TURMERIC SITUATION IN INDIA WITH SPECIAL REFERENCE TO WORLD TRADE*

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ABSTRACT

The production and export of turmeric in India has been fluctuating widely during the last two decades. The compound growth rate of production and productivity in Bihar, Karnataka and Meghalaya was more than 5 per cent per annum during the 70's. This calls for organized efforts for turmeric development in these states. The compound growth rates of the quantity exported, export earnings and unit values per annum in respect of Indian turmeric during 1970s were estimated at 4.7 per cent, 20.3 per cent and 14.8 per cent respectively. Among the top importers of turmeric, Iran and USA each imported from India about 87 per cent of their total imports during the last decade. Our main competitors in the field of turmeric export are Bangladesh, China, Taiwan, Pakistan, Jamaica, Peru and Haiti. The outlook for this crop however, seems to be very bright.

INTRODUCTION

Turmeric of commerce is the cured and dried rhizome or underground stem of a perennial herb, *Curcuma domestica* Val. (syn. *Curcuma longa* L.). For commercial exploitation, it is grown as an annual, in parts of tropics. It is one of the most important spices used extensively by all classes of people in India. Besides, it is one of the most ancient and traditional items of export for this country. The demand for turmeric mainly arises from its use for culinary purposes. Important among the producers of this condiment are, India, Bangladesh, Pakistan, Sri Lanka, Burma, China, Taiwan, Indonesia, Jamaica, Haiti and Peru. Like Indians, other people in Asia are heavy consumers of turmeric and some of the Asian producers are even net importers of this produce. However, the available statistics both on production and trade of turmeric in respect of several countries in the world are far from adequate.

*CPCRI contribution No. 226.

Any attempt to analyse the world situation in turmeric, therefore, makes the task of a researcher somewhat difficult. The scope of this paper is limited to the analysis of turmeric situation in India with special reference to world trade.

Materials and Methods

The area, production and yield figures used for the present analysis are the estimates of the Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India. The data on India's exports, export earnings and unit values are the estimates made by the Directorate General of Commercial Intelligence and Statistics, Govt. of India. The source of import data in respect of the leading importing countries is the International Trade Centre, UNCTAD/GATT. The wholesale price data are the compiled figures of the Directorate of Cocoa, Arecanut and Spices Development, Govt. of India.

Results and Discussion

Production and supply trends

India is by far the largest producer of turmeric in the world, but the production of this crop has been highly unstable. In 1950-51 India produced 152,000 tonnes of turmeric from an area of 56,000 ha. The average productivity for that year works out to 2764 kg/ha and this is the record average productivity for turmeric in the country so far. The area and production of turmeric during 1960–61 were of the order of 39,000 ha and 105,000 tonnes, respectively. The corresponding figures for 1970–71 were, 81,000 ha and 151,000 tonnes, and for 1980–81 were 99,000 ha. and 210,000 tonnes. The crop statistics reveal that between 1960–61 and 1980–81 the area and production of turmeric went up by 151 per cent and 100 per cent respectively, while its productivity came down by 20 per cent. The year 1979-80 was the peak year for Indian turmeric both in respect of area (105,000 ha) and production (235,000 tonnes), but not in productivity.

The index numbers of area, production and yield of turmeric with the base at 1960–61 reveal that the supplies of Indian turmeric were highly uncertain over these years because of severe fluctuations in area as well as productivity of this crop. The compound growth rates of area, production and yield of turmeric in India per annum

for the period 1970–71 to 1979–80 were estimated at 1.82 per cent 1.33 per cent and (–) 0.48 per cent, respectively.

The main turmeric growing areas in India are distributed in the States of Andhra Pradesh, Orissa, Tamil Nadu, Maharashtra, Assam, Bihar, and Kerala. During the 1970s, Andhra Pradesh alone constituted on an average 26 per cent of the total turmeric area and 36.4 per cent of the total production in India and continued to maintain its position as the largest termeric producing State. While area-wise Orissa, Tamil Nadu, and Maharashtra constituted 20.8 per cent, 12.8 per cent and 12.2 per cent production-wise their shares were 9.4 per cent, 24.2 per cent and 9.1 per cent respectively at the all-India level. The average productivity per hectare was highest in Tamil Nadu (3602 kg), followed by Karnataka (2725 kg.) and Andhra Pradesh (2666 kg). The productivity for Orissa and Assam was around one-fourth and one-sixth of that in Tamil Nadu (Table 1).

Table 1. Spatial distribution of average area production, and yield of turmeric in different States during 1970–71 to 1979–80

State	Area %	Production %	Yield (Kg/ha)
Andhra Pradesh	26.0	36.4	2666
Assam	7.5	2.3	595
Bihar	7.7	6.1	1500
Karnataka	1.8	2.5	2725
Kerala	4.8	2.6	1040
Maharashtra	12.2	9.1	1410
Meghalaya	1.8	0.8	824
Orissa	20.8	9.4	857
Tamil Nadu	12.8	24.2	3602
Others	4.6	6.6	2683
All India	100.0	100.0	1902

The following inferences can be drawn from the estimated compound growth rates of area, production and productivity of turmeric for different States during 1970–71 to 1979–80.

