

CHAPTER – 12

GREEN CHILLY

1. Introduction

The botanical name for Indian chillies is *Capsicum annuum*. Maximum chillies are produced in Andhra Pradesh followed by Karnataka, Orissa, West Bengal, Maharashtra etc. Guntur in Andhra Pradesh is known for chillies.

World scenario

Asia produces 65.8% of world green chillies and pepper and stands at the top; Europe stands 2nd contributing 12.1% and Africa 3rd with 9.5% of world production. Details are given below in table 12.1. Chillies produced in Asia are mainly of hot types, where as African countries produce both hot and mild types (paprika) and European production is predominantly of mild type. China tops the world in area and production of green chillies and peppers and Spain is at the top in terms of productivity (46.90 tons/ha). After China, Turkey, Mexico, Spain, USA, Indonesia, Nigeria etc are the major producers of green chilly and pepper.

Data given below in tables 12.1 and 12.2 pertain to green chilly and pepper. Green chillies are grown in India in small acreage for fresh consumption and exports.

Table 12.1: Area, production and productivity of major green chillies and pepper producing countries (including India) for the year 2006-07

COUNTRY	AREA ('000ha)	PRODUCTION ('000tons)	PRODUCTIVITY (tons/ha)
China	632.8	13,031.0	20.59
Turkey	88.0	1,842.1	20.93
Mexico	91.7	1,681.1	18.32
Spain	22.9	1,074.1	46.90
USA	36.3	893.61	24.61
Indonesia	173.8	871.0	5.01
Nigeria	92.0	721.5	7.84
Egypt	29.0	460.0	15.86
Korea	67.0	395.2	5.89
Italy	13.3	345.1	25.88
India	5.7	59.1	10.27
Others	486.5	4,548.7	9.34
World	1,739.1	25,923.0	14.90

Source: <http://faostat.fao.org/site/567/DesktopDefault.aspx?PageID=567>

Indian scenario

Analyzing the data given below in table 12.2, we find that the area and production of green chillies and peppers in India is almost constant for the past three years. There is only a slight increase in production from 52.16 thousand tons in 2004-05 to 59.19 thousand tons in 2006-07. In the same period productivity has increased from 9.21 tons/ha to 10.27 tons/ha. The details are given in table 2.

Table 12.2: Area, production and productivity of green chilly and pepper in India *

YEAR	AREA ('000 ha)	PRODUCTION ('000 tons)	PRODUCTIVITY (tons/ha)
2004-05	5.66	52.16	9.21
2005-06	5.76	53.19	9.23
2006-07	5.76	59.19	10.27

Source: <http://faostat.fao.org/site/567/DesktopDefault.aspx?PageID=567>

* Separate data for green chilly is not available.

2. Major red chilly producing states

State wise data on area, production and productivity for green chillies is not available, however, total area and production of red chillies is given in table 12.3. To give an idea, in which states the green chillies are cultivated, state wise data on red and dry chillies are given in table 12.3. Chillies are grown all over India. However, Andhra Pradesh ranks first in area and production. The state accounts for 55% of the total production estimated at 978.618 thousand tons. Karnataka comes next to Andhra Pradesh closely followed by Orissa, West Bengal and Maharashtra.

Table 12.3: Area, production and productivity of leading chilly growing states in India for last three years*

STATE (1)	AREA (000'ha)			PRODUCTION (000'tons)			PRODUCTIVITY (tons/ha)		
	2003-04 (2)	2004-05 (3)	2005-06 (4)	2003-04 (5)	2004-05 (6)	2005-06 (7)	2003-04 (8)	2004-05 (9)	2005-06 (10)
Andhra Pradesh	250.00	233.94	171.45	797.00	748.51	537.71	3.18	3.19	3.14
Karnataka	69.88	69.88	69.88	94.50	94.50	94.50	1.35	1.35	1.35
Orissa	75.04	71.57	75.12	63.18	59.38	63.29	0.84	0.82	0.84
West Bengal	60.47	52.18	51.95	66.25	61.44	60.72	1.09	1.17	1.17
Maharashtra	90.00	102.90	99.30	44.10	48.10	51.21	0.49	0.46	0.51
Madhya Pradesh	48.81	47.09	46.66	38.37	42.92	42.48	0.78	0.91	0.91
Gujarat	27.11	24.67	31.65	24.57	26.52	37.84	0.90	1.07	1.2

