

POMEGRANATE

1. Introduction

Pomegranate (*Punica granatum*) is grown in tropical and subtropical regions of the world. The total area under cultivation of pomegranate in India is 107.00 thousand ha and production is around 743.00 thousands tons.

Maharashtra is the leading producer of pomegranate followed by Karnataka, Andhra Pradesh, Gujarat and Tamil Nadu. Ganesh, Bhagwa, Ruby, Arakta and Mridula are the different varieties of pomegranates produced in Maharashtra. In India, pomegranate is commercially cultivated in Solapur, Sangli, Nasik, Ahmednagar, Pune, Dhule, Aurangabad, Satara, Osmanabad and Latur districts of Maharashtra; Bijapur, Belgaum and Bagalkot districts of Karnataka and to a smaller extent in Gujarat, Andhra Pradesh and Tamil Nadu.

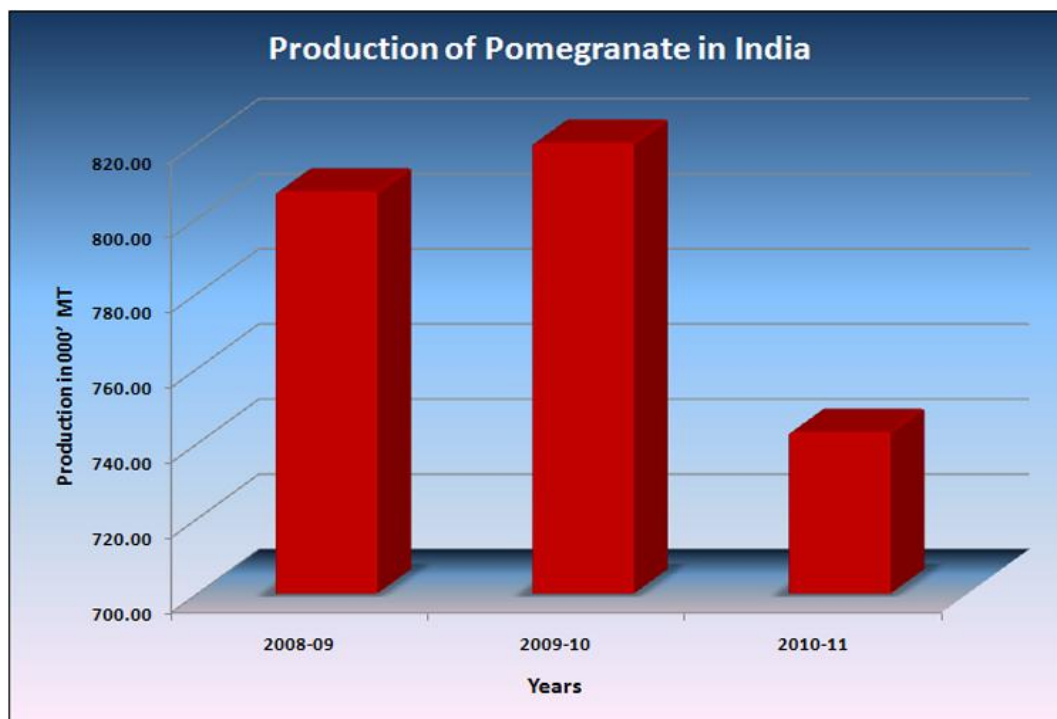
Indian Scenario

According to the data published by **National Horticulture Board of India** there is a undersized decrease in the area of pomegranate cultivation in India from 109.00 thousand ha in 2008-09 to 107.00 thousand ha in 2010-11; similarly, the production has decreased from 807.00 thousand tons to 743.00 thousand tons during the same period.

