COMMODITY PROFILE – TURMERIC

Origin

Turmeric is a rhizomatous herbaceous plants botanically know as *Curcuma longa*. Turmeric is a native of Tropical south Asia (India). The tuberous rhizomes or underground stems of turmeric are used from antiquity as condiments, a dye and as an aromatic stimulant in several medicines. Turmeric is a very important spice in India.

Cultivation

Turmeric cultivation is confined to South East Asian countries such as India, Sri Lanka, China, Indonesia, Australia, Africa, Peru and the West Indies. The main growing states in India are Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Orissa, and Kerala. Turmeric requires a hot and moist climate. It thrives the best on loamy or alluvial, loose, friable and fertile soils. It grows at all places ranging from sea level to an altitude of 1220 m above MSL. It is very sensitive to low atmospheric temperature. It is grown both under rain fed and irrigated conditions. Like other tuber crops, turmeric also requires deep tilth and heavy manuring for high yields. Beds of convenient length and width are prepared based on the topography of the land. Planting is done either on raised beds or on ridges during May–June.

Aroma and flavour

Raw turmeric rhizomes have to be cured for both colour and aroma. For this, the fingers and bulbs are boiled separately in water for 30 to 45 minutes until the rhizomes are soft. This procedure gets rid of the 'raw' colour, reduces drying time, gelatinises the starch and gives the turmeric a more uniform colour. Water is then drained and the turmeric sun dried for 10-15 days until they become dry and hard. For imparting orange yellow colour, the rhizomes are boiled in limewater or sodium bicarbonate solution. The dried produce is cleaned and polished mechanically in a drum rotated by hand or by power.

Turmeric oleoresin is obtained by solvent extraction of the ground spice. It is orange-red in colour and consists of colouring matter, volatile oil, fatty oils and bitter principles. The

volatile oil gives the turmeric its characteristic flavour. The important quality attributes of turmeric are size, physical form, colour, curcumin content, maturity, weight or bulk density, length and thickness, intensity of colour of the core and aroma.

Use – Culinary and medicinal

Turmeric is mainly used as spice or flavourant; colourant of brilliant yellow dye, cosmetic and drug. Turmeric has been used since ancient period for medical purpose. It has several medicinal properties like stomachic, carnivative, tonic, blood purifier, vermicide and antiseptic. The active constituent of turmeric is curcumin, which has a wide range of therapeutic effects. Because it is a strong antioxidant and anti-inflammatory, it protects against free radical damage and accomplishes this by reducing histamine levels and possibly by increasing production of natural cortisone by the adrenal glands. Curcumin also protects the liver from a number of toxic compounds. It avoids platelets from clumping together, which improves circulation and helps protect against atherosclerosis.

Varieties

Some of the popular varieties of turmeric are Duggirala, Rajpuri, Erode, Salem, Alleppey, Tekkurpet, Sugandham, Amalapuram (from Andhra Pradesh), Moovattupuzha, Wynadu (from Kerala) and Lakaday (Meghalaya) etc

Table-1: Different variety of turmeric and its yield level

Name	Mean yield (fresh) t/ha	Crop duration (days)	Dry recovery (%)	Curcumin (%)	Oleoresin (%)	Essential Oil (%)
Suvarna	17.4	200	20.0	4.3	13.5	7.0
Suguna	29.3	190	12.0	7.3	13.5	6.0
Sudarsana	28.8	190	12.0	5.3	15.0	7.0
IISR Prabha	37.5	195	19.5	6.5	15.0	6.5
IISR Prathibha	39.1	188	18.5	6.2	16.2	6.2
Co-1	30.0	285	19.5	3.2	6.7	3.2
Krishna	9.2	240	16.4	2.8	3.8	2.0
Sugandham	15.0	210	23.3	3.1	11.0	2.7
BSR-1	30.7	285	20.5	4.2	4.0	3.7
Roma	20.7	250	31.0	9.3	13.2	4.2
Suroma	20.0	255	26.0	9.3	13.1	4.4
Rajendra Sonia	4.8	225	18.0	8.4	-	5.0
Ranga	29.0	250	24.8	6.3	13.5	4.4
Rasmi	31.3	240	23.0	6.4	13.4	4.4

Polishing: For better appearance of the produce, the dried produce can be polished in rotating drums.

