

# KARVY Commodities Research

## - Seasonal Outlook on Chilli



**Chilli is getting hotter this summer.....**

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## Introduction

Chilli is the most widely used and universal spice of India. Chillies belong to the genus *capsicum*, under the *solanaceae* family. It is also called as the nature's wonder. India is the only country in world to have different varieties with rich quality factors. During the 16<sup>th</sup> century Portuguese have introduced the chilli to India and conceived to have been originated from South America. There are two important commercial qualities; some varieties are famous for red colour because of the pigment capsanthin and others are known for biting pungency attributed by capsaicin. Its fruit appears in different sizes, shapes and colour. India has immense potential to grow and export different types of Chillies required by various markets around the world. The main quality parameters in Chilli are colour, length, width, skin thickness and pungency. Besides these properties Chilli is a rich source of Vitamin A, C, E and P and has certain medicinal properties. Chilli is an important cash crop in India and about one million farmers are engaged in the production of Chilli in Andhra Pradesh, Karnataka, Tamil Nadu and other states. This is one among the major contributors to the country's export basket. For Chilli growth black soils are best suited. For irrigated crops light and alluvial soils are most suited. Chilli requires warm and humid climatic conditions for its ideal growth and requires dry weather during maturation stage.

## Varieties

There are about 70 varieties of Chillies grown in Andhra Pradesh itself and major varieties are *Guntur Sannam*, *Pala*, *Teja*, *Roshini* and *Guntur byadagi*. The sowing season begins in August and extends till October and arrivals starts from February to March.

Variety	Characteristic	Place
Sannam S4 LCA 334	Skin thick, hot and red	Guntur, Warangal, Khammam Districts of AP
Byadagi	Less Pungent	Karnataka
Jwala	Highly pungent, Light red in colour, short and the seeds are compact	Grown in Kheda, Mehsana & in South Gujarat
Tomato Chilli	Deep red and less pungent	Warangal, Khammam, East & West Godavari
Ellachipur sannam-s4 type	Reddish in colour and very hot	Amaravathi Districts of Maharashtra
Birds Eye Chilli (Dhani)0	Blood red colour, Highly pungent	Mizoram & some areas of Manipur
Madhya Pradesh g.t Sannam	Red in colour and Pungent	Indore, Malkapur, Chikli and Elachpur areas of MP

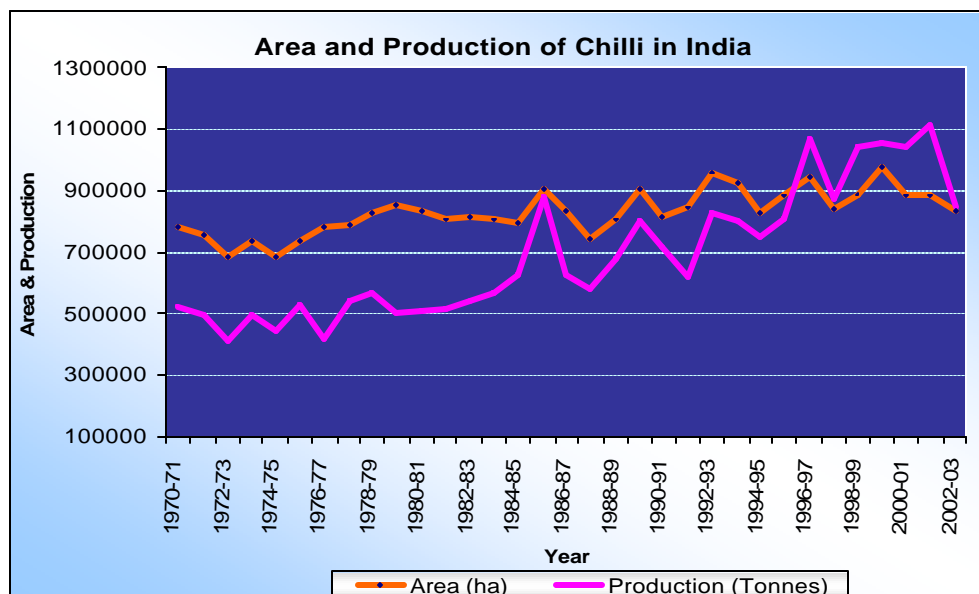
## Major Trading Centres

State	Trading Centres
Andhra Pradesh	Guntur, Warangal, Khammam, Hyderabad, Cuddaph, Vijayawada, Rajamundri and Nellore
Karnataka	Dharwad, Mysore, Hassan, Bangalore, Bellary, Ranibennur, hubli, raichur and Byadigi
Tamil Nadu	Pollachi, Ramanad, Madurai, trichi,Thani, Dindigul, Virunagar and Sattur
Maharashtra	Nasik,Ahmed Nagar, Sholapur, Aurangabad, Nanded, Amaravathi and Lasalgaon