Showing the Area, Production and Productivity of Pomegranate in India

Year	Area in 000' HA	Production in 000' MT	Productivity (MT/HA)
2008-09	109.00	807.00	7.40
2009-10	125.00	820.00	6.60
2010-11	107.00	743.00	6.90

Source : National Horticulture Board -2011



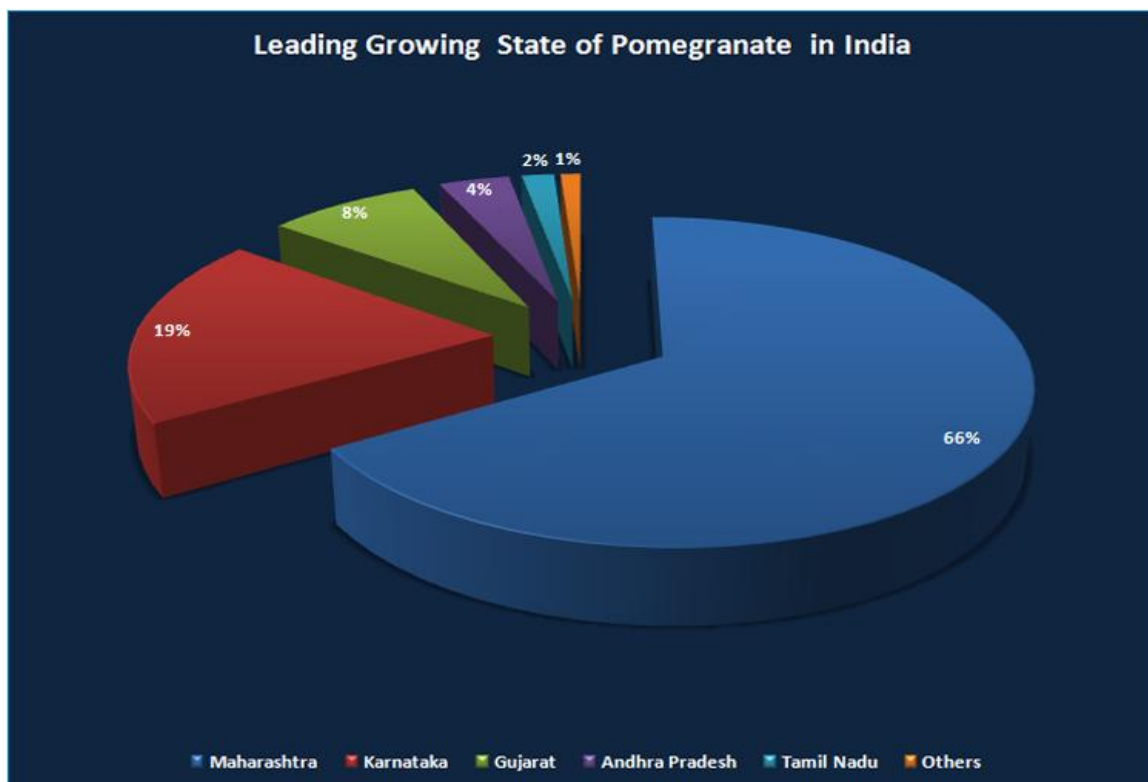
2. Major Producing States With Production of Last Three Years

The total production of pomegranate is concentrated mainly in the Western Maharashtra, Karnataka, Gujarat, Andhra Pradesh, Tamil Nadu and Rajasthan in India. Maharashtra is the leading State with 82 thousands hactor area under pomegranate cultivation, followed by Karnataka and Gujarat with 13.6 thousand ha and 5.8 thousand ha respectively, Andhra Pradesh and Tamil Nadu stood at fourth and fifth position with. 2.8 and 0.5 thousand ha of pomegranate cultivation in India.

