

# Export Status of Pomegranate in India and Gujarat

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## Abstract

Despite being one of the major horticultural producers in the world, India is the small player in the global horticultural export trade. Trade is best option to get foreign earnings and for development of any country. Keeping in view this study was conducted to analyse the growth of production and export of pomegranate at India and Gujarat level by using secondary data from APEDA. During the year 2021-22, India exported 1164.60 thousand tones fruits valued at Rs. 6560.78 crores. Pomegranate accounts about 10.50 per cent (Rs 6887.7 million) in value to total fruits export by exporting 99.04 thousand tonnes. The present study have revealed positive and significant trend across the all production and trade indicators of pomegranate. The pomegranate export at India level has increased from 10.32 thousand tonnes valued at Rs 210.90 million in 2003-04 to 99.04 thousand tonnes worth Rs. 6887.72 million in 2021-22 with a positive and significant growth rate of 9.90% and 20.66% respectively. However, the growth rates of export volume are reported to be higher than their export unit price in pomegranate shows worrying trend. In addition, the fluctuations in export volume and value are more pronounced than the growth indicators as the export are challenged by the limited exportable surplus suiting the quality requirements of the importing nations. Bangladesh was the largest importer of Indian pomegranate by importing the share of 63.98% and 40.63% in quantity and value respectively followed by UAE. Pomegranate export is concentrated in West Bengal, Maharashtra and Gujarat. The quantum of exports and export value of pomegranate from Gujarat has increased from 19.79 tonnes worth Rs 7.97 lakhs in 2007-08 to 7685.87 tonnes valued Rs 8529.94 lakh in 2021-22 over the period of 15 years with a significant growth rate of 61.15% and 73.25%. This shows its high potential and demand in importing nations.

**Key words : Export volume, export value, growth rate, potential and trade.**

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India is among the 15 leading exporters of agricultural products in the world. The overall agricultural exports of India during 2021-22 was Rs 369980.24 crore among which the exports of fresh fruits accounted for Rs 6560.78 crore contributing 1.77% of the total agricultural exports (Directorate of Economics & Statistics, 2022). India's share in world fruits and vegetables exports is only 1.4% (Ministry of Finance, 2021). Fruit trade is becoming increasingly relevant in recent years. Cost reduction, year-round supply of produce, and rising income has increased the variety of fruits available in the global market. India is the largest producer of pomegranates but export from India

during 2021-22 was less than 5 per cent of the total production compared to Spain and Iran which exports 65 to 75 per cent and 15 per cent, respectively of their production. To increase exports, it is necessary to improve the quality at various stages from production, post-harvest, processing and handling, storage and till it reaches the customers (Koujalagi, 2012). In the period of this global competition, it has become very much vital to study the export performance of pomegranate at India and Gujarat.

## Objective

To study the compound growth rate and instability in exports of Pomegranate from India and Gujarat.

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## Methodology

**Collection of Data :** The present study was entirely based on the secondary data. Yearly time series of the destination wise exports quantity and value of exports of pomegranate for a period of 19 years (2003-04 to 2021-22) for India and for a period of 15 years (2007-08 to 2021-22) for Gujarat was collected from website of APEDA and tradedx websites.

## Analytical Tools and Techniques

1. Exponential growth model
2. Instability Index

**Exponential growth model :** Growth rate of export of pomegranate for the study period was computed using the exponential growth model. The model is specified as follows:

$$Y = ab^t e \quad \dots (1)$$

Where, Y= Export (quantity and value) for the year t, a = Intercept, b = Regression coefficient, t = Time variable and e = Residual term

By converting the equation (1) into its natural logarithmic form in order to obtain the compound growth rate is given below.

$$\ln Y = \ln a + t \ln b + \ln e$$

The percentage of compound annual growth rate was derived by using the following formula.

$$\text{CAGR} = [(\text{anti } \ln b) - 1] * 100$$

**Study of instability :** One of the simplest ways of measuring variability present in the data is by using coefficient of variance (CV). The variability in quantity and value of exports during the study period was measured using the formula for CV as given below:

$$\text{CV} = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

Though CV is one of the simplest measures of the instability it does not completely explain the variability present in the time series data because of the presence of the trend component. In order to overcome this problem, formula suggested by Cuddy and Della (1978) was used. Cuddy-Della instability index was calculated as follows.