Storage

The cured produce can be stored in pits of 4 x 3 x 2 m size. Pits are dug in elevated place and dried for two days; bottom and sides of the pits are thickly lined with grass or Palmyrahmats. Subsequently cured produce is filled in pits and is covered with mats and finally with earth. The materials can be stored for one year.

For preservation of seed rhizomes the material is stored by heaping them under the shade of trees. Heaps are covered with turmeric leaf and plastered with soil and cow dung mixture. It can be left undisturbed for 2 - 3 months until sowing.

Domestic scenario

Turmeric is grown as a Kharif crop in India. The crop-harvesting season starts between end of January and March in India. The country is the leading producer, consumer and exporter of turmeric in the world. It has near monopoly in this commodity. Indian turmeric has been known to the world since from ancient times. India accounts for 78% in world production and 60% in world export share. Major turmeric growing states are Andhra Pradesh (57%), Tamil Nadu (23%), Karnataka (6%) and Orissa (4%). Indian turmeric is considered as the best in the world because of its high curcumin content.

Crop seasonality

Turmeric is a 8-9 months crop. The main harvest season begins from end of January and extends up to March. Turmeric is harvested when leaves turn yellow and start drying up. In harvesting, the whole clump is lifted out with the dry plant, then the leafy tops are cut off, the roots are removed, all the adhering mud particles are shaken or rubbed off and the rhizomes are then washed well with water. The fingers, sometimes called the daughter rhizomes, are separated from the mother rhizomes and kept in shade for 2-3 days.

Crop calendar

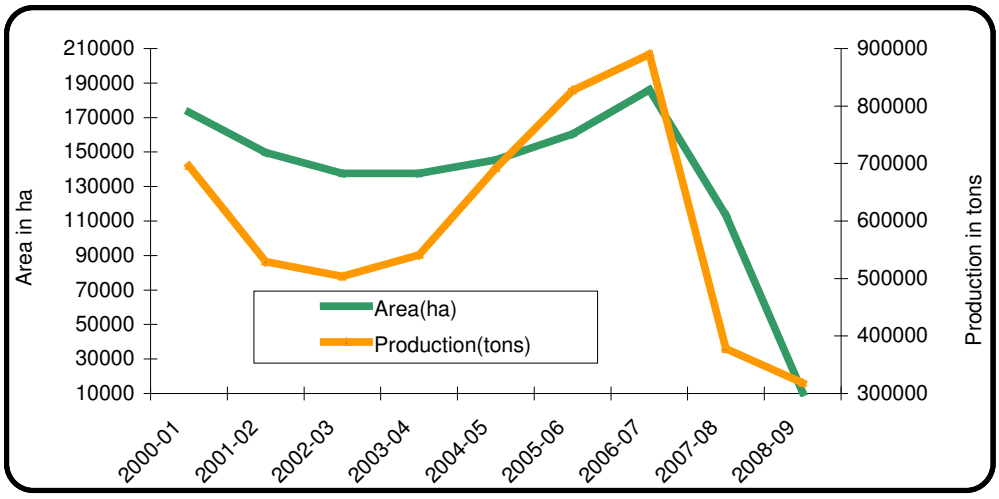
Planting is done either on raised beds or on ridges during June. The crop-harvesting season starts between end of January and March in India. It will start entering into the market by March. The peak arrivals season will be between March and April.

Table-2: Turmeric crop calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turmeric												

