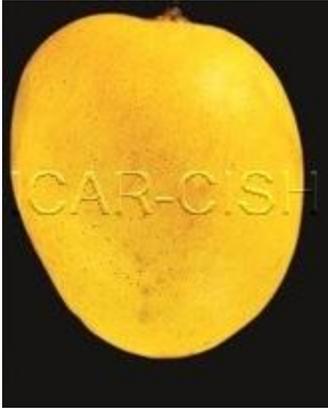
- State: West Bengal and Bihar.
- Kishen Bhog: This variety is indigenous to Murshidabad in West Bengal. Fruit size is medium, fruit shape oval oblique and fruit colour is yellow. Fruit quality and keeping quality are good. It is a mid season variety.

9. Langra



- State: Uttar Pradesh, Bihar, Haryana, Madhya Pradesh, Orissa, West Bengal and Punjab.
- Langra: This variety is indigenous to Varanasi area of Uttar Pradesh. It is extensively grown in northern India. Fruit is of medium size, ovate shape and lettuce green colour. Fruit quality is good but keeping quality is medium. It is a mid season variety.

10.Mankurad



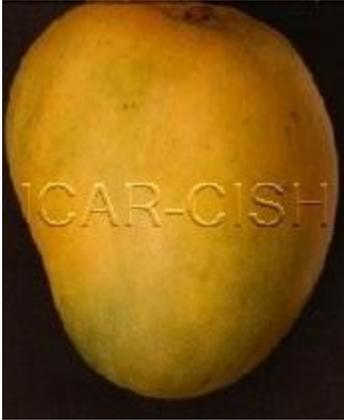
- State: Goa and Maharashtra.
- Mankurad: This variety is of commercial importance in Goa and in the neighbouring Ratnagiri district of Maharashtra. The variety develops black spots on the skin in rainy season. Fruit is medium in size, ovate in shape and yellow in colour. Fruit quality is very good but keeping quality is poor. It is a mid season variety.

11.Hilario



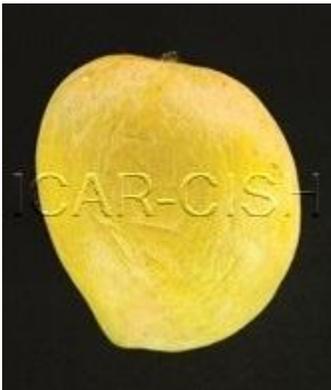
- State: Goa
- Hilario (Manghilar / Mangilal): It is a popular variety in Goa, after Mankurad. It is known for its sweetness. Bearing is alternate or irregular, one or two branches may bear fruits every year, medium yielder cluster bearing. Fruits are medium to small in size. It is a very late variety maturing fruits even up to July.

11.Mulgoa



- State: Tamil Nadu, Karnataka.
- Mulgoa: This is a commercial variety of south India. It is quite popular among the lovers of mango owing to high quality of its fruit. Fruit is large in size, roundish oblique in shape and yellow in colour. Fruit quality and keeping quality are good. It is a late season variety.

12. Neelum



- State: Tamil Nadu, Karnataka and Orissa.
- Neelum: This is a commercial variety indigenous to Tamil Nadu. It is an ideal variety for transporting to distant places owing to its high keeping quality. Fruit is medium in size, ovate oblique in shape and saffron yellow in colour. Fruit quality is good and keeping quality is very good. It is a late season variety.

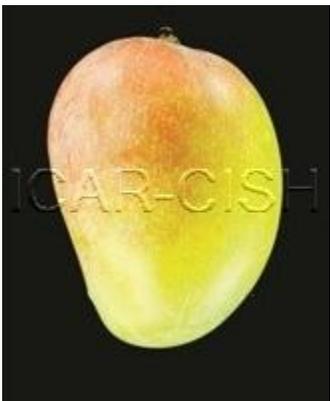
13. Samarbehisht Chausa



State: Uttar Pradesh and Punjab.

Samarbehisht Chausa: This variety originated as a chance seedling in the orchard of a Talukdar of Sandila district Hardoi, U.P. It is commonly grown in northern part of India due to its characteristic flavour and taste. Fruit is large in size, ovate to oval oblique in shape and light yellow in colour. Fruit quality is good and keeping quality is medium. It is a late season variety.

