

OKRA

1. Introduction

Okra (*Abelmoschus esculentus*) or ladies finger is important vegetable of the tropical countries and most popular in India, Nigeria, Pakistan, Cameroon, Iraq and Ghana. Though, it is virtually not grown in Europe and North America, yet, lot of people in these countries have started liking this vegetable because of good amount of vitamin A and folic acid, besides carbohydrates, phosphorus, magnesium and potassium.

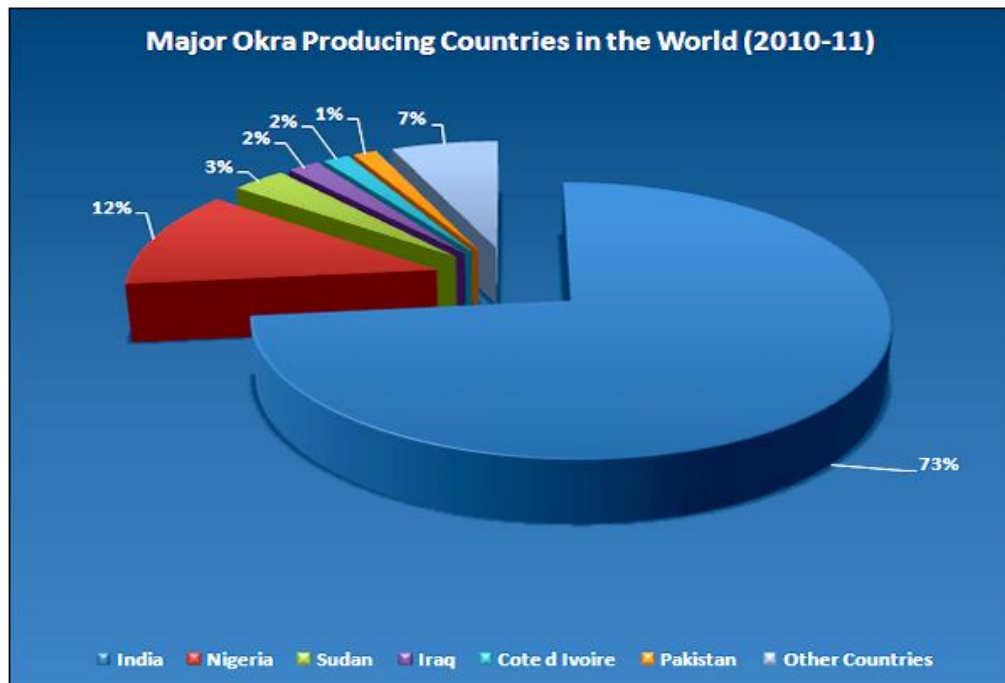
World Scenario

The total area and production under okra is reported to be 1148.0 thousand ha and 7896.3 thousand tons. It is mainly grown in India, Nigeria, Sudan, Pakistan, Ghana, Egypt, Benin, Saudi Arabia, Mexico and Cameroon. Largest area and production is in India followed by Nigeria. Highest productivity is reported from Egypt (12.5 tons/ha) followed by Saudi Arabia (13.3 tons/ha).

Showing the Area, Production and Productivity of Okra

COUNTRY	AREA ('000ha)	PRODUCTION ('000 tons)	PRODUCTIVITY MT/HA	% Share in World Production
India	498.00	5784.00	11.60	73.25
Nigeria	455.10	955.60	2.10	12.10
Sudan	21.50	256.00	11.90	3.24
Iraq	19.53	151.22	7.70	1.92
Cote d Ivoire	47.00	125.00	2.70	1.58
Pakistan	14.60	113.20	7.80	1.43
Egypt	6.89	86.23	12.50	1.09
Ghana	21.10	82.50	3.90	1.04
Saudi Arabia	4.20	55.80	13.30	0.71
Cameroon	15.50	43.00	2.80	0.54
Others	44.53	243.71	5.50	3.09
World + (Total)	1147.95	7896.26	6.90	100.00