Harvesting period	
Sowing period	
Peak arrivals	

Fig-1: Area and production of turmeric in India



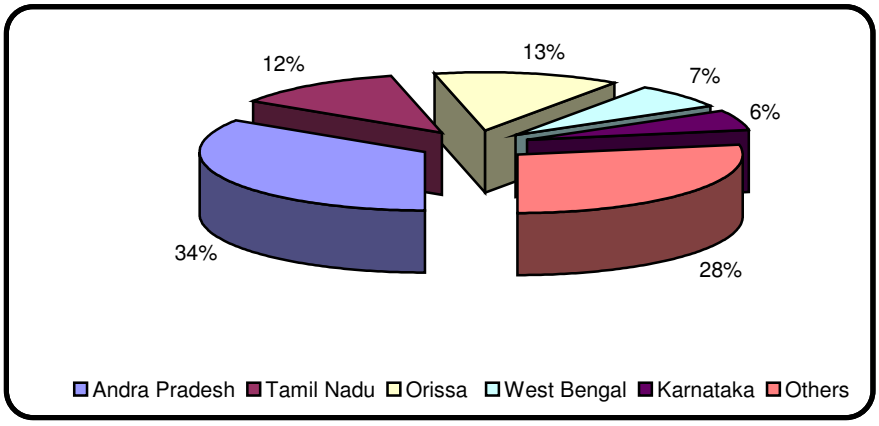
Source: Spices Board of India

Area under turmeric cultivation is about 1.3 lakh ha annually. The yield will be around 3000-4000 kgs per hectare. The production is estimated to be about 4 lakh tons per annum**.** From 2006-07 onwards, turmeric output started declining as farmers have shifted to other remunerative crop like cotton and sugar cane.

Factors responsible for significant decline in output: Unfavorable climate conditions, crop maintainace, use of hybrid varieties, prices factors, and crop rotation

State-wise area under turmeric (in Ha)

Fig-2: Turmeric production share in India



Source: Spices Board of India

Note: Turmeric output an average stood at 4 lakh tons in India.

Andhra Pradesh continued to hold majority of area under turmeric with a share of about 34%. Meanwhile, area under turmeric in the state of Orissa is also significant although level of yield is anticipated to be lower in the state.

Tami Nadu enjoys higher yield of turmeric compared with most of other states. Although, the state has witnessed sharp decline in total production due to shifting of area towards other crops such as sugarcane on account of poor price realization. Both Andhra Pradesh and Tamil Nadu constitute major share in India's total production.

Major turmeric growing districts are: Karimnagar, Nizamabad, Guntur and Kadapa in Andhra Pradesh, Erode, Coimbatore, Dharmapuri and Salam in Tamil Nadu; Belgum and Chamrajnagar in Karnataka; Allepey in Kerala, Sangli and Nanded in Maharastra.

Major turmeric growing districts across states:

- **Andhra Pradesh:** Karimnagar (21.9%), Nizamabad (18.6%), Guntur – Duggirala (8%), and Kadapa (5%)
- **Tamil Nadu:** Erode, Coimbatore, Dharmapuri and Salem
- **Karnataka:** Belgaum and Chamrajnagar
- **Kerala:** Allepey
- **Orissa:** Phulbani
- **Maharastra:** Sangli and Nanded

Table-3: Turmeric varieties and regions

Variety	Regional/Belt	State
Nizamabad	Nizamabad region	Andhra Pradesh
Duggirala	Duggirala/Guntur	Andhra Pradesh
Warangala	Warangala	Andhra Pradesh
Madras	Erode, Salem	Tamil Nadu
Rajapore	Sangli	Maharashtra
Sangli	Sangli	Maharashtra
Alleppey	Alleppey	Kerala

Market size and trading centers

The market size for turmeric in the country is estimated to be in between Rs.2500 and Rs.3000 crore annually. The major trading centers are: Nizamabad, Duggirala and Kadapa in Andhra Pradesh, Sangli in Maharastra and Salem, Erode, Dharmapuri and Coimbatore in Tamil Nadu.

Domestic consumption

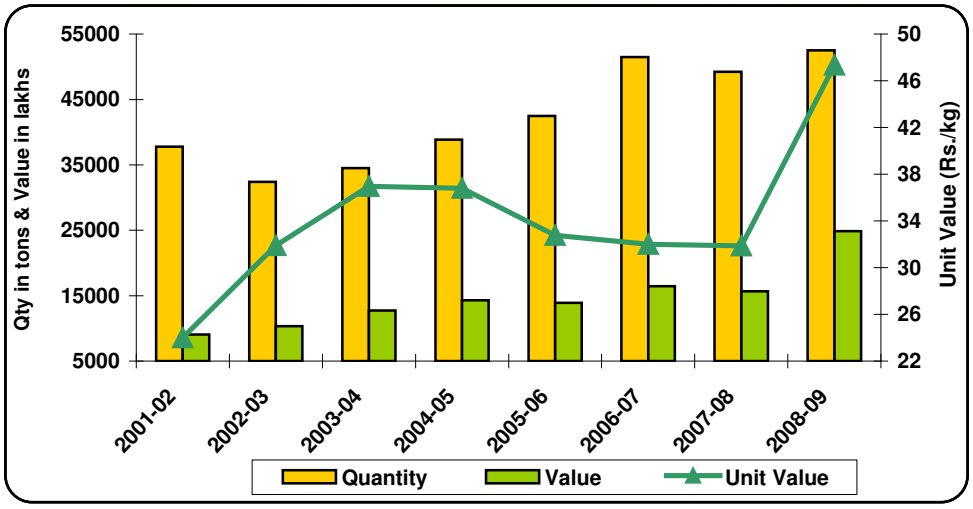
Turmeric usage in the country dates back to several decades and its reference is even found in Vedic. Turmeric is being used mainly as a colouring agent. Turmeric is closely linked with everything auspicious - hence indispensable element of all celebrations, festivals. India consumes about 90% of its total annual output.