Area, Production and Productivity of Leading Pomegranate Growing States in India

State wise Area, Production and Productivity of Pomegranate										% Share of Production
State	Area in 000' ha			Production in 000' MT			Productivity ha/MT			
	2008-09			2009-10			2010-11			
	Area	Prod.	Pdy.	Area	Prod.	Pdy.	Area	Prod.	Pdy.	
Maharashtra	82.00	550.00	6.71	98.90	555.50	5.62	82.00	492.00	6.00	66.21
Karnataka	14.30	138.10	9.66	13.20	138.50	10.49	13.60	142.60	10.49	19.19
Gujarat	4.00	39.30	9.83	4.40	45.60	10.36	5.80	60.30	10.40	8.11
Andhra Pradesh	6.50	64.70	9.95	5.60	56.40	10.07	2.80	27.80	9.93	3.74
Tamil Nadu	0.40	10.00	25.00	0.40	17.50	43.75	0.50	12.70	25.40	1.71
Others	2.00	5.10	2.55	2.50	6.90	2.76	2.60	7.70	2.96	1.04
Total	109.20	807.20	7.39	125.00	820.30	6.56	107.30	743.10	6.93	100.00

Source : National Horticulture Board -2011



3. Description of Commercially Grown Varieties

Showing the varietal characteristics of commercially grown Pomegranates

Variety/ Type	Characteristics
Ganesh	This variety has pinkish yellow to reddish yellow rind colour, having light pink arils and soft seeds. Fruit weighs between 225-250 gms with medium T.S.S.
Ruby	The fruit skin is red in colour and weighs between 225-275 gms. The grains are soft, having high T.S.S.
Arakta	Fruits are dark red in colour with soft seeds and with high T.S.S.
Bhagwa	The fruit is glossy red in colour with soft seeds and high T.S.S.

4. Good Agricultural Practices (GAP)

- Using disease free and quality plant material of improved cultivars.
- Adoption of high planting density.
- Proper canopy management.
- Integrated nutrient and water management.
- Keeping proper load of fruits on the tree.
- Timely control of pests and diseases by adopting IPM practices.

5. Harvesting Season of Crop in Leading States

Harvest season of pomegranate is depicted below (in 12 months). Because of adopting a number of bahar treatments, pomegranate in Maharashtra and Gujarat states is available throughout the year.

	-Lean Period		-Peak Period		- Throughout Year
--	--------------	--	--------------	--	-------------------

STATE/UT'S	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Maharashtra												
Karnataka												
Andhra Pradesh												
Gujarat												

*The above graph showing harvest pattern in leading Pomegranate growing states.

6. Arrival pattern in market

Pomegranates are available almost throughout the year. With the adoption of bahar treatment it's harvest can be tailored according to demand.

Details of arrival pattern of pomegranate according to bahar treatment

S.No.	Bahar	Flowering Time	Period of Harvest
1	Mrig	June-August	November-March
2	Hasta	October- November	February-May
3	Ambe	January-February	June - August

7. (a) Concentrated Pockets

The details of concentrated pockets of pomegranate in different states are given below in table. In Andhra Pradesh pomegranate cultivation has started mainly in Anantpur district..

Showing concentrated pockets of Pomegranate in India.

State	Districts
Maharashtra	Solapur, Nasik, Sangli, Ahmadnagar, Pune , Satara
Karnataka	Bijapur, Bagalkot, Belgaum
Gujarat	Bhavnagar, Ahmedabad, Sabar Kantha
Andhra Pradesh	Anantpur

(b) Catchment Areas of Market

Showing the details of catchment Areas of Markets of Pomegranate in Leading States