(*i*) In respect of area, only four out of nine turmeric growing States had positive growth, Orissa (7.41 %) having the highest growth followed by Assam (6.40 %) and Karnataka (2.87 %).

(*ii*) As regards production, barring Kerala and Maharashtra, all other seven States had positive growth, Bihar (15.08%) having the highest growth followed by Karnataka (9.41%) and Assam (6.58%).

(*iii*) So far as yield is concerned, five states had positive growth, Bihar (16.28%) having the highest growth followed by Karnataka (6.60%) and Meghalaya (6.18%).

For the country as a whole, the annual growth rate in production is as small as 1.33 per cent (Table 2).

Table 2. Estimated compound growth rates (per annum) of area, production and yield of turmeric for different States during 1970–71 to 1979–80

State	Compound growth rates (%)		
	Area	Production	Yield
Andhra Pradesh	(+) 0.37	(+) 0.01	(−) 0.36
Assam	(+) 6.40	(+) 6.58	(+) 0.17
Bihar	(−) 1.04	(+) 15.08	(+) 16.28
Karnataka	(+) 2.87	(+) 9.41	(+) 6.60
Kerala	(−) 3.08	(−) 5.05	(−) 2.03
Maharashtra	(−) 0.77	(−) 3.69	(+) 4.50
Meghalaya	(−) 0.70	(+) 5.43	(+) 6.18
Orissa	(+) 7.41	(+) 0.46	(−) 6.53
Tamil Nadu	(−) 0.003	(+) 0.03	(−) 0.006
All India	(+) 1.82	(+) 1.33	(−) 0.48

While it is absolutely necessary to attain a much higher growth rate in production, it may not be possible to achieve this goal through area expansion beyond a certain point. Under this situation, a negative growth rate in productivity is a matter of great concern. The other serious matter in the case of supply of turmeric in India is its violent fluctuations from year to year. Moreover, the requirement of very high seed rate (10 to 20% of the yield) for raising the crop reduces the marketable surplus potential of this commodity.

Utilisation and Demand

In India, turmeric is widely used as an important condiment. It is usually used in the form of ground spice and is blended into curry powder. It is also used as a dyestuff in the textile industry.

To a small extent, turmeric is utilised for medicinal purposes as it has antiseptic and deworming properties. It is extensively used as an indigenous cosmetic item. Apart from these uses, turmeric is considered as an auspicious commodity by Indians, particularly the Hindus who need it in their rituals and social customs (Anonymous, 1965). In view of the above, the bulk of India's turmeric production is consumed locally.

Depending upon the agro-climatic conditions in which the crop is raised and the harvest and post-harvest technology that are applied, the commodity prepared for the market in different regions is found to develop some kind of regional characteristics. Among the commercial varieties, Alleppey turmeric, Rajpuri turmeric, Madras fingers, Guntur turmeric, and Cuddapah turmeric, are important in Indian markets (Menon, 1975).

The volume of utilisation of any commodity at a given time could be considered as the apparent demand for the commodity for that period. As such, the average internal demand for turmeric in India for the period 1975–76 to 1979–80 came to 137,000 tonnes/annum. In other words, nearly 91 per cent of India's turmeric production in the late 70s was consumed and utilized locally.

Export situation

India, the largest exporter of turmeric in the world, exported around nine per cent of the country's production during the last five years of the 70s. India has been an exporter of turmeric for the past several decades. The volume of exports varied from 2.2 to 8.1 per cent of the total production during the 1960s, to 5.6 to 10.7 per cent during the 1970s. Like the production of turmeric, its exports from India was highly fluctuating over the years. In the year 1960–61, the quantity of turmeric exported from India was of the order of 1210 tonnes valued at Rs. 2.6 million. During 1980–81, the volume of exports was found to be 11,900 tonnes valued at Rs. 63.1 million. The highest volume of exports as well as the export values for turmeric recorded during 1979–80 was 21.510 tonnes valued at Rs. 162.4 million. However, the record unit value realization was Rs. 10,730/tonne, during 1978–79.

The index numbers in respect of the volume of exports, export earnings and unit values of turmeric suggest that the trends of the

export sector were of the increasing order. The compound growth rates of the quantity exported, export values and realized unit values in respect of Indian turmeric for the period 1970–71 to 1979–80, were estimated at 4.7 per cent, 20.3 per cent and 14.8 per cent, respectively. The export earnings from this commodity constituted only 6 to 12 per cent of the total earnings from spices in India.

This spice is exported to as many as 64 countries. An analysis of the zone-wise exports of turmeric from India reveals that during the 1970s, around half of the exports was to the Middle East alone. East Asia, America and the Western Europe accounted for 15.84, 13.87, and 10.82 per cent respectively of the total exports during the same period. Although the volume of Indian exports increased significantly during 1970–71 to 1979–80 over that of 1960–61 to 1969–70 irrespective of the zones, the maximum change was noticed in the case of the Middle East (245%), followed by Eastern Europe (225%) (Table 3).