## Supply and Demand Dynamics

### Indian scenario

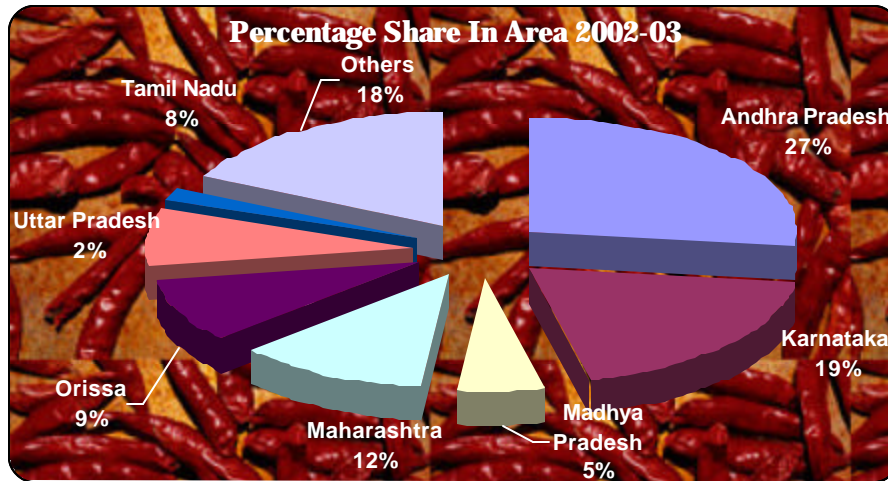
India is the largest producer and contributes 25% to total world production. It is also largest consumer and exporter of Chilli. Chilli is the most common spice cultivated in the country. Of the total production about 30% are of pungent having International trade and India is among the top. India has produced about 1175900 tonnes of Chilli with area of 811020 ha during 2003-04 declined from 1046220 tonnes in 1998-99. India had bumper crop from 1998 to 2001 with finer average yield of 1174.25 kg/ha. Better crop and higher yield levels led to fall in the prices and it influenced the farmers to shift their production to other cash crops like cotton, sugarcane etc. Area and production seems to continue to decline as depicted in the chart below.



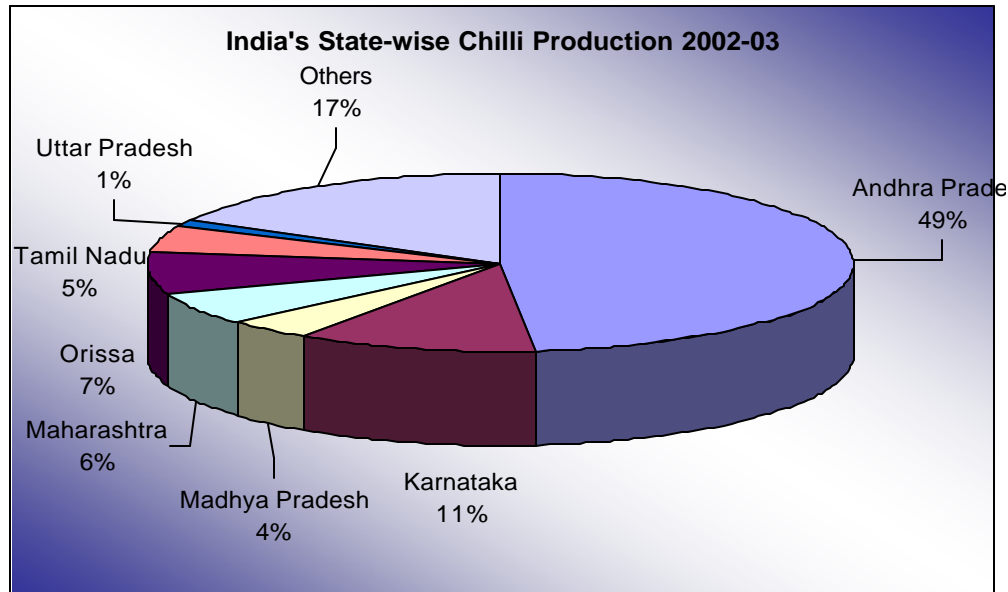
The production of Chilli for 2006 estimated to wane by 35 to 40 percent. This is mainly because of heavy rainfall. About 30 to 35 percent of the crop is estimated to damage due to floods in the major producing regions of Andhra Pradesh (September 2005). The Area under

Chilli for 2006 is estimated around 30000-32000 hectares when compared to 350000 ha in 2005. About 60% production is expected to be less compared to previous year.

In India, Chillies are grown in almost all the states throughout the length and breadth of the country. Andhra Pradesh is the largest producer of Chilli in India contributing about 27% to the total area under Chilli, followed by Karnataka (19%), Maharashtra (12%), Orissa (9%), Tamil Nadu (8%) and other states contributing 18% to the total area under Chilli (2002-03).



The production of Chilli in India is dominated by Andhra Pradesh which bestows 49% to the total production. Karnataka is the second largest producer contributing 11% to the total production followed by Orissa (7%), Maharashtra (6%), Madhya Pradesh (4%), Tamil Nadu, Uttar Pradesh and others during 2002-03.