Source : Indian Horticulture Database – 2011



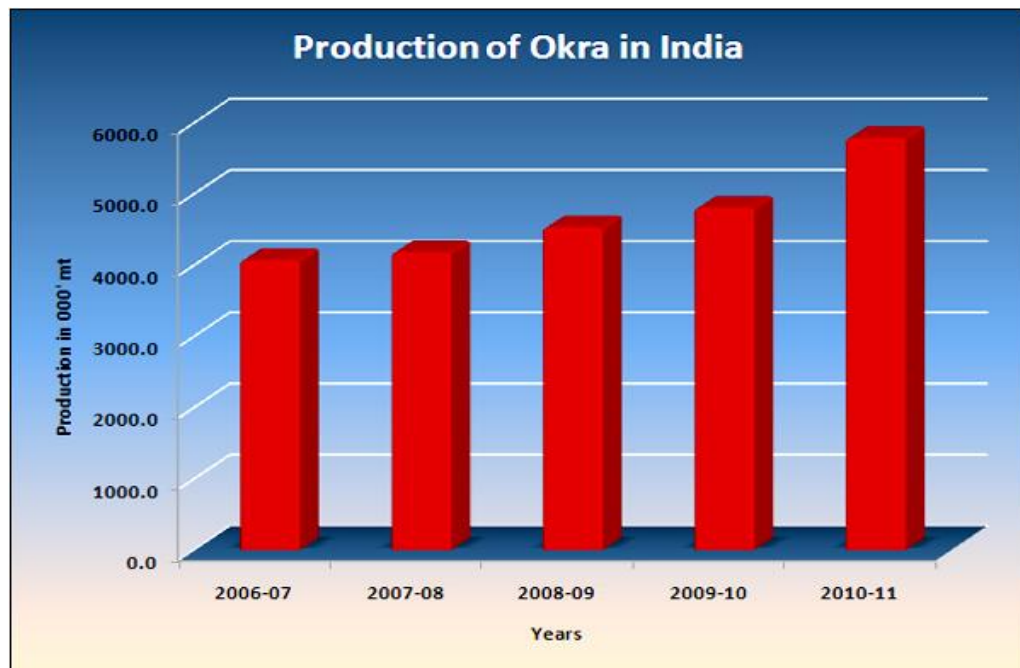
Indian Scenario

There is a slight increase in area and production from 2006-07 to 2010-11. The area has increased from 396.0 thousand ha to 498.0 thousand ha and the production has increased from 4070.0 thousand tons to 5784.0 thousand tons.

Area, production and productivity of okra in India

All India Area, Production and Productivity of Okra			
Year	Area (in 000" ha)	Production (in 000"mt)	Productivity (in mt/ha)
2006-07	396.00	4070.00	10.30
2007-08	407.00	4179.00	10.30
2008-09	432.00	4528.00	10.50
2009-10	452.50	4803.30	10.60
2010-11	498.00	5784.00	11.60

Source : Indian Horticulture Database – 2011



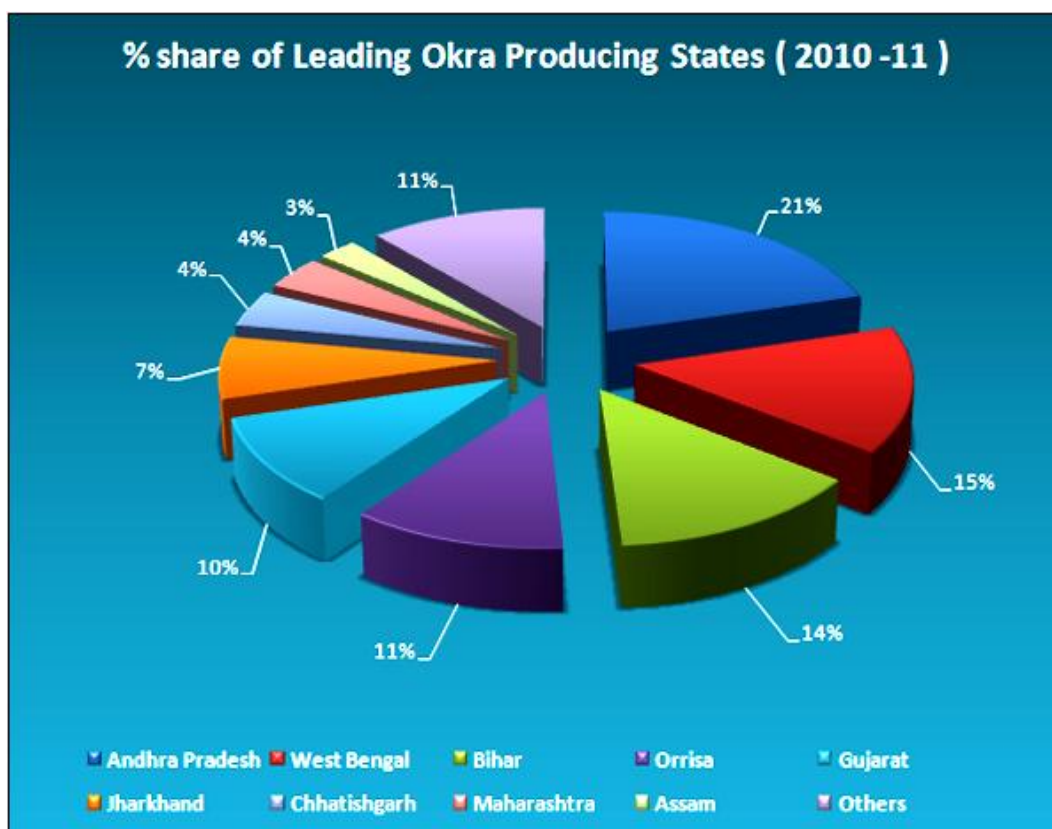
2. Major producing States with production of Last Three Years