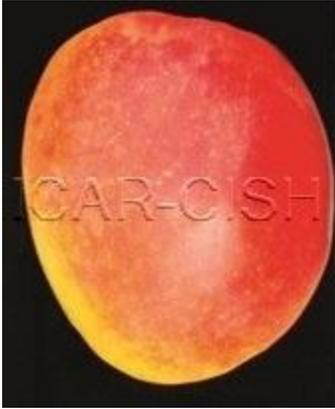
14. Suvernarekha



State: Andhra Pradesh and Orissa

Suvernarekha: This is a commercial variety of Visakhapatnam district of Andhra Pradesh. Other synonyms of this variety are Sundari, Lal Sundari and Chinna Suvernarekha. Fruit is medium in size and ovate oblong in shape. Colour of the fruit is light cadmium with a blush of jasper red. Fruit quality is medium and keeping quality is good. It is an early season variety.

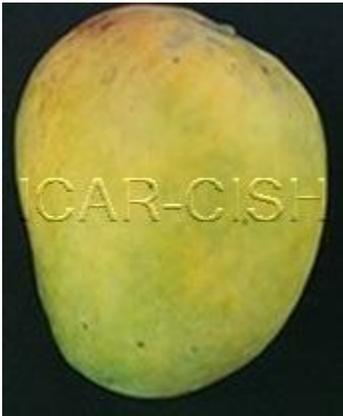
15. Vanraj



State: Gujarat

Vanraj: It is a highly prized variety of Vadodra district of Gujarat and fetches good returns. Fruit is medium in size, ovate oblong in shape and colour is deep chrome with a blush of jasper red on the shoulders. Fruit quality and keeping quality are good. It is a mid season variety.

16. Alphonso



State: Maharashtra, Gujarat, Karnataka and Madhya Pradesh.

Alphonso (Happus): This is the leading commercial variety of Maharashtra state and one of the choicest varieties of the country. This variety is known by different names in different regions, viz. Badami, Gundu, Khader, Appas, Happus and Kagdi Happus. The fruit of this variety is medium in size, ovate oblique in shape and orange yellow in colour. The fruit quality is excellent and keeping quality is good. It has been found good for canning purpose. It is mainly exported as fresh fruit to other countries. It is a mid season variety.

17. Bangalora



State: Andhra Pradesh, Karnataka, and Tamil Nadu..

Bangalora (Totapuri): It is a commercial variety of south India. The common synonyms of this variety are Totapuri, Kallamai, Thevadiyamuthi, Collector, Sundersha, Burmodilla, Killi Mukku and Gilli Mukku. The fruit size is medium to large, its shape is oblong with necked base and colour is golden yellow. Fruit quality is poor but keeping quality is very good. It is widely used for processing. It is a mid season variety; used for processing; heavy and regular bearing variety; susceptible to bacterial spot.

18. Zardalu



State: West Bengal, Bihar

Zardalu: This variety is indigenous to Murshidabad in West Bengal. It derives its name from Zardalu, a dry fruit popular in North West Frontier Province and Sindh in Pakistan owing to similarity in shape. Fruit size is medium, oblong to obliquely oblong and golden yellow in colour. Fruit quality is very good. Keeping quality is medium. It is a mid season variety.

Hybrids

1. Mallika (Neelum x Dashehari)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 1971 (Institute Variety Release Committee)

World's first mango hybrid released for with commercial cultivation. Regular in bearing with semi-vigorous growth habit. Size of the fruit large (307g), good taste (TSS 24 °Brix), fibreless with good flavour. Fruits ready for harvest by the 3rd week of July in northern India. Suitable for processing and export. It has become a major commercial export variety of Karnataka, Andhra Pradesh and West Bengal.

Yield : 18-20 kg per tree (10th year).

2. Amrapali (Dashehari x Neelum)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 1979 (Institute Variety Release Committee)

Distinctly dwarf, highly regular and precocious. Fruits regular for harvest by the 3rd week of July in northern India. Fruit size small to medium (120 to 160g) and fibreless. It has high TSS (22.8 °Brix) and β-carotene content (16,830 µg/100g pulp). Suitable for blending mango pulp. Ideal for high density planting (1,600 plants per ha).

Yield : 15-20 kg per tree (10th year).

3. Pusa Peetamber (Amrapali x Lal Sundari)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2001 (through Institute Variety Release Committee).