States	Districts (Market)	Blocks
Maharashtra	Solapur	Karmala, Barsi, Madha, Mohol, Mangalwedha, Singole, Malsira, Pandharpur, Akalkot.
	Nasik	Kalvan, Peint, Igatpuri, Sinnar, Niphad, Yeola, Nandgaon, Satana Furgana, Dindori, Melgaon
	Sangli	Atpadi, Khanapur, Islampur, Shirala, Valva, Tasgaon, Kavathe, Mahankal, Jath, Miraj
	Ahmednagar	Srirampur, Sangamner, Akola, Rahuri, Nevasa, Parner, Pathardi, Srigonda,
	Pune	Junnar, Ambegaon, Ghod, Rajgurunagar, Wadgaon, Sirur, Mulshi, Welhe, Purandhar, Bhor, Baramati, Indapur, Daund, Saswad
	Satara	Mahabaleshwar, Khandala, Wai, Phaltan, Koregaon, Khata, Patan, Karad, Vadug.
Karnataka	Bijapur	Indi, Sindgi, Basavna Bagevadi, Muddebihal, Tikota.
	Belgaum	Athni, Arkali, Chikodi, Mukeri, Bailhongal, Ramdurg
	Bagalkot	Jamkhandi, Mudhol, Hungund, Badami.

Andhra Pradesh	Anantpur	Guntakal, Gooty, Rayalacheruve, Uravakonda, Kanekallu, Rayadurg, Kalyandurg, Kambadur, Manakasira, Nallamada.
Gujarat	Bhavnagar	Botad, Gadhda, Valbhipur, Umralla, Mandir, Gariadhar, Palitana, Talaja, Chogha, Vaibhipur.
	Ahmedabad	Mandal, Rampura, Samand, Bavla, Dholka, Dhandhkulla, Ranapur.
	Sabar- Kantha	Vijarnagar, Khedbrahma, Vadali, Idar, Bhiloda, Talod, Dhansura, Bayad, Malpur, Meghraj, Bhiloda

8. Criteria and description of grades

Details of grade designation and sizing of pomegranate as per AGMARK standard

Grade Designation	Grade Requirements	Grade Tolerances
1	2	3
Extra class	Pomegranate in this class must be of superior quality. They must have the shape, development and colouring that are typical of the variety and/or commercial type. They must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.	5% by number or weight of pomegranates not satisfying the requirements of the grade, but meeting those of class I grade or, exceptionally, coming within the tolerances of that grade.
Class I	Pomegranates in this class must be of good quality. They must be characteristics of the variety and/or commercial type. The following slight defects may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package. - a slight defect in shape. - a slight defect in colouring; - slight skin defects(i.e. scratches, scars, scraps and blemishes) not exceeding 5% of the total surface area	10% by number or weight of pomegranates not satisfying the requirements of the class, but meeting those of class II or, exceptionally, coming within the tolerances of that grade.

Class II	This class includes pomegranates which do not qualify for inclusion in higher classes, but satisfy the minimum requirements. Following defects may be there provided the pomegranates retain their essential characteristics as regard the quality, the keeping quality and presentation: - defects in shape; - defects in colouring - skin defects(i.e., scratches ,scars, scrapes and blemishes), not exceeding 10% of the total surface area	10% by number or weight of pomegranates not satisfying the requirements of the grade, but meeting the minimum requirements.
----------	--	---

PROVISION CONCERNING SIZING

Size is determined by the weight or maximum diameter of the equatorial section of the fruit, in accordance with the following table:

Details of sizing in Pomegranate Fruits

Size Code	Weight in grams (minimum)	Diameter in mm (minimum)
A	400	90
B	350	80
C	300	70
D	250	60
E	200	50

9. Packaging & its details

(a) For Export Market

Usually for packing pomegranates for export purposes, a cardboard corrugated fibreboard box of 4.0 or 5.0 kg capacity is used. The dimensions of such boxes depending upon the capacity are:

S.No.	4 Kg Box	5 Kg Box
1	375 x 275 x 100 mm	480 x 300 x 100 mm

The details specifications are given below in the table :

Specification details for Corrugated Fiber Board (CFB) Boxes for packing Pomegranates for Exports

Specification	Ring & Flap Tuck in type	RSC (regular slotted container)	Slide type
Material of Construction	5 Ply CFB	3 Ply CFB	5 Ply CFB
Grammage gm/m ² (outer to inner)	*230X140X 140X140X140	*230X140X 140X140X140	*230X140X 140X140X140
Bursting strength kg/cm ²	Min 10	Min 10	Min 10
Puncture resistance, inches/tear inch	Min 250	Min 250	Min 250
Compression strength, kgf	Min 350	Min 350	Min 350
Cobb (30 min g/m ²)	Max 130	Max 130	Max 130

*Outer ply of white duplex board

Source: Post- Harvest Manual for Export of Pomegranates, APEDA, New Delhi.

b. For Domestic Marketst

For domestic markets also, the Pomegranate is packed in Corrugated Fiber Board boxes, according to their weight.