$$\text{II} (\%) = \text{CV} \sqrt{(1-R^2)}$$

Where, II = Instability Index, CV = Coefficient of variation and R = Adjusted Coefficient of Determination of time trend regression of the original data of exports quantity or value

## Results and Discussion

During the year 2010-11 to 2021-22, India's agricultural export and total fresh fruits export continuously increasing with a growth rate of 6.96% and 13.13% respectively. India total agricultural export went up from Rs 111018 crore to Rs 369980 crore while India fresh fruits export grew from Rs 1355.19 crore to Rs 6560.78 crore during last decade. The proportionate share of fresh fruits export to India's agricultural export is still nominal. In 2010-11, the share of fruits export was 1.22% of the total agri export and improved to 2.15%

**Table 1.** Growth and instability in total fresh fruits export from India (2010-11 to 2021-22)

Year	Agricultural export (Rs. crore)	Fresh fruits		Per cent share of fresh fruits export value to Agri. Export
		Export quantity (tonnes)	Export Value (Rs. crores)	
2010-11	111018.99	446761	1355.19	1.22
2020-21	305279.97	956961	5647.55	1.85
2021-22	369980.21	1164603	6560.78	1.77
CGR(%)	6.96**	8.19**	13.13**	
II	15.71	11.82	14.56	

Source: DGCIIS. \*\*Significant at 1% level

in 2019-20. Fresh fruits export from India has registered all time high both in terms of quantity (8.19%) and value (13.13%). At present (2021-22) India exports 1164.60 thousand tones fruits valued at Rs 6560.78 crores. Further, it showed that there is a good potential or demand of the Indian fruits in the global market.

Major exported fresh fruits are grapes, banana, Pomegranate, Orange and Mango which jointly constituted 76.08 and 74.74 per cent share in quantity and value respectively. Pomegranate accounts about 10.50 per cent (Rs 6887.7 million) in value to total fruits export by exporting 99.04 thousand tonnes.

**Table 2.** Quantity and value of fresh fruits export from India during the year 2021-22

Product	Quantity (tonnes)	% share in total qty.	Value (Rs. lakh)	% share in total value
Grapes	263075.62	22.59	230216.40	35.09
Banana	376572.37	32.33	117877.34	17.97
Pomegranate	99043.09	8.50	68877.17	10.50
Orange	119548.04	10.27	40616.12	6.19
Mango	27872.76	2.39	32745.1	4.99
Apple	31976.52	2.75	11558.13	1.76
Lemon & Limes	18523.90	1.59	6634.50	1.01
Watermelon	32694.52	2.81	6238.50	0.95
Sapota	1023.33	0.09	774.25	0.12
Other Fresh Fruits	194272.9	16.68	140540.5	21.42
Total Fresh Fruits	1164603	100.00	656078	100.00

Source: APEDA, 2022

**Pomegranate :** Pomegranate (*Punica granatum*) is grown in tropical and subtropical regions of the world. The fruit is native of Iran and extensively cultivated in Mediterranean countries. Pomegranate is a high value crop. It is well suited to the topography and agro-climate of arid and semi-arid regions. Major growing varieties are Ganesh, Ruby, Arakta and Bhagwa (Suvagiya *et al.*, 2017). India is the largest

producer of pomegranate in the world with share of nearly 50%. Other pomegranate producing countries are China, Iran, Turkey, USA, Tunisia, Morocco, Israel, Spain, Greece, Italy, South Africa etc. (NRCP, 2019).

**Domestic Scenario :** In case of India, during the year 2020-21, pomegranate was cultivated in 2.88 lakh hectare of land producing 32.70 lakh metric tons of pomegranate. Within India, during the year 2020-21, Maharashtra alone contributes 59.38% of area and 54.89% of production followed by Gujarat with, 15.48% of area and production of 20.92% in country. Other major pomegranate producing states are Karnataka, Andhra Pradesh and Madhya Pradesh etc.

**Table 3.** Top five producing states of Pomegranate (2020-21)

Major producing states	Production ('000 tonnes)
Maharashtra	1795.32 (54.89)
Gujarat	684.32 (20.92)
Karnataka	296.82 (9.08)
Andhra Pradesh	280.46 (8.57)
Madhya Pradesh	103.43 (3.16)
India	3270.5 (100.00)

Note: Data in parentheses denotes percentage to the India's production of pomegranate

Over the period of 20 years, the area under pomegranate has increased continuously from 97 thousand ha in the year 2003-04 to 276 thousand ha in the year 2021-22 and the production has also increased from 665 thousand tonnes in the year 2003-04 to 3148 thousand tonnes in the year 2021-22 with a significant positive growth rate of 6.57% and 10.68% respectively. This shows that it is going to be the most important horticultural crop in India during future years (NRCP, 2019).