It is regular bearer, semi-vigorous and suitable for closer planting (278 plants/ha). Fruits are having attractive oblong shape, bright yellow peel. It is moderately resistant to mango malformation and major insect pests of mango. The fruits weight about 213 g with attractive yellow peel colour with higher juicy pulp (73.6%). It has medium total soluble solids (18.8%), rich in vitamin C (39.8 mg/100 g pulp) and β-carotene content (11,737 µg/100g pulp).

Yield: 20-25 kg per tree.

4. Pusa Shreshth (Amrapali x Sensation)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2011 (SVRC, Delhi)

It is unique hybrid having regularity in bearing, attractive elongated shape, red peel and orange pulp. Plants are semi-vigorous and suitable for closer planting (6m x 6m). Fruit medium sized (228g) with attractive red peel colour and higher pulp content (71.9%). The total soluble solids are 20.3%, vitamin C (40.3mg/100g pulp) and β -carotene content (10,964 ug/100g pulp). It has pleasant flavour with self life (7 to 8 days) at room temperature. It is suitable for domestic market as well as international market

Yield : 20-22 kg per tree

5. Pusa Surya (Selection from Eldon)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2002 (SVRC, Delhi)

Trees semi-dwarf and suitable for closer planting (6m x 6m). Fruit ripens by mid-July in northern India, medium to large (260 to 290 g) with attractive apricot-yellow peel colour with pink-blush. Pulp with medium TSS (19.0 °Brix) with long shelf-life (10 to 12 days) at room temperature after ripening. Suitable for both domestic and international markets.

Average Yield: 12-15 kg per tree (10th year)

6. Pusa Arunima (Amrapali x Sensation)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2002 (SVRC, Delhi)

Regular bearer, semi-vigorous and suitable for closer planting (6 m x 6 m). Fruits medium to large in size (230 to 250 g) with attractive red peel and medium TSS (19.5 °Brix). It is suitable for both domestic and international markets, with long shelf-life (10 to 12 days) at room temperature after ripening.

Yield : 15-20 kg per tree (10th year).

7. Pusa Lalima (Dashehari x Sensation)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2011 (through Institute Variety Release Committee)

Regular bearer, semi-vigorous and are suitable for closer planting. Fruits are attractive in shape and having red peel and orange pulp. The fruit (209 g) having attractive red peel colour and higher pulp content (70.1%). Pulp with medium total soluble solids (19.7%), vitamin C (34.7 mg/100 g pulp) and high β -carotene content (13,028 $\mu\text{g}/100$ g pulp). It has good flavour with shelf life (5 to 6 days) at room temperature. It is suitable for domestic market as well as international market.

Yield: 50-60 kg per trees.

8. Pusa Pratibha (Amrapali x Sensation)

Developed By: Indian Agricultural Research Institute (IARI), New Delhi in the year 2012

It is a unique hybrid (Amrapali x Sensation) having regularity in bearing, attractive fruit shape, bright red peel and orange pulp. It has 7 to 8 days shelf- life at room temperature after ripening. The plants are semi-vigorous and about 278 plants of this hybrid may be accommodated in a hectare (6 m x 6 m) as against 100 plants of Dushehari (10 m x 10 m). On per plant basis, it yields about 3.0 times higher than Dushehari, which includes 'On' and 'Off' year fruiting. It has good sugar: acid blend and above all uniformity in fruit size, which is lacking in Amrapali.

9. Arka Anmol (Alphonso x Janardhan Pasand)

Developed By: ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

It is a semi-vigorous type, regular bearing and is amenable for high density planting. It is a late season variety, fruits coming to harvest during second to third week of June. Fruits are oblong in shape, medium sized, weighing on an average about 300-330 g. Stalk is inserted vertically. Fruits on maturity will be dull green in colour, attaining uniform golden yellow colour on ripening. Skin is thin and smooth. Pulp is orange coloured, firm and free from fibre and spongy tissue with good sugar-acid blend. TSS is around 19 °Brix. The pulp recovery is about 70-75%. Keeping quality is good.

10. Arka Neelkiran (Alphonso x Neelum)

Developed By: ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

It is the progeny from the cross Alphonso x Neelum. It is a late season variety, fruits come to harvest during last week of June. Tree is semi-vigorous in nature. Fruit is elliptic in shape, medium sized weighing on an average about 270-280g. Fruit stalk is inserted vertically. Fruits on ripening get golden yellow blush. Skin is smooth, medium thick. The

pulp is deep yellow in colour and firm. It is free from fibre and spongy tissue. Pulp recovery is 70%. Keeping quality is good.