10. Distribution of produce from primary to terminal market

- Pomegranates grown in different parts of country are transported to the big cities for marketing.
- The fruits produced in Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu find market in Mumbai, Nagpur and Kolkata.
- The important whole sale markets of pomegranate in India are Kolkata, Delhi, Mumbai, Chennai, Bangalore, Nagpur, Pune and Ahmedabad. Pomegranates for these big markets are usually collected at the central places in all pomegranate growing areas.
- From Mumbai and Kolkata ports the pomegranate is exported to the destination markets.

11. Exports and export potential

A. Domestic Strengths for Exporting Pomegranate

Domestic strengths for exporting pomegranate are given in the following points:-

- India is the largest producer of pomegranates in the world.
- India produces finest varieties of pomegranate having soft seeds, very less acids and very attractive colour of the fruits and grains.
- With adoption of different “bahars”, India can supply pomegranates almost throughout the year.

- Maximum cultivation of pomegranate is in states of Maharashtra and North Western Karnataka which are very close to the western port of Mumbai for exporting to Gulf and European countries.
- Quality of pomegranate is much superior to Spain and Iran in edible quality and attractiveness.
- Agri Export Zone for enhancing exports of pomegranate has been established in Maharashtra state.
- There is strong research support for scientific cultivation of pomegranate like National Research Center for Pomegranate, Solapur, MPKV, Rahuri in Maharashtra and IIHR, Bangalore in Karnataka state.
- Pomegranate co-operative societies from Maharashtra state have formed an apex cooperative namely MAHA ANAR.
- Bhagwa variety has high acceptance in European market.
- Pomegranate export facility center is being set up/has been set up in Baramati area with mechanical handling system.
- Farmers have been trained for export quality production and have registered with GLOBALGAP certification.
- MSAMB has recently obtained brand name i.e. "MAHAPOM".