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tamil Nadu	75.21	66.99	49.03	40.07	44.63	31.83	0.53	0.66	0.65
Rajasthan	25.28	26.41	17.72	29.68	31.13	17.53	1.17	1.17	0.99
Uttar Pradesh	16.71	18.02	17.34	12.85	16.91	16.11	0.77	0.93	0.93
Punjab	9.15	9.6	9.88	14.62	15.410	15.88	1.59	1.60	1.60
Others	30.42	32.43	25.64	36.84	38.14	29.84	1.21	1.17	1.16
Total	792.896	769.986	680.33	1,271.72	1,236.76	978.61	1.60	1.60	1.43

Source: Spices Board of India

* This data is mostly for red and dry chillies as separate data for green chilly is not available.

3. Commercially grown varieties

Many improved varieties of green chilly have been developed by private seed companies and some of the hybrid and exportable varieties are given below.

Variety	Seed company
Agni Rekha	Syngenta
Volcano	Syngenta
Tapan	Beejo Sheetal
Savitri	Beejo Sheetal
Bela	Beejo Sheetal
NS991	Namdhari Seeds
Balwant	Namdhari Seeds
Green Wonder	Nunhems
CCS-I	Century Seeds

Different varieties exported are G-4, Kiran and Jwala. Description of these varieties is given below :

G-4 (Bhagya Lakshmi): Pods are olive green in colour turning dark red on ripening; calyx is deeply shaped, seed content is 38-40%, fairly tolerant to pest and diseases and useful for green chilly also.

Kiran (X-200): Fruits are long, thin with light green pericarp turning light red colour on ripening, colour is retentive on storage. High pungency and fairly tolerant to thrips, mites and aphids. Calyx persistent and cup shaped. Seed content 42%

Jwala: Pods are long and slender (10-12 cm in length), seed content is less than 35%, suitable for green chilly production around Hyderabad.

4. Good Agricultural Practices (GAP)

- Adoption of improved varieties.
- Integrated nutrient and water management.
- Integrated pest and disease management.

5. Harvesting season

The crop is harvested throughout the year.

6. Arrival pattern

Green chillies are available in the market throughout the year.

7. (a) Concentrated pockets

The details of the concentrated pockets of red and dry chilly in different states are given below in table 12.4. Green chilly is also cultivated additionally in these concentrated pockets.

Table 12.4: Showing concentrated pockets of chilly in India

States	Concentrated pockets
Assam	Nalbari, Darrang, Dhubri, Nagaon, Sonitpur
Meghalaya	West Garo Hills, South Garo Hills, North Garo Hills
Andhra Pradesh	Cuddapah, Adilabad, Medak, Nizamabad, Guntur
Gujarat	Banskantha, Jamnagar, Junagarh, Rajkot
Manipur	Imphal, Churhandpur, Thoubal
Nagaland	Kohima, Dimapur, Phek, Wokha, Mokokchang, Mon Zuenhoboto
Karnataka	Belgaum, Dharwad, Gadag, Bijapur, Davangere, Raichur, Bangalore, Haveri
Tamil Nadu	Coimbatore, Salem, Dindigul, Thruvallar, Thiruchapalli, Ramanthpuram, Sivanagar, Karur, Namakkal, Dharampuri, Virudhnagar
Maharashtra	Nasik, Pune

7. (b) Catchment areas feeding the market

Table 12.5: Showing the details of catchment areas of markets of red and dry chilly in leading states. Green chilly is also cultivated in these catchment areas.

States	Districts (market)	Blocks
Assam	Nagaon	Koliabor, Dhing, Samaguri, Raha, Jamunamukh, Murajhar, Lanka, Lumding.
Meghalaya	West Garo Hills	Phulbani, Rongamachokgiri, Rabbigiri, Kherapara, Rongohugui, Selsella, Tura, Batasing, Dalu.