11. Arka Puneet (Alphonso x Banganapalli)

Developed By: ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

It is a mid- season variety. Plants are vigorous and regular bearing. Fruit stalk is attached vertically. Fruits are elliptical and on ripening become yellow coloured with red blush. Pulp is firm, orange coloured and is free from fibre and spongy tissue. TSS is around 21°Brix. The pulp recovery is about 65-70%. Keeping quality is good.

12. Arka Aruna (Banganapalli x Alphonso)

Developed By: ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

Fruit weighs on an average about 500 g. Pulp is pale yellow in colour, free from fibre and spongy tissue. Pulp recovery is about 80%. TSS is around 20°Brix. Regular bearing, dwarf statured, suitable for backyard planting, and amenable for 5 x 5 m planting, a mid- season variety.

13. Arka Udaya (Arka Amrapali x Arka Anmol)

Developed By: ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

It is a sweet, high-yielding variety of mango with a long shelf-life. It can stay fresh at room temperature for about 10 days without refrigeration. It is a late-season variety and yields after other mango fruit trees have stopped fruition. The tree bears fruit every year. The yield was high at around eight tonnes. The trees were planted at a density of five by five metres.

14. Arka Neelachal Kesari (Clonal selection)

Developed By: Central Horticultural Experiment Station (IIHR), Bhubaneswar

Extra early (ripening in March), Colour, high yield and fruit fly free in coastal Orissa. TSS 18 °Brix, excellent fruit quality, fruit weight 200-230g, crimson red fruit colour, free from fruit fly and malformation.

Yield: 50-60 kg/tree (10 year old)

15. Arka Suprabhath (Amrapali (Dashehari x Neelam) x Arka Anmol (Alphonso x Janardhan Pasand))

Developed By: ICAR- Indian Institute of Horticulture Research (IIHR), Bengaluru

ICAR-IIHR, Bengaluru developed a double cross mango hybrid between Amrapali (Dashehari x Neelam) x Arka Anmol (Alphonso x Janardhan Pasand). It is a medium vigorous, regular and bunch bearing, high yielding (35-40 kg/plant after 4 years of planting), fruit weight ranged from 240-250g, fruit shape is like Alphonso and has pulp colour of Amrapali, deep orange firm pulp, pulp recovery (>70%), TSS(>22%B), acidity (0.12%), carotenoids (8.35mg/100g FW) and flavonoids (9.91 mg/100g FW) and it has got the shelf life of 8-10 days at room temperature.

16. Sonpari (Alphonso x Baneshan)

Developed By: Navsari Agriculture University, Navsari in the year 2000 from Agriculture Experimental Station, Paria

This mango hybrid was developed by taking Alphonso as female parent and Baneshan as male parent. The trees of Sonpari are vigorous in growth, heavy yielder and regular in bearing. The fruits are obliquely oval in shape like Baneshan, big in size weighing 360–550g. The TSS is more than 19.5% with lower acidity 0.18% and higher total sugars 14.46%. The keeping quality is very good and fruits remain in good condition for more than 10 days at room temperature. The fruits mature in second week of June.

17. Neelphonso (Neelam x Alphonso)

Developed By: Navsari Agriculture University, Navsari in the year 1986 from Agriculture Experimental Station, Paria

The mango hybrid Neelphonso was released in the year 1986 from AES, NAU, Paria. This hybrid is moderate regular in bearing but have late bearing tendency. The fruits ready for the harvest in July-August and when most of the mango variety will be harvested. The oval oblique shaped fruits of Neelphonso are medium in size weighing about 200g. The skin colour on ripening becomes apricot yellow while the pulp becomes orange yellow. Due to thick, smooth skin the fruits do not get damaged by rain. The fruits are free from spongy tissue disorder and are moderate resistant against fruit fly. The pulp texture firm, non-fibrous, highly suited for table and juice purpose with excellent keeping quality. The TSS is more than 21.5% with lower acidity 0.18% and higher total sugars 14.42%.