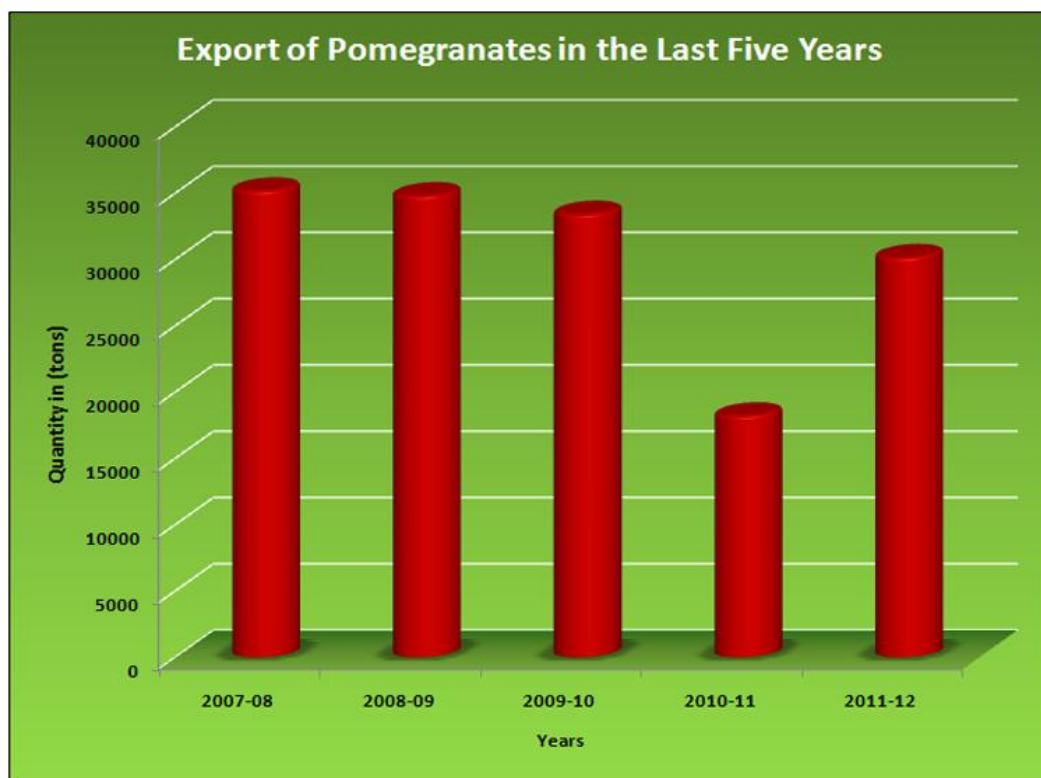
B. Exports

Export of pomegranate has decreased in quantity from 35175.17 tons in 2007-08 to 30158.59 tons in 2011-12 . whereas in value term it show an increase trend during the same period. There is tremendous potential for exports of pomegranate from India and it is fact that India is largest producer of pomegranates in the world. Moreover, India produces finest edible quality of pomegranates which are available almost throughout the year. The major Markets of India's pomegranate during the year 2011-12 were UAE, Bangladesh, Netherlands, UK, Saudi Arabia and Rassia.

Export of Pomegranate from India in the Last Five Years

Years	Quantity (tons)	Value (in Rs. Lakhs)
2007-08	35175.17	9119.49
2008-09	34811.21	11461.62
2009-10	33415.07	11942.84
2010-11	18211.67	7095.20
2011-12	30158.59	14726.88