Andhra Pradesh	Guntur	Tangeda, Dacheppalle, Piduguralla, Sattenapalle, Vinkoda, Ponnuru, Bapatia, Narasaraopet, Purti, Prattipadu, Pallapatla.
Gujarat	Jamnagar	Jodia, Kalavad, Jamjodhpur, Bhavad, Kalyanpur, Dwarka, Khambalia, Dhrol.
	Banskantha	Tharad, Dhabhar, Devgani, Vodgam, Danta, Vav
Manipur	Thoubal	Yairipok, Wangjing, Wabagai, Kakchig.
	Charchandpur	Hanglep, Songsan, Tinaong, Senvon, Hanship, Molnom, Thinghat, Mulanil, Hangtam.
Maharashtra	Nasik	Kalvan, Peint, Igatpuri, Sinnar, Niphad, Yeola, Nandgaon, Satara, Furgana, Dindori, Melgaon,
	Pune	Junnar, Ambegaon, Ghod, Rajgurunagar, Wadgaonsirur, Mulshi, Welhe, Purandhar, Bhor, Baramati, Indapur, Daund, Saswad
Karnataka	Bijapur	Indi, Sindgi, Basavna Bagevadi, Muddebihal, Tikota.
	Belgaum	Athni, Arkali, Chikodi, Mukeri, Bailhongal, Ramdurg, Khauapur.
	Bangalore	Amekal, Sonnenahalti, Kannur, Bagalur, Nagarur, Marangondahalli, Haralur, Mantapa, Solurur, Chandapur.
Tamil Nadu	Thiruchirapalli	Turaiyur, Thottiyam, Musiri, Manachanallur, Lalgudi,
	Coimbatore	Muttuppalaiyam, Avinashi, Tiruppur, Palladam, Udumallaipettai, Pollachi, Valparai.
	Salem	Mettur, Yercaud, Idappadi, Omalpur, Attur, Gangavalli, Sankagiri

8. Criteria and description of grades

Green chilly should be 3-4 inches in length and green.

9. Packaging and its details

(a) For export

Green chilly is packed in consumer packs of LDPE or PP (polypropylene). Twenty consumer packs of 250 gm capacity are placed in 2X2X5 pattern in a 5Kg CFB box for export purpose. The specification details of the boxes are given below in table 12.6.

Table 12.6: Specification details for Corrugated Fiber Board (CFB) Boxes for packing {5 Kg Box (Dimension: 450X265X110 mm)}

S.No.	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 X140X140	*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.

(b) For domestic market

For domestic market chilly is packed in gunny bags.

10. Price graph of green chilly

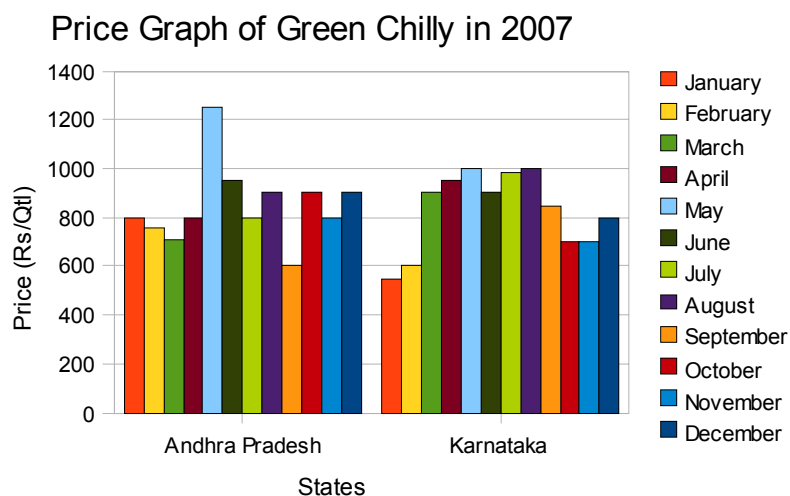


Fig. - 29

*The above graph showing the price (in Rs./Qtl.) of green chilly in major chilly producing states

11. Export and export potential

A. Domestic strengths for exporting green chilly

Domestic strengths for exporting green chillies are given below:

- India grows a variety of green chillies having mild pungency to high pungency.
- Green chillies in India are available throughout the year.
- Superior varieties of green chillies have been bred and have been made available to growers.
- There is strong research support for cultivation of green chillies, as Indian Institute of Vegetable Research, Varanasi and State Agricultural Universities apart from IIHR, Bangalore and IARI, New Delhi are actively working on various aspects of chillies.
- APEDA has sanctioned Agri Export Zones in Punjab, U.P., Gujarat, Andhra Pradesh, Bihar and West Bengal for promoting exports of vegetables including green chilly

B. Exports

There is phenomenal increase in exports of green chillies as from 1385 tons in 2002-03 it has increased to 18187 tons in 2006-07 (Table 12.7 & Fig 29).