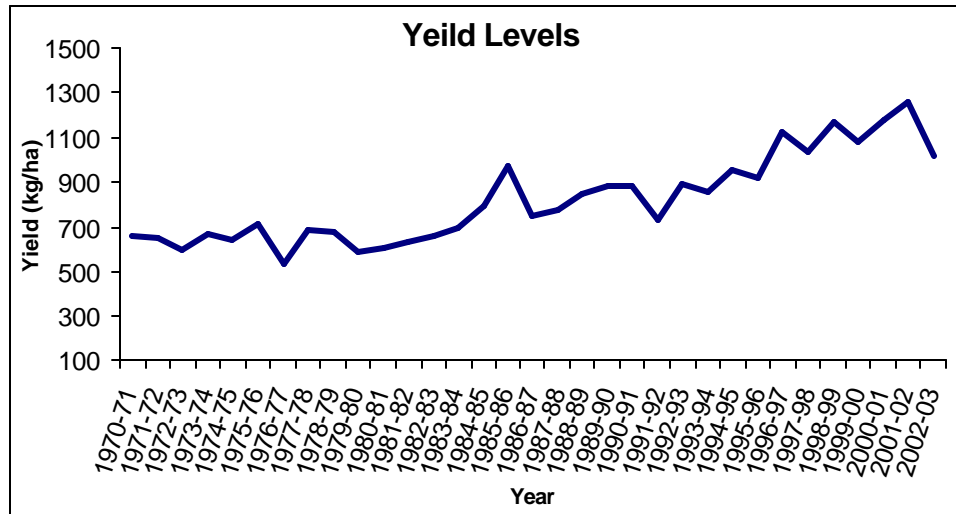


Andhra Pradesh is the major Chilli producing state in India, the major chilly growing districts in Andhra Pradesh are Guntur, Warangal, Khammam, Krishna and Prakasham. Guntur is the biggest Chilli market in Asia contributing 30% to the total production of AP with annual turnover of around 600 crore. Area and Production of Chilli in this area decides the prices. Production in 2006 is expected to be only 10 % in Karnataka, 30% in Madhya Pradesh and old stocks in Guntur estimated to be around 25 lakh bags, so declined production in major producing states due to uneven and heavy rainfall may create the supply shortage in the market.

### **Yield Factors**

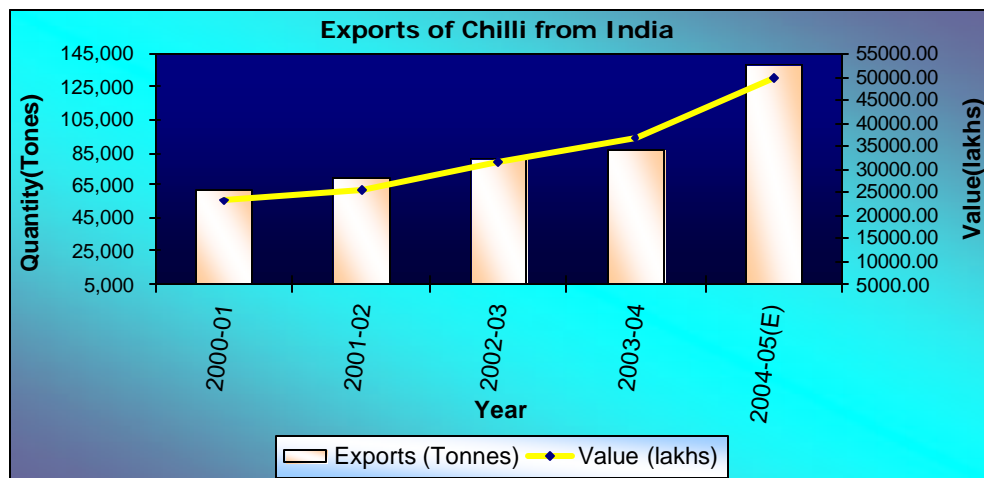
Total Production of any commodity depends on its productivity. Yield levels of Chilli are given in the corresponding graph.

India had better crop during 1998 to 2001 mainly due to higher yield levels. Use of hybrid seeds and proper crop management has resulted into higher production and lead to decline in the prices and ultimately farmers have not shown much interest on cultivation of Chilli last year. Yields decreased from 1129 kg/ha in 1996-97 to 1017 kg/ha in 2002-03. Although there was no significant change in the yields but small a change can affects the total production.



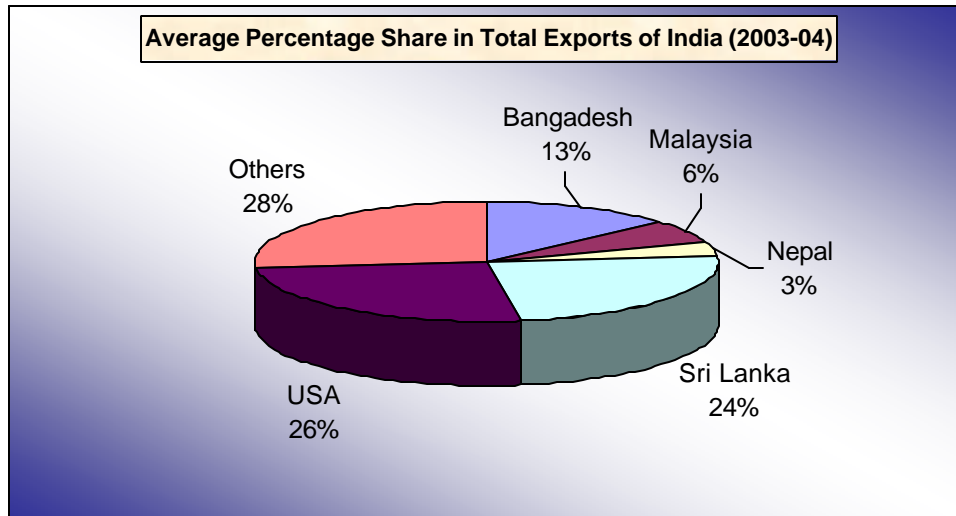
### Chilli Trade

India's Chilli exports are currently in bull stage and Chillies exports from India are mostly to Sri Lanka, USA, Nepal, Mexico and Bangladesh.