Andhra Pradesh is the leading okra producing state which has production of around 1184.2 thousand tons followed by West Bengal (862.1 thousand tons). Then comes Bihar (788.3 thousand tons). Area, production and productivity of okra in different states is given in table.

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

Area in 000' ha; Production in 000'mt; Productivity ha/mt										
State	2008-09			2009-10			2010-11			% Share in Production
	Area	Prod.	Pdy.	Area	Prod.	Pdy.	Area	Prod.	Pdy.	
Andhra Pradesh	29.30	439.70	15.00	33.50	502.10	15.00	78.90	1184.20	15.00	20.5
West Bengal	72.60	830.90	11.40	73.10	839.30	11.50	74.00	862.10	11.70	14.9
Bihar	58.20	743.50	12.80	58.30	766.60	13.10	58.50	788.30	13.50	13.6
Orrisa	73.30	639.90	8.70	73.90	651.80	8.80	70.00	651.80	9.30	11.3
Gujarat	44.90	407.10	9.10	49.50	466.20	9.40	54.50	592.50	10.90	10.2
Jharkhand	29.80	417.20	14.00	29.00	406.00	14.00	30.00	421.70	14.10	7.3
Chhatishgarh	23.50	207.60	8.80	23.90	217.30	9.10	25.20	249.10	9.90	4.3
Maharashtra	25.00	157.50	6.30	27.00	175.50	6.50	19.00	224.00	11.80	3.9
Assam	10.30	129.20	12.50	10.90	149.70	13.70	11.10	147.80	13.30	2.6
Others	64.80	555.30	8.60	73.50	628.70	8.60	77.00	662.60	8.60	11.5
TOTAL	431.70	4527.90	10.50	452.60	4803.20	10.60	498.20	5784.10	11.60	100.0

Source: Indian Horticulture Database – 2011



3. Commercially Grown Varieties

Some of the important varieties of okra are Pusa Makhmali, Pusa Sawani, IHR 20-31, Pujab Padmini, Arka Anamika, Parbhani Kranti, Selection-2, Arka Abhey etc. For export purposes, mostly hybrid varieties are used. A few important hybrid varieties are given below:

Variety	Seed company
Sobha	Nath Seeds
Sungrow 35	Sungrow
Vaishali	Indo-American Hybrid Seeds
Vijay	Indo-American Hybrid Seeds
Adhunik	Century Seeds
Pancholi	Century Seeds
Hybrid 64	Mahyco
Azad Kranti	Beejo Sheetal
Varsha Uphar	HAU
Co3(Hybrid 8)	TNAU

4. Good Agricultural Practices (GAP)

- Use of hybrid seeds.
- Nutrient and water management
- Plant protection against diseases, insects and pests.

5. Harvesting Season of Crop

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

States	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
West Bengal												
Bihar												
Orissa												
Gujarat												
Andhra Pradesh												
Chhatisgarh												
Maharashtra												
Assam												
Uttar Pradesh												
Haryana												
Karnataka												

*The above graph showing harvest pattern in okra growing states.

6. Arrival Pattern in Market

Okra is available throughout the year in West Bengal, Orissa and Gujarat. In rest of the states availability of okra is maximum in the period of April to June.

7. (a).Concentrated Pockets

Though okra is cultivated through out the country but yet concentrated pockets are there in several districts as listed in table.