Table 12.7: Export of green chillies in last five years

Year	Quantity(tons)	Value(in Rs. Lakhs)
2002-2003	1385	284.4
2003-2004	3838	898.9
2004-2005	7952	909.2
2005-2006	8764	1482.5
2006-2007	18187	2216.3

Source: APEDA Database, 2006-07

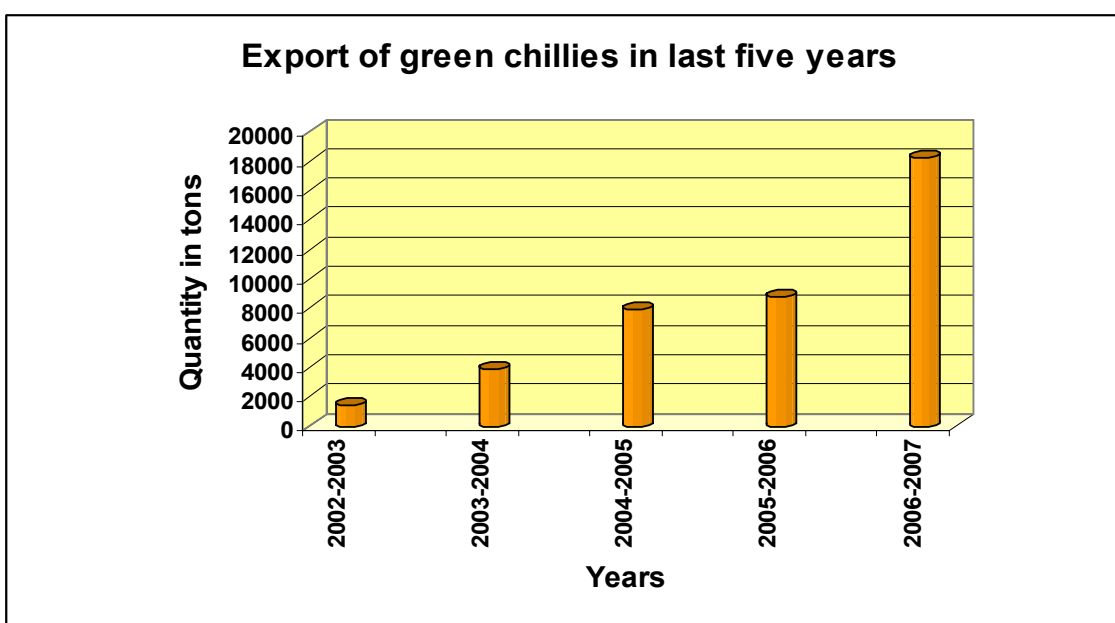


Fig. - 30

C. Export potential

Export potential is discussed in following paras region wise:

(i) GCC countries

Out of total exports of green chillies during 2006-07 from India, maximum amount of green chillies were exported to Gulf countries (16,674 tons). Largest importer among GCC countries of Indian green chillies was UAE (15,716 tons) followed by Bahrain (549 tons) and Kuwait (294 tons). This is comparatively little compared to imports by GCC countries as India is exporting at competitive prices. Total imports by GCC countries during 2006 were 56,280 tons and there is 158% increase in demand over the year 2003. Maximum imports were from UAE (30,457 tons) and Saudi Arabia (10,343 tons). Though our exports to UAE are substantial but our exports to Saudi Arabia were only 51 tons during 2006-07. Therefore, there is a need to

penetrate Saudi Arabian, Oman, Qatar and Kuwait markets by appropriate campaigns etc. There is a strong potential for increasing exports up to 30,000 to 35,000 tons in next 4-5 years.