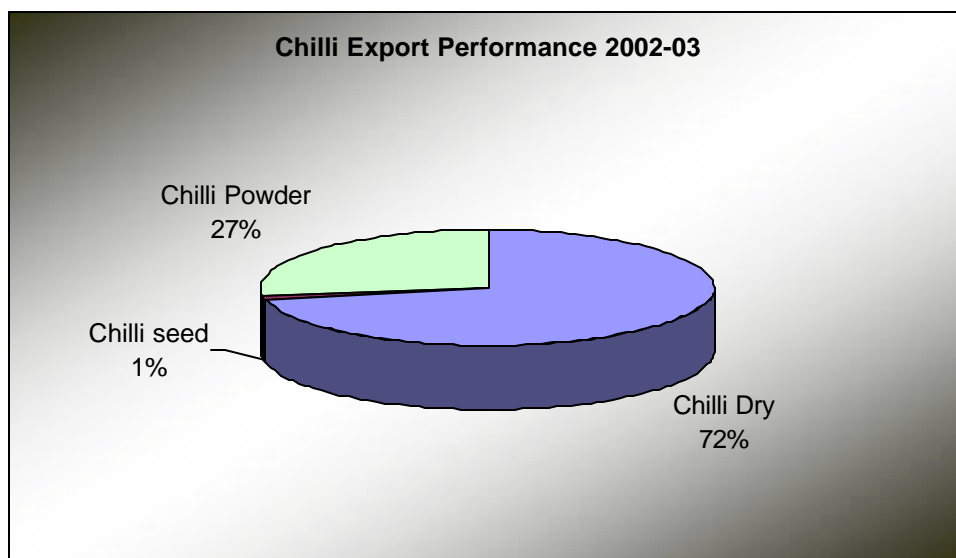
The total export of Chilli from India during 2000-01 was 62447.68 tones valued Rs. 22973.30 lakh which has increased up to 86575.34 tones valued Rs. 36687.34 lakh during 2003-04. Over the years exports were increasing at the faster rate. It is estimated that during 2004-05 about 138000 tones of Chillies with the value of 49900.00 lakh has been exported from India. United States of America is the major importer of Chillies from India which contributes 24% to the total exports from India. Srilanka stands second with 24% followed by Bangladesh (13%), Malaysia (6%) and others (28%).

Chilly is the major spice contributing 31% by volume and 17% by value of total spices exported from India. The exports of Indian Chillies have grown significantly in the recent years. Yet only 5% of total domestic production is meant for exports with domestic consumption of more than 90% of domestic production.



The upswing in the production of chilli crop last year and a consequent availability of large exportable surplus in the country when the crop in other major producing countries declined have resulted in a boom for chilli exports touching an all-time high of an estimated 1.3 lakh tonnes valued at over Rs 480 crore in 2004-05. India started exporting Chilli in 1960-61 with 8,364 tonnes valued at Rs176 crore, was in 2003-04 with 86575.34 tonnes valued at Rs 36687.81 lakhs. In 2002-03, it was 81,022 tonnes valued at Rs 315.14 lakhs. After 2001-02 India's export performance was excellent, higher international and domestic demand can further push the exports.

India exports Chilli in the different processed forms like Chilli powder, dried chillies, pickled chillies etc and it is mainly exported to USA, Sri Lanka, Bangladesh, the Middle East and the Far East. There is a lot of voltage in the Indian Chilli exports by dominating in the international markets and processed chilli can bring big boost to the prices which can avail to higher exports.



Among the total exports dry chilli contributes a majority of 72% to the total exports from India, followed by Chilli powder with 27 % and Chilli seed (1%).

### **World Scenario**

India is the major exporter in the world market and the total export of chillies from India is on an average only 4% of total production. Huge fluctuations in Indian exports are mainly due to increased domestic demand and uneven production interrupted by erratic monsoon or some time drought. India exports chillies to maximum countries in the world in which Srilanka is the major importer by contributing 24% to the total Indian exports. Proximity and old relationships were the important reasons for dominance of Indian chillies in Srilanka.

China has emerged as the major exporter in the world market and as a serious competitor in the International market for India. China is penetrating in to all the major markets like Indonesia and USA. Japan produces special varieties of Chillies called Bird's Eye, Santaka and Hontaka types of chillies. But increased domestic demand in Japan hindered the exports performance of Japan. Imported chillies in western countries consumed in the food processing industry for its colour and pungency. Where as the countries like United States of America, the United Kingdom, Germany and Sweden large quantities of Chilli used in the manufacture of oleoresins and extracts. Apart from India major producers and exporters of chillies are China, Pakistan, Morocco, Mexico and Turkey.

Although China had good production this season prices equaling the Indian Chilli prices, so, no imports are expected from the China for this season. India has encouraging demand from Srilanka and other countries mainly because of aroma of Indian Chillies.

#### **Comparative Advantage of Indian Chilli exports**

if Srilanka imports Chilli from China - cost per kg of import is nearly – Rs.15

If Srilanka imports Chilli form India - cost per kg of import is only – Rs. 7

Srilanka is the major consumer of chilli in the world and it purely depends on the imports only, so, it will prefer India as the major source for chillies because of proximity and lower costs.