Concentrated pockets of Okra in India

States	Districts (Markets)
Andhra Pradesh	Kurnool
Bihar	Vaishali, Nalanda, Muzzafarpur, Begu Sarai
Gujarat	Surat, Vadodara, Junagarh
Karnataka	Bagalkot, Mandya, Belgaum, Haveri, Bangalore, Bijapur
Maharashtra	Nasik, Pune, Thane
Orissa	Keonjhar, Sundergarh, Mayurbhanj, Bolangir, Ganjem, Kalahandi
West Bengal	Nadia, 24 Parganas(S), 24 Parganas(N), Bankurs, Murshidabad, Midnapur(E)

(b). Catchment Areas of Market

Andhra Pradesh	Kurnool	Emmiganuru, Kappagalu, Alur, Adoni, Atmakpur, Pattikonda, Dhone, Koilkuntla, Banganpalli, Allagadda
Bihar	Muzaffarpur	Sahebganj, Baruraj, Hursepur, Minapur, Kanti, Paru-I, Paru-II, Kurhani, Sacra, Dholi, Bochacha, Gaihati, Katra, Aurai.
	Vaishali	Kalyanpur, Lalganj, Goraul, Mahuwa, Desri, Bidepur, Raghobpur, Mahnai, Patepur.
	Begusarai	Cheria, Beriarpur, Bakhri, Bhagwanpur, Bachwara, Barauni, Matihani, Surjagarh
Gujarat	Surat	Mangrol, Umarwada, Mandvi, Vyara, Valod, Mahuva, Palsana, Kamrej, Olpad, Nizer, Vadoli, Unal.
Karnataka	Bagalkot	Jamkhandi, Mudhol, Hungund, Badami.
	Bijapur	Indi, Sindgi, Basavna Bagevadi, Muddebihal, Tikota.
	Belgaum	Athni, Arkali, Chikodi, Mukeri, Bailhongal, Ramdurg, Khauapur.
	Bangalore	Amekal, Sonnenahalti, Kannur, Bagalur, Nagarur, Marangondahall, Haralur, Mantapa, Solurur, Chandapur.
Maharashtra	Nasik	Kalvan, Peint, Iगतपुरi, Sinnar, Niphad, Yeola, Nandgaon, Satara, Furgana, Dindori, Melgaon.
	Pune	Junnar, Ambegaon, Ghod, Rajgurunagar, Wadgaonsirur, Mulshi, Welhe, Purandhar, Bhor, Baramati, Indapur, Daund, Saswad.
Orissa	Sundergarh	Hemagiri, Banel, Panposh, Raj Gangpur.
	Mayurbhanj	Baripada, Rairangpur, Karanja, Udala, Betnoti.
	Kalahandi	Dharamgarh, Bhawanipatna, Lanjigarh, Jayapatna.
West Bengal	Murshidabad	Suti, Jangipur, Raghunathganj, Lalgola, Bbhagwangola, Sagardighi, Jiaganj, Lalbagh, Domkal, Bahranpur, Hariharapura, Belaanga, Nawada, Bharatpura, Barwan, Khargram.
	Nadia	Karimpur, Tehata, Kaliganj, Nakasipara, Chapra, Krishnanagar, Shantipur, Ranaghat, Chakdaha, Kalyani.

8. Criteria and description of grades

Codex standards for okra are not yet published, but okra to be exported should be 3-5 inches in length, green and tender.

9. Packaging and its details

For export purposes, okra is packed in consumer packs of LDPE or PP (polypropylene). Twenty consumer packs of 250 gm are placed in 2X2X5 pattern in a 5 Kg CFB box. The specification details of the box are given below in table.

Specification details for Corrugated Fiber Board (CFB) Boxes for packing {5 Kg Box (Dimension : 450X265X110 mm)}

S.N.	Specification	Slide Type	Ring *Flap Tuck-in-Type	RSC(regular slotted container)	Tray with LID
1	Material for construction	5-ply CFB	5-ply CFB	5-ply CFB	5-ply CFB
2	Grammage (g/m sq.)(outer to inner)	*230X140 X140X140	*230X140 X140X140	*230X140 X 140X140	*230X140 X140X140
3	Bursting strength kg/cm sq.	Min. 10.00	Min. 10.00	Min. 10.00	Min. 10.00
4	Puncture resistance inches/teat inch	Min..250	Min..250	Min..250	Min..250
5	Compression strength Kg.	Min.350	Min.350	Min.350	Min.350
6	Cobb (30 minutes g/m sq.)	Max.130	Max.130	Max.130	Max.130

*Outer ply of white duplex board

Source: Post –Harvest Manuals on Exports of Fruits, APEDA, New Delhi

10. Distribution of produce from primary to Terminal Market

- Okra is commonly grown in almost all parts of the plains and is consumed by common people in all the states as vegetable.
- The okra produced in West Bengal, Bihar, Orissa and Northern states is consumed in this region itself due to high demand.
- Similar is the case with the okra produced in Andhra Pradesh, Karnataka, Maharashtra and Orissa.