18. Neeleshwari (Neelam x Dashehari)

Developed By: Navsari Agriculture University, Navsari in the year 1986 from Agriculture Experimental Station, Paria

This mango hybrid was released in the year 1986 from AES, NAU, Paria. Fruit size is medium weighing about 228g with prominent sinus. The skin color on ripening turns apricot. yellow while pulp colour becomes yellow. The thin smooth skin adheres to moderately firm textured flesh. The non-fibrous juicy pulp suited for table as well as juice purpose and has moderate keeping quality. The TSS is more than 19.00% with moderate acidity 0.21% and higher total sugars 13.90%.

19. Neeleshan Gujarat (Neelam x Baneshan)

Developed By: Navsari Agriculture University, Navsari in the year 1986 from Agriculture Experimental Station, Paria

It bears attractive obovoid shaped fruits heavily and regularly. The average weight of fruits is about 318g with higher pulp content of 76%. On ripening the skin become cadmium yellow while the pulp becomes attractive golden yellow in colour. The fruit skin is thin, smooth, moderate adhering to pulp with firm non-fibrous texture. Fruit TSS is 16-17% with moderate acidity 0.21% and total sugars 13.09%. The fruits are suited for table purpose and have very good keeping quality of more than 10 days after ripening.

20. Ratna (Neelum x Alphonso)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 1981

Regular bearer, large size ovate shape, slightly elongated fruits, beak absent, greenish orange colour with prominent oil glands, orange colour flesh excellent taste, free from spongy tissue, excellent for processing as well as table purpose, cluster bearing habits.

Yield: 250-300 fruits/tree

21. Sindhu (Ratna x Alphonso)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 1992. Thin stone (6-7 g), higher percentage of pulp, regular bearer, attractive red blush on fruits, free from spongy tissue cluster bearing habit.

Yield: 200-250 fruits/tree

Collected from http://www.dbskkv.org/Research/Varieties_Fruit-Crops.html

22. Konkan Ruchi (Neelum x Alphonso)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 1999

Regular bearer, large fruit size, thick skin, acidic, best for pickle purpose.

Yield: 250 fruits per tree

23. Suvarna (Alphonso x Neelum)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 2009

It has good qualities of Alphonso and has tendency to bear every year like Neelum, it has cluster bearing habit, high percentage of hermaphrodite flowers in panicle.

Yield: 260-280 fruits per tree

24. Konkan Raja (Bangalora x Himayuddin)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 2010

Konkan Raja is a cross combination between Bangalora and Himayuddin. This variety has better fruit size (616 g) than parents Bangalora (170.3 g) and Himayuddin (350 g). Less sour due to less acidity 0.19% and TSS 8.50 °Brix of unripe fruits. It is best for salad purpose. This variety has high percentage of perfect flowers (28.8 %), regular bearer having higher pulp percentage (83 %) than the parents Bangalora (72.68 %) and Himayiddin (6807 %) early maturing and good attractive shape and colour. The average yield is (65.85 kg/plant).

25. Konkan Samrat (Alphonso x Tommy Atkins)

Developed By: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra in the year 2014

It is a cross combination between Alphonso and Tommy Atkins. Hence female parent in Alphonso & male parent in Tommy Atkins. This variety has better plant growth than Alphonso and Tommy Atkins. Medium fruit size (284.50 g) as compared to the Alphonso (250 g) and Tommy Atkins (484 g). The pulp percentage (73.28) is similar to Alphonso (74.60 %) and Tommy Atkins (71.79 %). Good T.S.S. (20.03 °Brix). This variety has high percentage of perfect flowers (27.52 %). Regular bearing, cluster bearing, spongy tissue

free and low fibre. This is second hybrid having Alphonso as female parent and first hybrid of exotic parent. This variety is ideal for table purpose.

26. Ambika (Amrapali x Janardan Pasand)

Developed By: ICAR-Central Institute for Subtropical Horticulture, Lucknow in the year 2000

Fruits oblong oval, colour bright yellow with dark red blush, pulp dark yellow, firm with scanty fibre and weighs about 300-350g. TSS is 21°B. It is a regular bearing variety and late in maturity. The hybrid has potential for both internal and export markets because of its attractive fruit colour.

Yields about 80 kg/plant by about 10 years of planting under improved cultural practices.

27. Arunika (Amrapali x Vanraj)

Developed By: ICAR-Central Institute for Subtropical Horticulture, Lucknow in the year 2008

The tree produces dwarf and compact canopy. Fruits are smooth, orange yellow with red blush, weigh about 190-210 g, medium sized, ovate oblique, pulp orange yellow, firm with scanty fibre, pulp about 65%, TSS 24.6 °B. The hybrid has potential for both internal and export markets because of its attractive fruit colour.