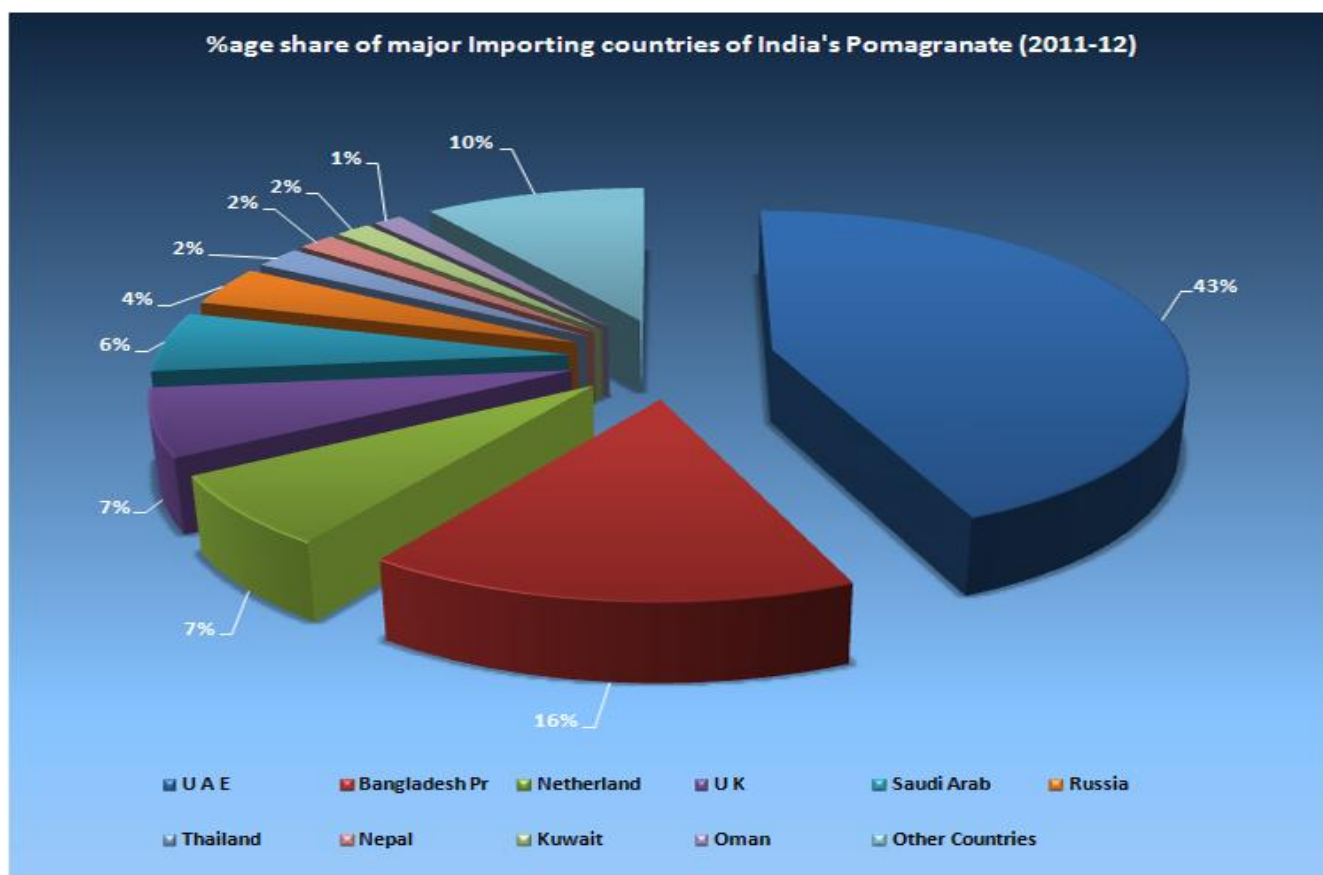
Source: APEDA Database, 2011-12



C. Countries Wise Export of Pomegranates from India

Export of Pomegranates (HS Code : 08109010)							
Qty. in MT , Value In Rs. Lacs							
Country	2009-10		2010-11		2011-12		% Share in Value
	Qty.	Value	Qty.	Value	Qty.	Value	
U A E	17,350.00	5,170.01	11,229.57	3,884.42	15,899.74	6,416.44	43.57
Bangladesh Pr	4,783.71	468.16	1,964.84	252.55	4,593.46	2,383.70	16.18
Netherland	2,567.71	1,985.31	389.07	330.17	732.69	1,028.17	6.98
U K	973.20	1,051.47	531.27	825.45	890.85	975.31	6.62
Saudi Arab	1,789.35	627.77	1,182.83	368.44	2,196.63	870.39	5.91
Russia	470.63	521.48	186.46	279.87	398.08	573.32	3.89
Thailand	280.26	195.99	104.94	135.50	298.07	310.61	2.11
Nepal	1,447.64	157.11	819.18	111.07	1,438.26	246.85	1.68
Kuwait	505.77	222.43	204.40	102.48	489.65	236.30	1.60
Oman	415.58	151.55	310.92	85.85	391.87	198.95	1.35
Other Countries	2,785.08	1,391.53	1,288.18	719.44	2,832.97	1,487.80	10.10
Total	33368.93	11942.81	18,211.66	7,095.24	30,162.27	14,727.84	100.00

Source : DGCIS



D. Measures for enhancing competitiveness for export

Following measures if adopted are likely to enhance competitiveness of Indian Pomegranates in foreign markets :