11. Export and Export Potential

A. Domestic strengths for exporting okra

Domestic strengths for exporting okra are detailed in following steps:-

- India is largest producer of okra in the world.
- In India, a number of superior cultivars and even hybrids are available for cultivation, with a productivity ranging between 15-20 tons/ha.
- Okra is available in India throughout the year and production can be tailored according to demand.
- There is excellent research support for okra, because IHR, Bangalore, IARI, New Delhi, IIVR, Varanasi and SAUs are located in different regions of the country to provide solutions to various problems in its cultivation.
- APEDA has sanctioned Agri Export Zones in Punjab, U.P, Gujarat, A.P, Bihar, West Bengal for enhancing export of vegetables including okra.

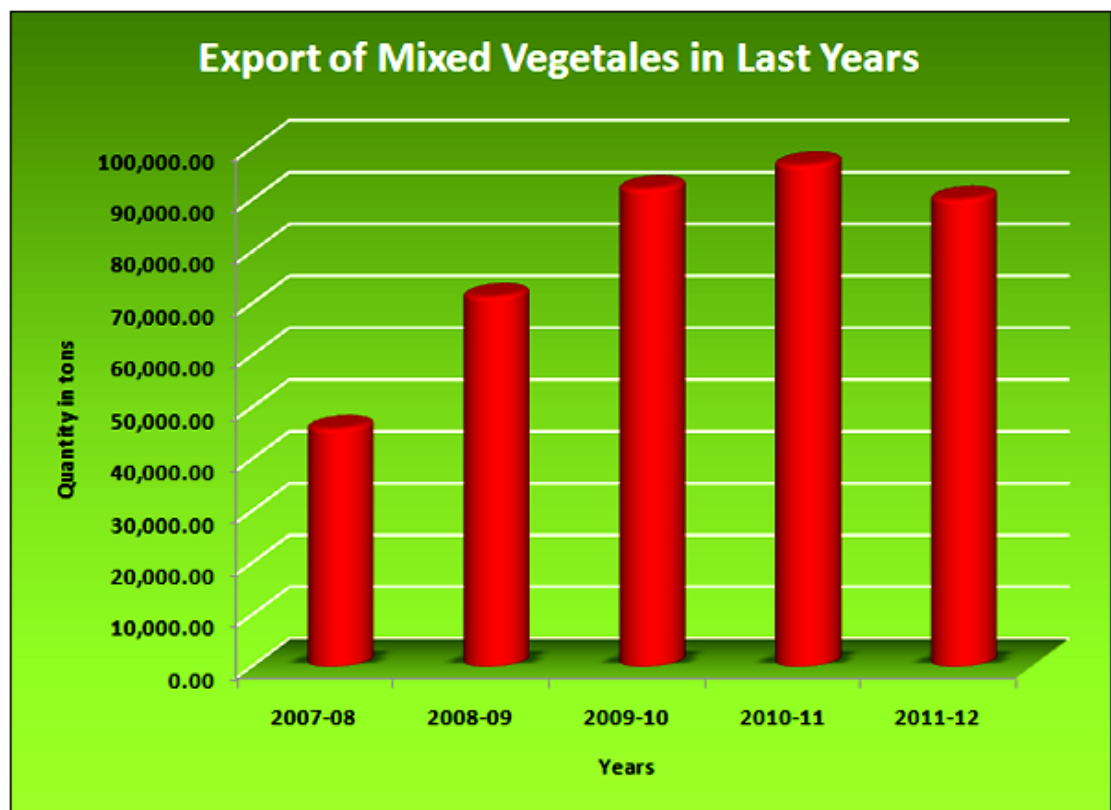
B. Exports

There is no separate data for export of Okra, as its exports are included in mixed vegetables. The export of mixed vegetables was from Rs. 11633.84 Lakh in 2007-08 to Rs. 31538.56 Lakhs in 2011-12.