Average fruit yield is about 69 kg/plant at 8 years of planting.

28. Dashehari 51 (Clone of Dashehari)

Developed By: ICAR-Central Institute for Subtropical Horticulture, Lucknow

A regular bearing and high yielding clone of Dashehari was selected by exploiting clonal variability. Besides bearing regular crop every year, this clone gives 38 per cent more yield than other Dashehari trees.

29. PKM 1 (Chinnaswarnarekha x Neelum)

Developed By: The Horticultural College and Research Institute (HC&RI) (TNAU)-Periyakulam in the year 1981

This is clonal selection from the hybrid, Chinnaswarnarekha and Neelum. Regular bearer during both on and off years, suitable for long distance transport, fruit weight 250-300 g, long, narrow with prominent beak.

Yield - 336 fruit(102.7kg/tree/ha).

30. PKM 2 (Neelum x Mulgoa)

Developed By: The Horticultural College and Research Institute (HC&RI) (TNAU)- Periyakulam in the year 1990

PKM 2 is hybrid of Neelum and Mulgoa. Large size fruits (681.3 g) high pulp content (67.5%), abundant juice, pleasant flavour, good keeping quality with high TSS.

The fruit comes to harvest during May.

31. Paiyur 1 (Clonal selection from Neelum)

Developed By: TNAU in the year 1992

This is a clonal selection from Neelum variety of mango from Karukkanchavadi village of Kaveripattinam, Dharmapuri district. Trees are dwarf, low spreading and suitable for high density planting (400 trees/ha as against the recommended 100 trees/ha). Orchard management practices including harvesting are easy to perform because of short stature of the trees. This is a regular bearer with a mean yield of 22.3 kg per tree (8929 kg/ha) at nine years after planting. Fruits are medium long, ovate with yellow skin. Fruits have excellent taste with good keeping quality. Fruits are medium in size with an average weight of 150g - 200g.

32. Prabhashanker (Bombai X Kalapadi)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1951

Prabhashanker is one of the most adaptable varieties for Bihar, having high yield potential to meet the demand of suitable mango varieties in the state. This is the 1st hybrid mango variety developed in the world by crossing Bombai with Kalapadi, released in the year 1951.

This is a medium size tree resembles Bombai in shape, but superior than Bombai in respect to yield and fruit quality parameters. Regular bearing, fruit size 9.2 × 6.9 cm, average fruit weight 192.5 g, greenish yellow colour of peel at ripening, yellowish orange pulp colour at ripening, pulp content 64.1%, TSS 23.0 °Brix and acidity 0.24%

Average Yield: 15 years old tree gives 1.0-1.25 quintal fruit

33. Mahmood Bahar (Bombai X Kalapadi)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1951

Mahmood Bahar is one of the most adaptable varieties for Bihar, having high yield potential to meet the demand of quality materials along with high yield potentials. This is the 1st hybrid mango variety along with Prabhashankar, developed in the world by crossing Bombai with Kalapadi, released in the year 1951.

This is a Sturdy and medium size tree. Fruits are small in size, fibreless with excellent fruit quality for table purpose. Regular bearing, fruit size 8.8 × 7.1 cm, average fruit weight 210 g, yellowish green colour of peel at ripening, yellowish orange pulp colour at ripening, pulp content 71%, TSS 22.0 °Brix and acidity 0.25%

Average Yield: 15 years old tree gives 1.0-1.25 quintal fruit

34. Jawahar (Gulabkhas X Mahmood Bahar)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1980

This is a Semivigorous, precocious, regular bearing variety with high pulp content. It is less fibrous and very sweet in taste. Regular bearing, fruit size 12.5 × 7.2 cm, average fruit weight 215 g, yellow with reddish tint at the top peel colour at ripening, yellow pulp colour at ripening, pulp content 79.5%, TSS 22.5 °Brix and acidity 0.14%