**Export :** The pomegranate fruit has very good potential for exports due to its large use of

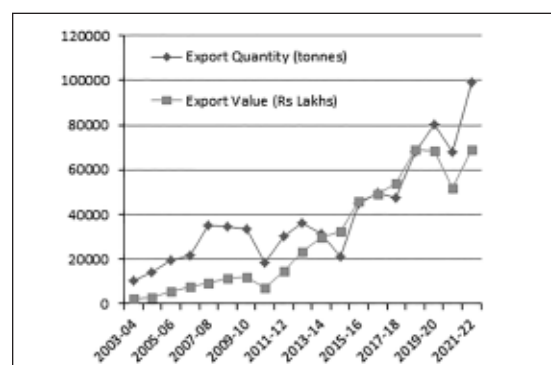
decoration, use of fresh kernels (arils) for garnishing and for consumption as fresh fruit because of its nutritive value. The pomegranate export has increased from 10.32 thousand tonnes in 2003-04 to 99.04 thousand tonnes in 2021-22 but the share of exports in pomegranate production is still nominal. The value of pomegranate exports grew from Rs 210.90 million in the year 2003-04 to Rs 6887.72 million in the year 2021-22. Total growth rate of 9.90% per annum was recorded by the quantity of pomegranate exports during the study period. Overall value of pomegranate exports recorded positive and significant growth rate of 20.66% during the study period, which indicates that there is a huge potential of pomegranate exports from India. Similar results were obtained by Aware *et al.* (2019).

**Table 4.** Growth and instability in area, production and export of Pomegranate from India

Year	Area ('000 ha)	Production ('000 tonnes)	Export quantity (tonnes)	Export value (Rs. million)
2003-04	96.9	664.9	10315.97	210.90
2020-21	288	3271	67,976.66 (2.08)	5166.65
2021-22	276.1	3148.3	99,043.09 (3.15)	6887.72
CAGR (%)	6.57**	10.68**	9.90**	20.66**
II	16.98	26.72	28.86	23.31

Note: Data in parentheses denotes percentage to the total production of fresh pomegranate.

\*\*Significant at 1% level, \* significant at 5% level



**Fig. 1.** Export of Indian Pomegranate over two decades (2003-04 to 2021-22)

**Export Destinations :** Exports of pomegranate to major destination from India and their respective shares during the year 2021-22 is given in the Table. Bangladesh was the largest importer of Indian pomegranate by importing 63371.22 metric tons of pomegranates worth Rs 27981.85 lakhs with the share of 63.98% and 40.63% in quantity and value respectively. Second highest share of 27.90% in value and 15.92% share in quantity of exports was shown by UAE, which imported pomegranate 15772.59 tonnes worth Rs 19214.35 lakhs during the same year.. Switzerland imported the pomegranate with unit value of 59604.29 Rs.  $q^{-1}$ , which was highest among all the other major importers, which was followed by Netherland with the unit value of

**Table 5.** Top 10 Export Destinations for Indian Pomegranate (2021-22)

Rank	Country	Quantity (tonnes)	Value (Rs. Lakhs)	Unit value (Rs. $q^{-1}$ )
1	Bangladesh	63371.21 (63.98)	27981.85 (40.63)	4415.55
2	UAE	15772.59 (15.92)	19214.35 (27.90)	12182.11
3	Nepal	10448.01 (10.55)	4585 (6.66)	4388.39
4	Netherland	1301.83 (1.31)	3717.08 (5.40)	28552.73
5	Qatar	2174.24 (2.20)	2887.74 (4.19)	13281.61
6	Saudi Arab	1234.14 (1.25)	1618.87 (2.35)	13117.39
7	Sri Lanka	753.13 (0.76)	1439.78 (2.09)	19117.28
8	Switzerland	179.93 (0.18)	1072.46 (1.56)	59604.29
9	Egypt	714.24 (0.72)	1006.66 (1.46)	14094.14
10	Kuwait	498.09 (0.50)	684.09 (0.99)	13734.26
11	Others	2595.68 (2.62)	4669.30 (6.78)	17988.74
Total (Incl. others)		99043.09 (100.00)	68877.18 (100.00)	6954.26