Export of Mixed Vegetables in Last Five Years

Years	Quantity in tons	Value in Rs. Lakhs
2007-08	45,828.94	11,633.84
2008-09	71,283.45	20,863.60
2009-10	92,058.88	28,464.53
2010-11	96,670.56	30,010.48
2011-12	90,020.48	31,538.56

Source: APEDA Database - 2011-12



C. Measures for Enhancing Competitiveness

Following measures need to be adopted for enhancing competitiveness. Major competition in okra export is from Nigeria, Ghana, Pakistan and Egypt. These countries are also located nearer to Europe than India.

- India must increase the productivity and enhance the quality, so that India can make quality product available at a competitive price.
- Freshness and eye appeal must be enhanced in the product in order to be competitive.
- Packing should also be effective and attractive.
- Farmers need to be trained on quality requirements of importing countries.
- India must brand its product.
- Markets need to be nurtured on a regular basis.

12. Storage

Temperature:	7.5 - 10 °C
Relative Humidity:.	90 - 95 %
Storage Period:.	1-2 weeks

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 handing
- 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 TOMATO EXPORTERS/PACKERS

- Harvesting (in the morning)
- Handling and transportation
- Unloading
- Grading and sorting

- Packing
- Precooling
- Cold storage
- Palletizing
- Refrigerated truck
- Shipment

15. Cost Calculation from harvest to packhouse to port Cost involved in exporting Okra from India (as per information collected during 2008)

(a) Procurement price*:

Approx. price (Rs. /kg)	4-10
-------------------------	------

*Price varies according to variety and month of procurement

(b) Charges for Pre cooling, Cold storage, Packing, Transport, etc. (below in table):

Particulars	Rs./kg
Precooling and cold storage	4
Handling and Packing cost	5
Transportation charge to Mumbai Airport	8
Total cost	17

Source: Estimate of ITS Ltd.

C. Air freight charges*:

Freight rates for reefer container are as follows:

A. Air Freight Charges – London

Weight : All Weight Group			
DEL/ LON	+300	+500	+1000 Kgs
A/F	INR 70.00	INR 66.00	INR 60.00
Surcharge	INR 11.50	INR 11.50	INR 11.50

B. Air Freight Charges – Amsterdam

Weight : All Weight Group			
DEL/ AMS	+300	+500	+1000 Kgs
A/F	INR 75.00	INR 70.00	INR 66.00
Surcharge	INR 11.50	INR 11.50	INR 11.50

C. Air Freight Charges – Dubai

Weight : All Weight Group						
DEL/Dubai	+45	+100	+250	+300	+500	+1000
A/F (SCR General)	INR 74/Kg	INR 62/Kg	INR 50/Kg	INR 50/Kg	INR 42/Kg	INR 42/Kg
A/F (SCR 0006)			INR 40/Kg	INR 40/Kg	INR 40/Kg	INR 40/Kg
AWB	Rs. 750 per AWB					

D. Air Freight Charges – Doha

Weight : All Weight Group						
DEL/Doha	+45	+100	+250	+300	+500	+1000
A/F (SCR General)	INR 75/Kg	INR 65/Kg	INR 55/Kg	INR 55/Kg	INR 45/Kg	INR 45/Kg
A/F (SCR 0006)			INR 35/Kg	INR 35/Kg	INR 35/Kg	INR 35/Kg
AWB	Rs. 750 per AWB					

E. Air Freight Charges – Muscat

Weight : All Weight Group						
DEL/Muscat	+45	+100	+250	+300	+500	+1000
A/F (SCR General)	INR 75/Kg	INR 60/Kg	INR 50/Kg	INR 50/Kg	INR 45/Kg	INR 45/Kg
A/F (SCR 0006)			INR 35/Kg	INR 35/Kg	INR 35/Kg	INR 35/Kg
AWB	Rs. 750 per AWB					

F. Air Freight Charges – Singapore

Weight : All Weight Group						
DEL/Singapore	+45	+100	+250	+300	+500	+1000
A/F (SCR General)	INR 88/Kg	INR 63/Kg	INR 63/Kg	INR 44/Kg	INR 39/Kg	INR 39/Kg
AWB	Rs. 750 per AWB					

G. Air Freight Charges – Kuala Lumpur

Weight : All Weight Group						
DEL/ Kuala Lumpur	+45	+100	+250	+300	+500	+1000
A/F (SCR General)	INR 70/Kg	INR 63/Kg	INR 63/Kg	INR 55/Kg	INR 53/Kg	INR 53/Kg
A/F (SCR 0006)			INR 45/Kg	INR 45/Kg	INR 38/Kg	INR 38/Kg
AWB	Rs. 750 per AWB					

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