Average Yield: 15 years old tree gives 1.25-1.50 quintal fruit

35. Alfazli (Alphonso X Fazli)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1980

Alfazli is one of the most adaptable varieties for Bihar, having high yield potential to meet the demand of quality materials along with high yield potentials. This is a hybrid variety developed by crossing Alphonso × Fazli, released in the year 1980. This variety having tall tree size, fruits are bigger in size, similar to Fazli with better quality than Fazli. Regular bearing, fruit size 12.2 × 7.7 cm, average fruit weight 460 g, yellowish green peel colour at ripening, light yellow pulp colour at ripening, pulp content 79%, TSS 18.5 °Brix and acidity 0.24%

Average Yield: 15 years old tree gives 1.00-1.10 quintal fruit

36. Sunder Langra (Langra? X Sunder Prasad)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1980

It has high yield potential with quality similar to Langra and regular bearing in nature. This is a hybrid variety developed by crossing Langra × Sunder Prasad, released in the year 1980. Regular bearing, fruit size 10.5 × 7.5 cm, average fruit weight 240 g, yellowish red peel colour at ripening, light orange pulp colour at ripening, pulp content 75.8%, TSS 22 °Brix and acidity 0.19%

Average Yield: 15 years old tree gives 1.10-1.25 quintal fruit

37. Sabari (Gulabkhas X Bombai)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1989

Regular bearer, Peel colour: red, Pulp colour: reddish yellow, Avg. Fruit Wt. 153g., Pulp content: 74%, TSS-22.5%

38. Menaka (Selection from Gulabkhash)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1994

It is one of the suitable varieties for the agro-climatic condition of Bihar with high yield potential and very good quality. This is developed as a seedling selection from Gulabkhas, released in the year 1994. Regular bearing, fruit size 15 × 9.2 cm, average fruit weight 300 g, yellow peel colour at ripening, deep yellow pulp colour at ripening, pulp content 75%, TSS 20 °Brix and acidity 0.14%

Average Yield: 15 years old tree gives 1.0-1.25 quintal fruit

39. Subhash (Chance seedling selection from Zardalu)

Developed By: Bihar Agricultural University, Sabour, Bhagalpur in the year 1994

Its fruits are similar to Langra in respect to shape and size with quality resembles to Zardalu. This is developed as a seedling selection from Zardalu, released in the year 1994. Regular bearing, fruit size 11 × 7.7 cm, average fruit weight 220 g, deep yellow peel colour at ripening, yellow pulp colour at ripening, pulp content 66.1%, TSS 24 °Brix and acidity 0.29%

Average Yield: 15 years old tree gives 1.25-1.50 quintal fruit

40. Niranjan

Developed By: Vasant Rao Naik Marathwada Krishi Vidyapeeth, Parbhani in the year 1984
Fruits harvested at Dussehra & Diwali, sweet pulp, regular bearer, off season bearer.

Yield: 300-500 fruits/tree

41. Parbhani Hapus

Developed By: Vasant Rao Naik Marathwada Krishi Vidyapeeth, Parbhani in the year 1995
Regular bearer, free from spongy tissue and stone weevil, pleasant 200g/flavour, golden yellow attractive colour.

42. Amrutang (This was collected from Amrutbhai Farm at Ratang village, Junagarh)

Developed By: Anand Agricultural University, Anand in the year 1994
Fruit (180 g) having length 10.50 cm and width 7.50 cm and higher pulp content 81 % and pulp stone ratio 10.83:1.00. High yielder and resemble to 'Kesar' variety.

Yield: 80-100 kg per tree

43. Manjeera (Rumani X Neelum)

Developed By: Fruit Research Station, Sangareddy (Dr. Y.S.R. Horticultural University, West Godavari)

Fruits very attractive and large, looks like Rumani. It is a dwarf variety, suitable for high density planting. About 500 plants can be accommodated per hectare adopting a spacing of 4.5 m either way. Tolerant to powdery mildew and hoppers.

44. KMH-1 (Kodur mango hybrid -1) (Cherukurasam x Khader)

Developed By: Fruit Research Station, Kodur (Dr. Y.S.R. Horticultural University, West Godavari)

It is a semi-dwarf type having regular bearing habit. The fruits are fibreless having high Brix and low acidity.

45. Neeleshan (Neelum x Baneshan)

Developed By: H.R.S., Anantharajupet (Dr. Y.S.R. Horticultural University, West Godavari)
This hybrid was released from H.R.S., Anantharajupet. It is a hybrid between Neelum and

Baneshan. The fruits are medium in size with firm fibreless flesh. The fruit matures 15 days later than Baneshan and catches the late market.