- Competition of India with regard to export of pomegranates is with Spain and Iran, which are nearer to European countries who import maximum quantity. Our efforts need to be towards lowering production cost by increasing productivity.
- For exporting to South East Asian countries, and to economize on cost of transport, it is suggested that special production areas for export need to be developed in Anantpur area in Andhra Pradesh and drier areas of Tamil Nadu, so that exports can be done from eastern ports.
- Packhouse facilities need to be established in Karnataka and Andhra Pradesh pomegranate growing areas also.
- India has already embarked upon building up quality and branding its product in order to compete with Spain and Iran. The Brand needs to be popularized aggressively.
- Pomegranate supplies from Spain and Iran to Europe taper from January onwards and therefore, supplies from India need to be concentrated during February to July months with the help of Hast and Ambe bahar when there will be no competition from Spain.
- Efforts need to be made to popularize pomegranates in Canada, U.S.A., South American countries etc by holding fruit fairs, exhibitions etc, as there is good price realization also from these countries.
- Similarly, efforts need to be accelerated in popularizing pomegranates in Australia, Korea, Japan, etc.

12. Storage

Temperature:	5 - 7°C
Relative Humidity:.	90 - 95%
Storage Period:.	2 - 3 months

13. Documents required for exports

a). Documents related to goods

- Invoice
- Packing List
- Certificate of origin

b). Documents related to shipment

- Mate Receipt
- Shipping Bill
- Bill of lading
- Airway Bill

c). Documents related to Payment

- Letter of Credit (L/C)
- Bill of Exchange

d) Documents related to quality of goods

- Phytosanitary Certificate
- GLOBALGAP Certification
- Health Certificate

e) Organic Certification

- Certificate indicating material produce is based on organic farming.

f) Documents related to Foreign Exchange Regulations

- GR Form: Documents required by RBI which assures to RBI that the exporter will realize the proceeds of goods within 180 days from the date of Shipment.

g) Other Document

- Bank Realization Certification (BRC): This is the advice given by Foreign Exchange Bank after the realization of money from Importer.

14. Chain of events (pack house up to shipment)

FLOW DIAGRAM OF ESSENTIAL OPERATIONS OF POMEGRANATE EXPORTERS/PACKERS

- Production
- Monitoring pesticide/fungicide application program
- Inspection at farm level or final field survey
- Harvesting by hand and cutting stem properly
- Transport to packhouse
- Receipt at packhouse
- Rejection of unwanted fruits
- Washing with a disinfectant and then with clean water
- Removal of excess water

- Treatment with fungicide and wax
- Drying
- Sizing
- Grading for quality
- Nose cleaning
- Packed into cardboard boxes
- Precooling
- Palletisation
- Storage in cold store
- Container loading
- Transportation to port

15. The given below tables shows the annual average price range of pomegranates in different international markets. The table shows the pricing trend in EU markets.

Summary of prices for pomegranate in potential markets for India.

Country	Annual Average price Range (2008)	
	Currency	
European Union	USD/kg	2.52 to 4.08
	INR/kg	113.4 to 183.6

Source: ITC Market News Service, Talkingretail.com, Freshplaza.com, Pomegranet.info

16. Cost Calculation from harvest to packhouse to port Showing the cost involved in exporting pomegranate (as per information collected during 2008)

(a) Procurement price*:

Variety	Approx. price (in Rs./kg)
Bhagwa	40 - 60

*Price of pomegranates varies according to variety like Bhagwa, Arakta or Ganesh

Charges for harvesting, packing, transport ,etc. (below in table):

Particulars (Cost per kg)	20 container (Rs/kg)	40 container (Rs/kg)
Packing cost	5.2	5.2
Precooling + Cold storage	3	3
Inland transportation charges	3.5	1.7
Labour cost	1	1
Total	12.7	10.9

Source: MSAMB, Maharashtra.

Freight rates for reefer container are as follows:

ountries	Reefer containers (Rates in US dollars)	
	20'	40'
Dubai/Doha	1100	1600
Kuala Lumpur/Singapore	600	900
UK/Amsterdam	1700	2700

* It varies from year to year /season to season, capacity of container and distance covered.