### **Price Outlook**

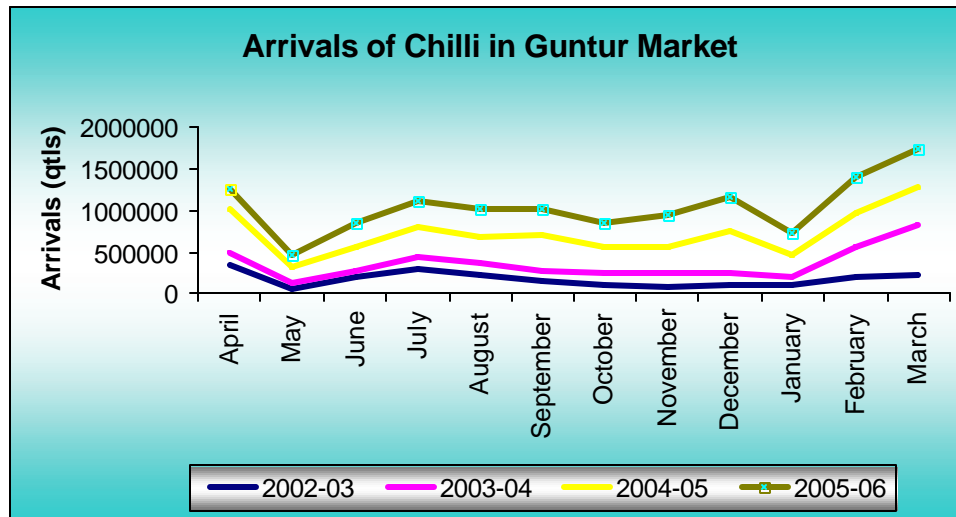
#### **Factors influencing the prices of Chilli**

- ❖ Arrivals in the market
- ❖ Historical price movement
- ❖ Climatic conditions
- ❖ Shifting towards alternate crops

The Price Variation in the Chilli also depends on the trade activities like Export, Import, Domestic demand and crop conditions in major growing countries.



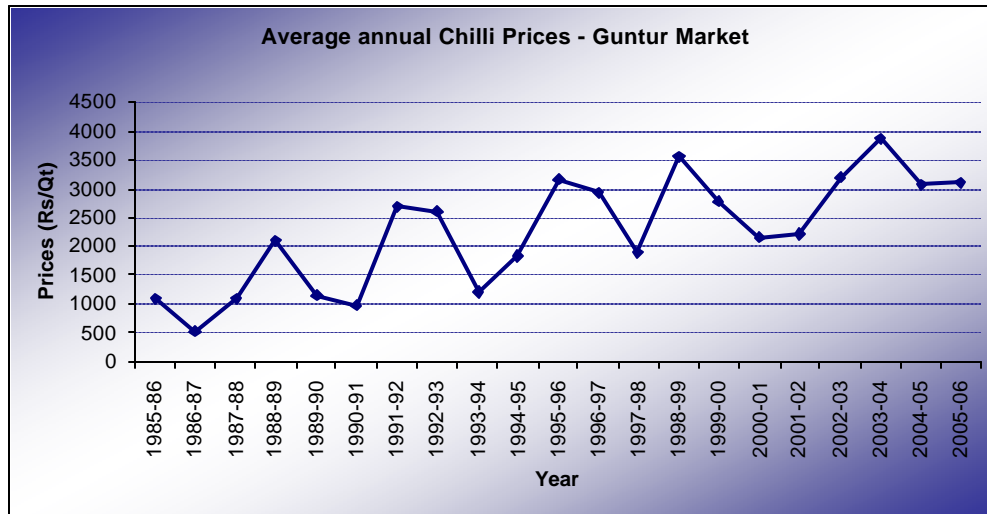
To analyze the domestic price outlook above factor plays important role, these factors compared with the historical prices which will give us the proper price out look on Chilli.



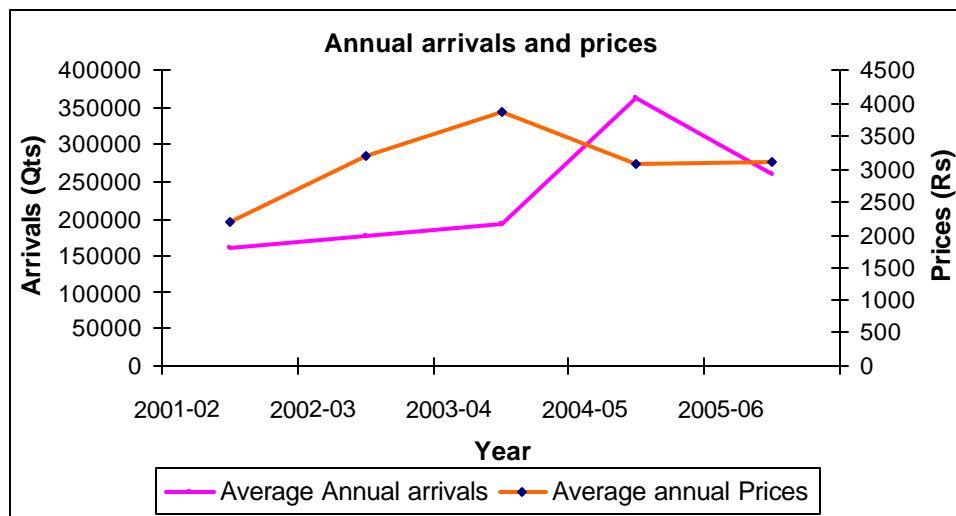
The arrival of chilli start in the last week of January in major markets and extends till May end. The arrivals from Karnataka and Madhya Pradesh come in the middle of February, since Chilli is cultivated under irrigation sources and also in dry conditions. Unlike peak or low arrivals during harvesting and off-seasons in other commodities, Chilli continues to arrive throughout year into the markets, because as soon as the commodity arrives in the market after harvest it will be purchased by the traders and they keep the stocks in cold storages and release into the market as prices move up. Dry Chilli can be stored for 2 years.