46. Neeluddin (Neelum x Himayuddin)

Developed By: Fruit Research Station, Kodur (Dr. Y.S.R. Horticultural University, West Godavari)

The fruits are medium sized weighing on an average 200 g each and intermediate between the parents in shape. The skin is smooth, flesh is firm, melting and fibreless with characteristic flavor. It is abundantly juicy, very sweet in taste and rich in chemical constituents. Each tree bears 500 to 700 fruits regularly and comes to harvest in the last week of May.

47. Neelgoa (Neelum x Yerramulgoa)

Developed By: H.R.S., Anantharajupet (Dr. Y.S.R. Horticultural University, West Godavari)

The fruits are akin to Neelum but bigger in size and smooth skinned. The flesh is firm, melting, fibreless, moderately juicy and very sweet in taste with a delightful flavour. The fruit weighs 270 g and is rich in nutrients. It has a regular bearing habit and produces 1000 fruits just like Neelum and comes to harvest in the month of May.

48. Swarna Jehangir (Chinnasuvarnarekha x Jehangir)

Developed By: Fruit Research Station, Kodur (Dr. Y.S.R. Horticultural University, West Godavari)

The fruit resembles Jehangir in shape and skin characters, but slightly less in size weighing 230 g. The flesh is moderately firm, fibreless, abundantly juicy and very sweet with pleasant flavour. It excels both the parents in yield and bears 600 fruits. The fruits are harvested in the month of June and stands transport very well.

49. AU Rumani (Rumani x Mulgoa)

Developed By: Horticultural Research Station, Anantharajupet.

Fruit medium to large flesh melting, fibreless juice, fruit quality and bearing better than parents, stands transportation well. This hybrid was released from Horticultural Research Station, Anantharajupet.

50. Selection 5 (Seedling origin)

Developed By: Sher-e-Kashmir University of Agricultural Science & Technology, Jammu

Selection-5 (Jammu Mango) has been made from the mango tree of seedling origin. It flowers in the 3rd week of February with full bloom in first week of March. It is moderately resistant to mango malformation at flowering stage and has higher fruit set (14.66 per cent) with 446.75 number of fruits per tree which yields to 85 q ha⁻¹ at spacing of 10 x 10 m. It has total soluble solids of 18.91 °Brix and 14.68 percent of total sugars.

51. Sai Sugandha (Totapuri x Kesar)

Developed By: Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri in the year 1998

Late bearing, table purpose.

52. Phule Abhiruchi (Selection-GK-PM-5)

Developed By: Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri in the year 2014

Good for pickle purpose.

53. Chhattisgarh Nandiraj (Clonal selection of local mango from Nayapara, Jagdalpur)

Developed By: Indira Gandhi Krishi Vishwavidyalaya, Raipur

It has attractive shape, appearance and pleasant aroma. The proposed strain has an average productivity of 280 kg/tree and average fruit size 200-250 g with acid blend. It is very much comparable to Deshari and having good keeping quality and suitable for export (TSS is 21.30 Brix and total sugar is 17.87%).

54. Pant Sinduri (Clonal selection of Dashehari)

Developed By: G. B. Pant University of Agriculture and Technology, Pantnagar

Trees are medium in height with round top canopy. Fruit colour is yellow with pink shoulder. Average fruit weight is up to 200g. Fruit pulp is yellow with pleasant aroma. Total soluble solids vary from 16-18% with average yield up to 150 kg per tree. Fruit matures during last week of May to first week of June.

55. Pant Chandra (Clonal selection of Dashehari)

Developed By: G. B. Pant University of Agriculture and Technology, Pantnagar

Plants are tall with erect growth habit. Fruit colour at maturity remains green. It is a mid-season variety. Fruit weight is up to 150g. Fruit pulp is reddish yellow with total soluble solids of 18% and having pleasant aroma.

56. Cardozo Mankurad (Selection from Mankurad)

Developed By: ICAR - Central Coastal Agricultural Research Institute, Ela, Old Goa

This germplasm is a promising selection for its attractive fruit colour, bigger fruit size (320g) with better shelf life, higher contents (78.29%) of fibreless pulp, higher fruit yield and regular bearing tendency.

57. Dashehari 35 (Clone of Dashehari)

Dashehari 35 is clone of Dashehari with average fruit weight of more than 150 g. Consistency in the yield and this variety is recommended for cultivation in Telangana conditions.

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