The majority of demand comes from households as a colouring agent in food items. Besides food usage, it has also been used by pharmacy and dyeing industry.

Consumer preference of various forms

- Households - powder
- Institution - powder
- FMCG - Dry and oleoresin
- Health care – Oleoresin

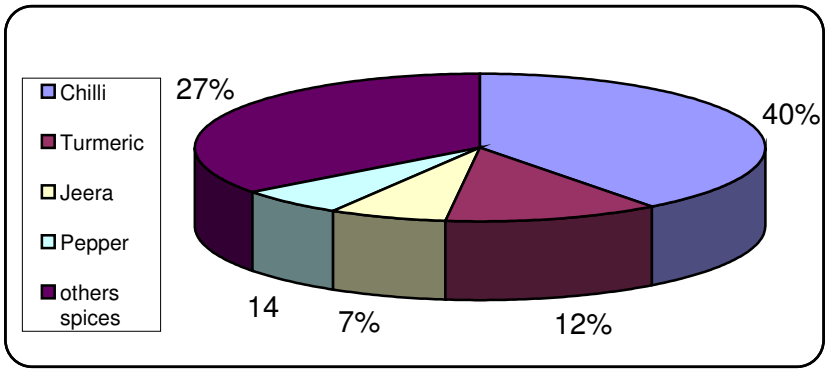
Fig-3: Turmeric exports from India



Source: Spices Board of India

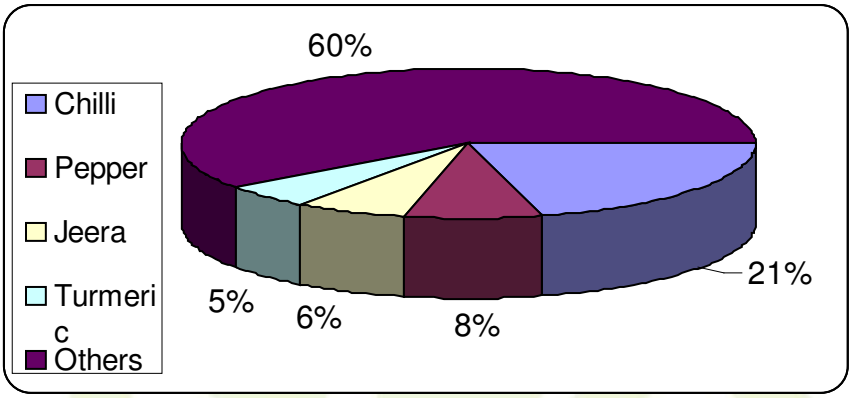
India exports about 40,000 to 45,000 tons of turmeric per annum. It is shipped in the form of dry turmeric after polishing, fresh turmeric, turmeric powder, dehydrated turmeric powder, oils and oleoresins. In terms of volume, turmeric oleoresin account for about 200 tons per annum and turmeric powder constitutes very small portion. Important turmeric varieties exported included Allepey finger turmeric, Rajapuri, Madras and Erode variety.

Fig-4: Share of turmeric in spices exports-Quantity (Avg. from 2004-05 to 2008-09)



Note: An average 3,73,632 tons of spices exported from India.