#### Arrivals in 2006 (estimates)

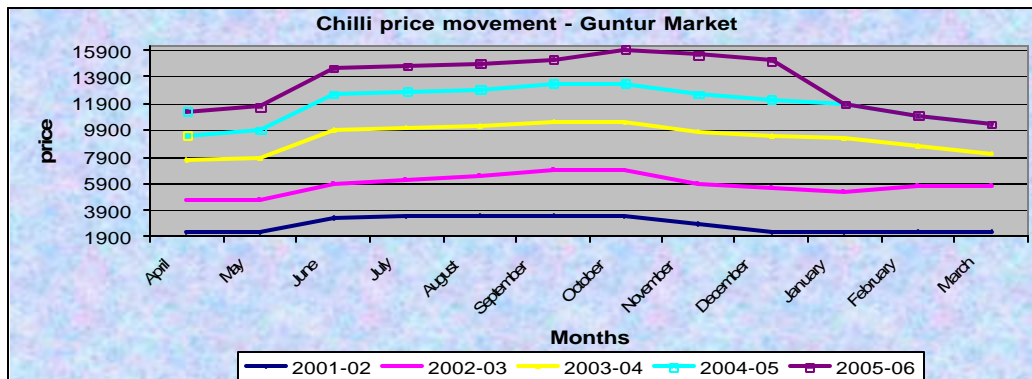
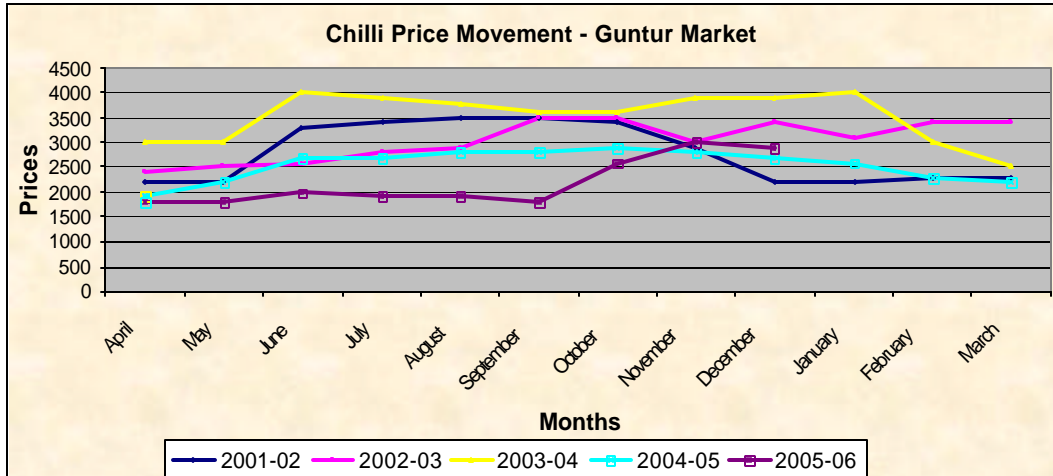
The arrivals in 2006 have been delayed by two months (usually arrivals starts from February) due to crop damage in major growing areas. Arrivals are lower (average 40000 bags per day) compared to 80000 to 1 lakh bags last season. Recent rains and crop damage to the extent of 30 to 40 percent can further lower the arrivals. Arrivals will dry up from farmer's side in next month and only cold storage Chilli available for trading from next month onwards.



Prices look strong in the coming season as depicted by the above price graph. The Average prices during 1985-86 were Rs.1088 per quintal and it has increased to Rs.3874 per quintal in 2003-04. The average model prices were quoting at Rs. 3101 per quintal in Guntur till December 2005. Over the years prices were increasing due to crop damage, heavy export orders and increased domestic demand.