Note: Figures in parentheses denotes % to the total export of pomegranate from India

**Table 6.** Country wise compound growth rates (CGR%) and Instability Index (II) of India's Pomegranate export (2003-04 to 2021-22)

Rank	Country	Export quantity (tonnes)		Export value (Rs. Lakhs)		Unit value (Rs. q <sup>-1</sup> )	
		CGR (%)	II	CGR (%)	II	CGR (%)	II
1	Bangladesh	19.44**	113.25	32.15**	99.76	10.65**	31.21
2	UAE	4.73**	23.68	19.78**	30.44	14.37**	27.97
3	Nepal	16.54**	42.26	31.37**	31.05	12.72**	23.25
4	Netherland	-0.56	88.84	12.82**	61.34	13.45**	31.31
5	Qatar	30.63**	40.31	47.22**	30.95	12.69**	31.22
6	Saudi Arab	7.40**	52.80	21.36**	46.39	13.00**	25.15
7	Sri Lanka	8.85**	53.09	27.54**	45.35	17.18**	25.27
8	Switzerland	16.80**	98.18	42.40**	85.01	21.92**	37.50
9	Egypt#	15.53**	38.14	22.93**	36.92	6.40**	20.37
10	Kuwait	26.17**	49.40	40.90**	47.71	11.75**	29.15
11	Others	2.71	48.56	13.74**	43.93	10.74**	28.59
Total (Incl. others)		9.90**	28.86	20.66**	23.31	9.79**	31.82

Note: \*\*Significant at 1% level, \* significant at 5% level

#CAGR analyzed from 2005-06 to 2021-22 due to zero export during 2003-04 & 2004-05

28552.73 Rs. q<sup>-1</sup>. But among the major destinations, the lowest unit value pomegranates were exported to Nepal, which was 4388.39 Rs. q<sup>-1</sup>.

In case of quantity of pomegranate exports, Qatar showed the highest growth rate of 30.63% per annum followed by Kuwait with 26.17% per annum, which were significant at 1% level. Bangladesh, Switzerland, Nepal and Egypt recorded growth rate of 19.44%, 16.80%, 16.54% and 15.53% per annum respectively, which were found to be significant at 1% level. Growth rate of export quantity of Netherland was negative during the study period, may be due to the stringent quality and phyto-sanitary specifications. In terms of value and unit value of exports of pomegranate, all the destinations showed the positive and significant growth rate. Similar to that of quantity of exports, Qatar and Kuwait recorded the highest growth rate of 47.22% and 40.90% per annum respectively. Total growth of unit value of pomegranate exports was 9.79% per annum during the study period.

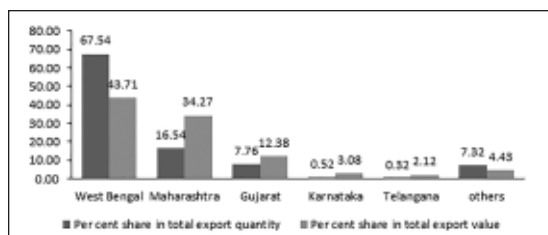
### State-wise Export Scenario :

Pomegranate export is concentrated in West Bengal accounting for 66895.5 tonnes (67.54%) of the total quantity and Rs 30104.31 lakhs (43.71%) value of total pomegranate export through the country. Second highest share of 16.54% in quantity and 34.27% in

**Table 7.** Top five exporting states of Fresh Pomegranate (2021-22)

Major producing states	Export quantity (tonnes)	Export value (Rs. lakhs)	Unit value (Rs. q <sup>-1</sup> )
West Bengal	66895.5 (67.54)	30104.31 (43.71)	4500.2
Maharashtra	16380.59 (16.54)	23607.05 (34.27)	14411.6
Gujarat	7685.87 (7.76)	8529.94 (12.38)	11098.21
Karnataka	516.43 (0.52)	2122.76 (3.08)	41104.51
Telangana	316.09 (0.32)	1462.8 (2.12)	46277.96
India	99,043.09 (100.00)	68,877.15 (100.00)	6954.26

Note: Data in parentheses denotes percentage to the India's export of fresh pomegranate



**Fig. 2.** Leading five exporting states of Indian Pomegranate (2021-22)

value of pomegranate export was shown by Maharashtra. Telangana recorded highest unit value of pomegranate export (46277.96 Rs.  $q^{-1}$ ) followed by Karnataka exported the pomegranate with unit value of 41104.51 Rs.  $q^{-1}$  and the lowest unit value pomegranate was exported by West Bengal, which was 4500.2 Rs.  $q^{-1}$ .