Fig-5: Share of turmeric in spices exports - Value (Avg. from 2004-05 to 2008-09)



Source: Spices Board of India

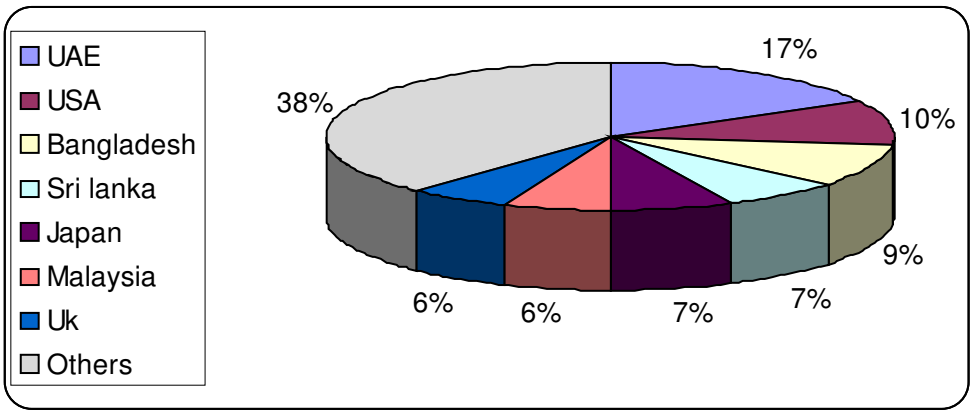
Note: India exports about 40,000 to 45,000 tons of turmeric per annum

Turmeric is the third-largest spice exported from India. In terms of quantity and value, it accounts about 12% and 5% respectively.

Major export markets for Indian turmeric

India exports about 10% of its turmeric per annum. The key export destination for Indian turmeric are UAE - 17%, USA - 10%, Bangladesh - 9%, Sri Lanka - 7%, Japan - 7%, Malaysia - 6% and UK - 6%. All these countries together account for 65 % of the India's exports. Remaining 25% is being shipped to Europe, North America, Central and Latin American Countries.