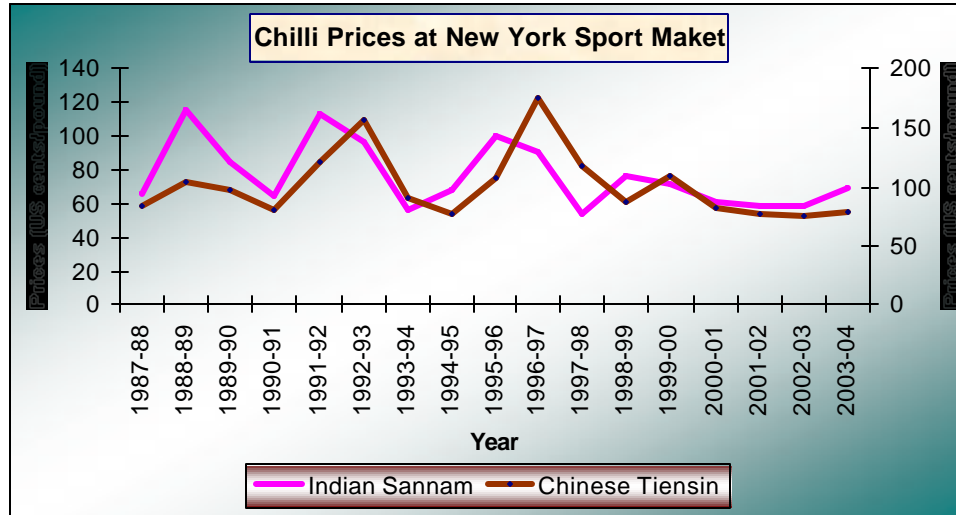


The annual arrivals and prices are presented in the above chart. Trend line shows both the arrivals and prices are moving in the opposite direction over a period of time. With lower arrivals expected in the coming season we can see the upward movement of prices and decreasing trend in arrivals. Better crop in last year influenced the farmers to shift their crop from Chilli to other cash crops like cotton, sugar cane and Paddy. About 10 to 20 percent of the Chilli crop expected to shift to other crop. The annual average arrivals fallen from 261449 qtls during 2005-06 (arrivals till December 2005) when compared to 361569.3 qtls in 2004-05. This is mainly because of shifting of Chilli to other crops and crop damage due to heavy rains. Arrivals expected to lower and from graph we can see the fall in the arrivals.



Compared to other months March, April, May months are having lower prices due to heavy arrivals to the markets in previous seasons. Prices are high in the month of June, July to September. As harvesting starts from January, arrivals starts from January and increases up to March –April and then decreases in May-June, due to closing of market yard (4 weeks in peak summer) during this time farmers will store their produce in the surrounding cold storages.

During May to August prices of Chilli were at peak levels because huge demand for dry Chilli from the pickling industry. Most of the pickle manufacturing companies rush to the market for procuring the chillies. Due to lower availability during these months only cold storage stocks have to meet the demand.



Indian chilli in the New York market gained significant importance over the years. China is the major competitor for Indian Chillies. Indian Chilli has got its own place in the international market because of its indigenous taste and aroma of chilli. Most of the importing countries prefer Indian chilli.

#### Estimates based on the survey (Guntur)

Particulars	Quantity (Lakh Bags)
Crop planted 2005-06	30000-32000 ha (last year 55000ha)
Total production expected	45- 48
Last year (old stocks) crop	20
<b>Total</b>	<b>65 – 68</b>
Expected exports	15 – 20
<b>Balance</b>	<b>50 – 55</b>
Domestic consumption (January to April 2006)	40
<b>Left for next 8 months (May to December 2006)</b>	<b>10 to 15</b>

#### FACTORS TO WATCHOUT

- ❖ Next crop sowing will be in August and fresh Dry Chilli will be available for market only after December
- ❖ Arrivals may come down further from next month onwards as arrivals from farmers side will dry up slowly. (Last picking week)
- ❖ Recent rain in Guntur region affected the quality of the Chilli and about 10% of the crop estimated to be damaged.
- ❖ Daily market arrivals are about 25000 to 30000 bags compared to 50000 to 1 lakh bags during the corresponding period last season
- ❖ High domestic demand and buying from spices Industry supported the price rally.
- ❖ Due to erratic monsoon about 40% of the crop is estimated to be damaged during September 2005.
- ❖ Lower stocks in Maharashtra, Madhya Pradesh, Gujrath and other regions and less availability in Guntur market can help to spurt in the prices.

Particulars	Views (survey)
Stocks at Cold storages (not enough to meet existing demand)	20-25 lakh bags
Lower Crop in China	Down by 30 to 40 percent no imports
Next crop – MP and MH	November

### Closing of spot market

Spot Market in Guntur will be closed for four weeks due to summer (Probably from May 15<sup>th</sup> to June 15<sup>th</sup>).

### Effect on Prices

- Includes additional Warehouse charges
- Loss of weight of the commodity
- Additional transportation Charges
- Bagging and unloading costs

### Price Target

The prices of chilli mainly depend on the exports and domestic demand. Delayed arrivals and lower stocks may lead to spurt in the prices in medium term

- **Range of Chilli expected to be Rs. 6000 - 7000 higher than previous range of Rs.4000 - 5000 in coming 2-3 months.**
- **Based on above analysis we recommend buying on dips for a target of 6000 - 6500 which is expected during June- August**

## Different Varieties of Chilli



### BIRDS EYE CHILLI(DHANI)

- Grown in Mizoram & some areas of Manipur
- Blood red in colour, highly pungent
- Harvesting season -October to December
- Available in Calcutta market ASTA colour value - 41.7
- Capsaicin - 0.589%.



### BYADAGI (KADDI)

Grown in Dharwar Karnataka. Red in colour with less pungency or without pungency. Harvesting season - January to May

- Annual Production - 21,000 tones
- Available in Hubli - Dharwad markets
- ASTA colour value - 156.9%
- Capsaicin - Negligible



#### ELLACHIPUR SANNAM - S4 TYPE

- Grown in amaravathi district of Maharashtra
- Reddish in colour and very hot
- Annual production - 1800 tones
- Harvesting season - September to December
- Available in Bombay, Delhi, Ahmedabad and Nagpur
- ASTA colour value - 70.40
- Capsaicin - 0.2%.