(ii) ASEAN countries

ASEAN countries imported green chillies to the tune of 46,705 tons in 2006 compared to imports of 42,844 tons during 2003 with increase in demand of 9%. Major importers in ASEAN countries in 2006 were Malaysia (32,427 tons) and Singapore (13,255 tons). India's export of green chillies was very meager, as only 19 tons were exported to Singapore during 2006-07. However, during 2005-06, India exported 196 tons of green chillies to Malaysia. This clearly shows that there is a good potential for exporting to Malaysia and Singapore among ASEAN countries, which need to be nurtured for accelerating exports of green chillies. Because of our quality chillies, it should not be difficult to export 2000 to 2500 tons in next 4-5 years. But India will have to provide at competitive prices by cutting cost of production.

(iii) European Union

European Union has imported green chillies including peppers to the extent of 1,032,194 tons during 2006. India's export of green chillies to EU comprised 70 tons to UK, 14 tons to Italy and 11 tons to France. Total exports amounted to 95 tons during 2006-07, whereas exports were slightly higher during 2005-06. India exported 140 tons to UK, 36 tons to France and 18 tons to Germany. The export of two years suggests that there is some potential in exports of green chillies to EU. Therefore, exports of green chillies need to be pursued vigorously and should not be difficult to enhance exports of green chillies to EU to an extent of 800 to 1000 tons in next 4-5 years, provided India supplies at competitive prices as Spain and Jordan are main competitors who supply relatively at lower prices.

(iv) Australia

There is a good potential for exporting green chillies. Australian market is monopolized by New Zealand. However, Indian chillies are totally different from New Zealand and therefore, export must be explored.

D. Measures for enhancing competitiveness for exporting green chilly

Following steps need to be taken to enhance competitiveness:

- In order to stand the competition, it is most important to make available quality product.
- For enhancing quality, better post harvest handling facilities need to be adopted, so that quality product with freshness and greater appeal is exported.
- Farmers need to be trained on quality parameters for green chilly.
- India must adopt branding for its product.
- Markets need to be nurtured by holding vegetable shows in importing countries.

13. Documents required for exports

a) Documents related to goods

- a) Invoice b) Packing List c) Certificate of origin

b) Documents related to shipment

- a) Mate Receipt b) Shipping Bill c) Bill of lading d) Airway Bill

c) Documents related to Payment

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

d) Documents related to quality of goods: -

- a) Phytosanitary Certificate
- b) GLOBALGAP Certification
- c) Health Certificate

e) Organic Certification

- Certificate indicating material produce is based on organic farming.

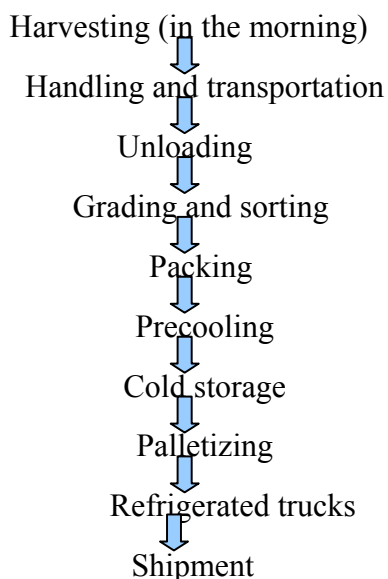
f) Documents related to Foreign Exchange Regulations

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 (from pack house upto shipment)



15. Price prevailing in international markets

Table 12.8: showing the prices of green chilly in EU and Dubai markets

Country	Annual Average price Range (2003-08)	
	Currency	
EU countries	USD/kg	1.32 to 2.62
	INR/kg	59.71 to 118.09

Dubai	USD/kg	1.86
	INR/kg	84.0

Source: Comtrade Database and Personal communication, Dubai

16. Cost Calculation from harvest to packhouse to port

Cost involved in exporting green chillies from India (as per information collected during 2008)

(a) Procurement price*:

Approx. price (Rs. /kg) : 8-12

*Price varies according to variety and month of procurement

(b) Charges for pre cooling, cold storage, packing, transport, etc.(below in table):

Table 12.9: Charges for pre cooling, cold storage, packing, transport, etc.

Particulars	Rs./kg
Precooling and cold storage	4.0
Handling and Packing cost	5.0
Transportation charge to Mumbai Airport	8.0
Total cost	17.0

Source: Estimate of ITS Ltd.

(c) Air freight charges*:

Freight rates for **reefer container** are as follows:

A. Air Freight Charges – London

INR/KG	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

INR/KG	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
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C. Air Freight Charges – Dubai

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

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

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

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

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.