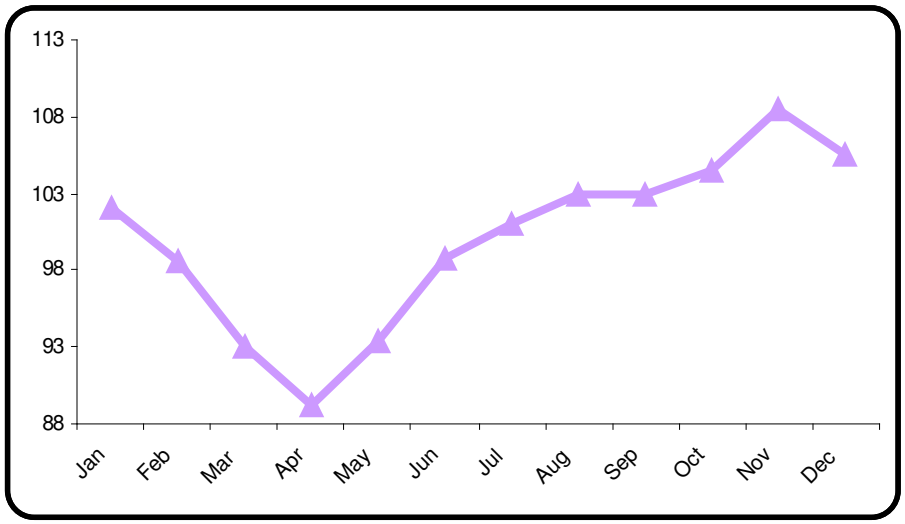
Fig-6: Turmeric exports share



Note: India exports about 40,000 to 45,000 tons of turmeric per annum

Prices seasonality

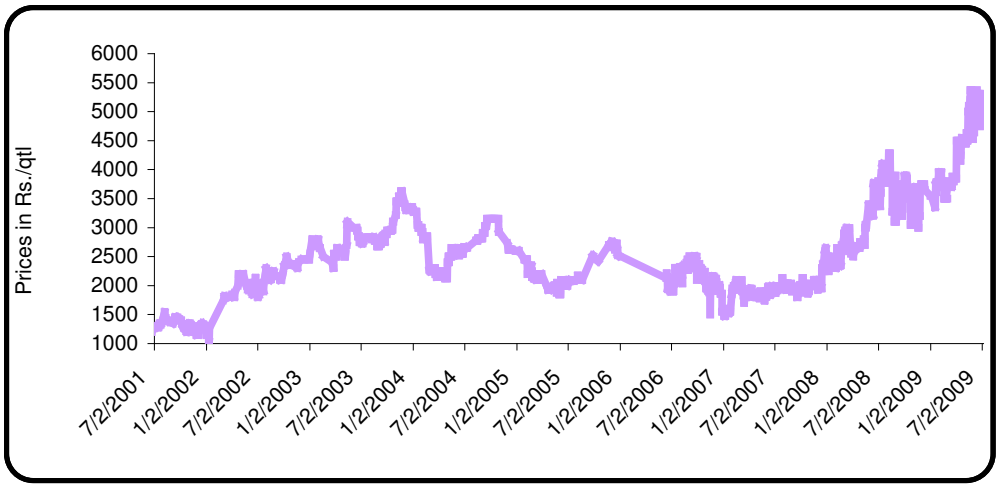
Fig-7: Turmeric prices seasonality index (2003 to 2008, Sep)



Source: Department of Agriculture, AP

Turmeric prices will be hovering lower between January and June. This could be mainly attributed to supply pressure due to new crop arrivals. New crops arrivals of turmeric gradually increase from January onwards and peaks in the month of March. From June onwards prices will start moving up as the market approaches lean season. Prices peak during October and December month of every year.

Fig-8: Turmeric prices at Nizamabad market from 2001 to 2009



Source: Department of Agriculture, AP

Turmeric prices are rising continuously from 2007 onwards due to decline in acreage on lack of monsoon rains.

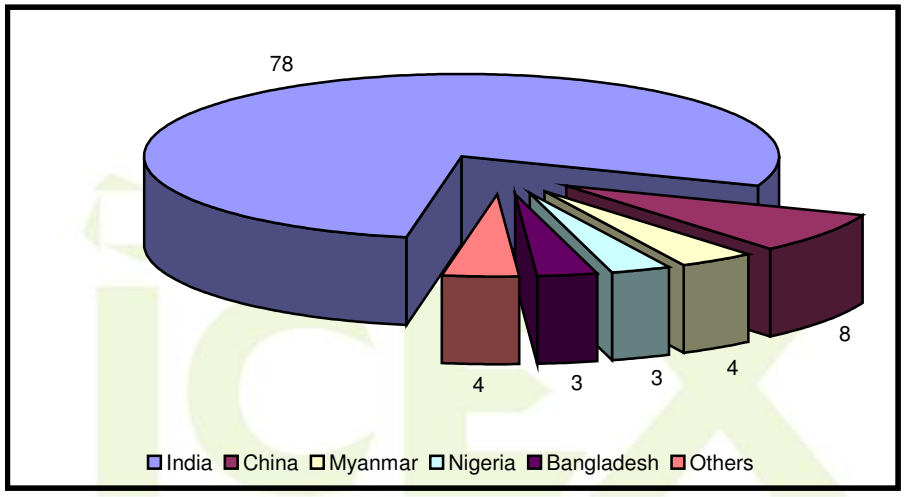
Price influencing factors

- Area under turmeric
- Weather progress
- Final crop output
- Stock level - Carry forward stocks and stock with farmers/traders/warehouses
- Domestic and export demand

Global scenario

At the global level, turmeric production is distributed across the Asian region and Nigeria in Africa. Among the Asian countries, turmeric is widely cultivated in India, China, Myanmar and Bangladesh. India is the largest producer, consumer and exporter of Turmeric. Other producers in Asia include Pakistan, Taiwan, and Indonesia. Turmeric is also produced in the Caribbean and Latin America: Jamaica, Haiti, Costa Rica, Peru, and Brazil. Global production of turmeric is estimated around 6 to 7 lakh tons.

Fig-9: Major producers and their percentage share



Source: Spices Board of India

Note: The global output an average stood at 6 to 7 lakh tons.

Major importers of turmeric

The major importers of turmeric are the Middle East and North African countries, Iran, Japan and Sri Lanka. These importing countries represent 75% of the turmeric world trade, and are mostly supplied by the Asian producing countries.

Reference

Spices Board of India

Indian Institute of Spices Research

Department of Agriculture, Andhra Pradesh