#### GUNTUR SANNAM - S4 TYPE

- Grown in Guntur, Warangal, Khammam districts of Andhra Pradesh Skin thick, hot and red.
- Harvesting season - December to May.
- Annual production - 2,80,000 tonnes
- Available in Guntur market
- ASTA colour value - 32.11
- Capsaicin - 0.226%.



#### HINDUPUR - S7

- Grown in Hindpur in Andhra Pradesh
- Red in colour, hot and highly pungent.
- Harvesting season - December to March



#### JWALA

- Grown in Kheda, Mehsana & in south Gujarath
- Highly pungent, light red in colour, short and the seeds are compact.
- Harvesting season - September to December
- Available in Unjha market
- Capsaicin - 0.4%



### KANTHARI - WHITE

- Grown in Kerala & some parts of Tamil Nadu Short and ivory white in colour with high pungency
- Mainly grown as a homestead crop
- Available in the markets throughout the year
- ASTA colour value - 2.96
- Capsaicin - 0.504%



### KASHMIR CHILLI

- Grown in temperate regions such as Himachal Pradesh, Jammuy & Kashmir and also in subtropical regions of North India during winter season.
- Long, fleshy, deep red in colour
- Harvesting season - November to February
- Available in major markets of North India,
- ASTA colour value - 54.10
- Capsaicin - 0.325%



### MADHYA PRADESH G.T. SANNAM

Grown in Indore, Malkapur Chikli and Elachpur areas of Madhya Pradesh

Red in colour and pungent

- Harvesting season - January to March
- Annual production - 7500 tonnes
- Available in major markets of Madhya Pradesh.



### MADRAS PARI

- Grown in Nellore District of Andhra Pradesh
- Pure red in colour and hot

Harvesting season - March to May.

- Annual production - 2000 tonnes Available in Madras
- ASTA colour value - 73.82
- Capsaicin - 0.206%





### NAGPUR

- Grown in Nagpur District of Maharashtra
- Red in colour and pungent
- Harvesting season - January to March
- Annual production - 5000 tonnes
- Available in Bhimapur market of Maharashtra.



### NALCHETTI

- Grown in Nagpur District of Maharashtra
- Red in colour and extremely pungent
- Harvesting season- January to March
- Annual production - 2500 tonnes
- Available in Nagpur market ASTA colour value - 77.03
- Capsaicin - 0.12%



### RAMNAD MUNDU

- Grown in Ramnad District of Tamil Nadu.
- Yellowish red and hot
- Harvesting season - March to May
- Annual production - 12,000 tonnes
- Available in Virudhunagar and Ramnad District of Tamil Nadu
- ASTA colour value - 32.95
- Capsaicin - 0.166%



### SANGLI SANNAM - S4 TYPE

- Grown in Kolhapur District of Maharashtra
- Light red in colour and hot
- Harvesting season - September to November
- Annual Production - 3000 tonnes
- Available in Bombay and Kolhapur
- ASTA colour value - 73.55
- Capsaicin - 0.215%






### SATTUR - S4

- Grown in Dindigul, Sattur, Rajapalayam, Sankarankoil & Theni in Tamil Nadu.
- Red in colour, pungent with thick skin
- Harvesting season - Septemeber to March
- Available in Sattur, Theni & Dindigul in Tamil Nadu
- ASTA colour value - 59.1



### SCOTCH BONNET

- Introduced from jamaica. Cultivation in India is on the initial stage.
- Studies shows that it comes up well in the hill regions of Kerala & Karnataka.
- May be possible to grow in other parts of India as well.
- Chilli is short round & yellowish in colour

<ul style="list-style-type: none"> <li>• Capsaicin - 0.24%</li> </ul>	<p>with the terminal end sucked inside.</p> <ul style="list-style-type: none"> <li>• ASTA colour value - 38.25</li> <li>• Capsaicin - 0.878%</li> </ul>
 <p>S9 MUNDU</p> <ul style="list-style-type: none"> <li>• Grown in Anantapur District of Andhra Pradesh</li> <li>• Tomato red in colour and with fairly good pungency</li> <li>• Harvesting season - February to April</li> <li>• Annual production - 700 tonnes</li> <li>• Available in Anantapur District of Andhra Pradesh.</li> </ul>	 <p>TADAPPALLY - BIG LONG</p> <ul style="list-style-type: none"> <li>• Grown in Tadappally in Andhra Pradesh.</li> <li>• Red in colour, less pungent, thick skin.</li> <li>• Harvesting Season - January to April</li> <li>• Available in Tadappally in Andhra Pradesh</li> <li>• ASTA colour value - 80.30</li> <li>• Capsaicin - 0.11%</li> </ul>
	<p>TOMATO CHILLI (WARANGAL CHAPPATTA)</p> <ul style="list-style-type: none"> <li>• Grown in Warangal, Khammam, East &amp; West Godavari Districts of Andhra Pradesh.</li> <li>• Deep red and less pungent</li> <li>• Harvesting season - December to March</li> <li>• ASTA colour value - 125.26 Capsaicin - 0.17%</li> </ul>