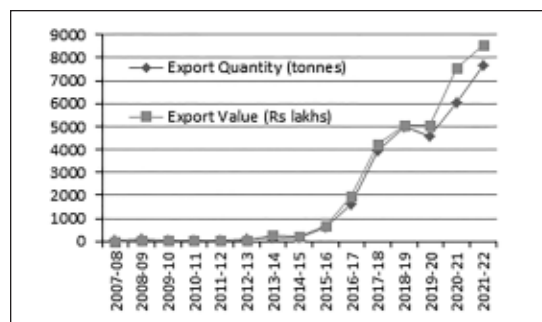
**Gujarat Export Scenario :** The quantum of exports and export value of pomegranate from Gujarat has increased over the period of 15 years. It could be observed from the table that the quantity of pomegranate exported from Gujarat over the years rose from 19.79 tonnes in 2007-08 to 7685.87 tonnes in 2021-22 with a significant growth rate of 61.15%. The value of pomegranate exports grew from Rs 7.97 lakhs in the year 2007-08 to Rs 8529.94 lakh in the year 2021-22 with an increasing growth rate of 73.25 per cent. There is remarkable growth in quantity and value of pomegranate

**Table 8.** Export of Fresh Pomegranate from Gujarat

Year	Export quantity (tonnes)	Export value (Rs. lakhs)	Unit value (Rs. $q^{-1}$ )
2007-08	19.79 (0.06)	7.97 (0.09)	4027.29
2020-21	6,064.77 (8.92)	7,583.77 (14.68)	12504.63
2021-22	7,685.87 (7.76)	8,529.94 (12.38)	11098.21
CAGR (%)	61.15**	73.25**	7.51*
II	45.64	28.58	30.34

Note: Data in parentheses denotes percentage to the India's total export of fresh pomegranate

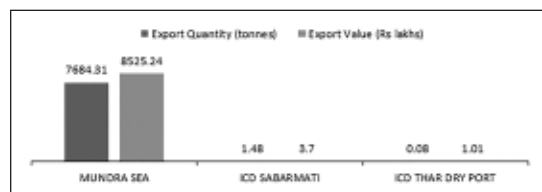
\*\*Significant at 1% level, \* significant at 5% level



**Fig. 3.** Export of fresh Pomegranate from Gujarat (2007-08 to 2021-22)

exports from Gujarat, shows its high potential and demand in importing nations.

**Port-wise export from Gujarat :** Export of fresh pomegranate from Gujarat is mainly traded through Mundra sea port (99.98% and 99.94%) followed by ICD Sabarmati (0.02% and 0.04%) and ICD Thar Dry Port (0.0001% and 0.01%) both in terms of quantity and value.



**Fig. 4.** EPort wise export of Pomegranate from Gujarat (2021-22)

## Conclusion

The present study was undertaken to analyze the export performance of Pomegranate in India and Gujarat. Despite being one of the major horticultural producers in the world, India is the small player in the global horticultural export trade. At present (2021-22) India exports 1164.60 thousand tones fruits valued at Rs 6560.78 crores and Pomegranate accounts about 10.50 per cent in value of total fruits export. The present study have revealed positive and significant trend across the all production and trade indicators of pomegranate. Bangladesh was the largest importer of Indian



pomegranate during the year 2021-22 followed by UAE, Nepal, Netherland, Qatar and Saudi Arab. Qatar and Kuwait recorded the highest growth rate in quantity and values of pomegranate imported from India. Pomegranate export is concentrated in West Bengal, Maharashtra and Gujarat. The quantum of exports and export value of pomegranate from Gujarat has increased from 19.79 tonnes worth Rs 7.97 lakhs in 2007-08 to 7685.87 tonnes valued Rs 8529.94 lakh in 2021-22 over the period of 15 years with a significant growth rate of 61.15% and 73.25 per cent. This shows its high potential and demand in importing nations. The growth rates of export volume are reported to be higher than their export unit price in pomegranate shows worrying trend. In addition, the fluctuations in export volume and value are more pronounced than the growth indicators as the export are challenged by the limited exportable surplus suiting the quality requirements of the importing nations.

### **Policy implication**

Export incentives should be channelized to the farmers to produce as per the needs of world market/ genuine exportable surplus for retaining its market share and to make long term contracts with high end markets.

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