Table 3. Zone-wise exports of turmeric from India during 1960–61 to 1979–80

Zone	Average for 1960–61 to 1969–70 (period 1)	Average for 1970–71 to 1979–80 (period 2)	Change between periods 1 & 2
	Tonnes	Tonnes	%
1) Eastern Europe	10.75	35.06	(+) 226.14
3) UK & Other European countries	672.73	1310.91	(+) 94.86
3) Middle East	1795.58	6204.05	(+) 245.51
4) East Asia	1660.15	1910.47	(+) 15.08
5) Africa	684.53	778.45	(+) 13.72
6) Australia & Oceania	118.38	151.21	(+) 27.73
7) America	1106.09	1672.05	(+) 51.17
Total	6048.21	12062.20	—

Presently, the main importing countries in the world for turmeric are, Iran, the USA, Japan and the UK. During the 1970s, the average annual imports for Iran and the USA were of the order of 3843 tonnes each. It was 2128 tonnes for Japan and 1545 tonnes for the UK. India's share in the total imports of Iran and the USA came to 61.54 per cent in each case, for Japan 38.62 per cent, and

for the UK 52.94 per cent, for the period under reference. Though the volumes of imports of other importing countries such as Sri Lanka, Iraq and Saudi Arabia are relatively small (250 to 600 tonnes), they were found to lift nearly 87 to 90 per cent of their total imports from India. Curiously Sri Lanka, one of the major importers of turmeric during the 1960s, could achieve near self-sufficiency in turmeric inthe next decade (Table 4).

Table 4. Import of turmeric into major markets and India's share (In tonnes/annum)

Country	Average of 1960–69		Average of 1970–79	
	Total Import	India's share % of total	Total import	India's share % of total
F.R.G.	NA	..	408[a]	35.05[a]
Iran	2226	44.56	3843	61.54
Iraq	278	81.65	325	87.08
Japan	1391	50.00	2128	38.62
Morocco	553	86.62	NA	NA
Netherlands	NA		239[a]	53.14[a]
Saudi Arabia	NA		596[b]	87.08[b]
Sri Lanka	1157	79.43	253	88.93
U.K.	NA		1545[c]	52.94[c]
U.S.A.	1347	44.56	3843	61.54

[a]figures relate to Av. of 1972–78
[b]figures relate to Av. of 1971–76
[c]figures relate to Av. of 1973–78

The total world exports of turmeric were estimated at 24,000 tonnes for 1976. According to the available figures for 1976, India's export in the context of the world exports was of the order of 83 per cent. The exports from the other exporting countries such as Pakistan (7.5%), China (3.3%), Taiwan (3.1%), Burma (1.5%), Haiti, Peru and Jamaica (combined 1.3%) were relatively small as compared to India (Table 5). While the main importing countries for Indian turmeric were the USA, Iran, and the UK, the major importer for Pakistan turmeric was Muscat, and for Taiwan turmeric, Japan.

No reliable information about the current situation of international trade in turmeric is available at the moment. However, most of the Arab nations notably Iraq, Libya and Morocco are

Table 5. World export of turmeric by the major producing countries and their share in total export at different points of time (In tonnes)

Country	1957	1961	1965	1971	1976
Burma	NA	56	257	250	350
		(1.1)	(1.9)	(1.3)	(1.5)
China	NA	NA	112	400	800
			(0.8)	(2.1)	(3.3)
India	11078	3460	10403	16500	20000
	(96.4)	(68.8)	(77.9)	(84.6)	(83.3)
Jamaica	NA	141	117	NA	NA
		(2.8)	(0.9)		
Pakistan	NA	677	1698	1500	1800
		(13.6)	(12.7)	(7.7)	(7.5)
Taiwan	336	604	688	700	750
	(2.9)	(12.1)	(5.1)	(3.5)	(3.1)
Others					
(Haiti, Peru etc.)	81	91	96	150	300
	(0.7)	(1.8)	(0.7)	(0.8)	(1.3)
Total	11495	5029	13371	19500	24000
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

(Figures in parentheses show the percentage of the total)
NA=Not Available

now importing substantial quantities of turmeric. A high proportion of Bangladesh's exports are shipped to Muscat and Oman. Bangladesh has gained equal importance with India as an exporter to Iran. China has also become a supplier of this spice to Iran. A significant part of USA's turmeric imports are now met from Jamaica, Haiti, Peru and Taiwan, although India continues to be the major source of this produce. International trade in ground turmeric is very small. The demand for ground turmeric mainly comes from certain African countries, notably Zambia. The volume of imports for the importing countries are seen to fluctuate widely as in the case of the volumes of exports, due to obvious reasons. Although turmeric is grown mainly in the Asian sub-continent, all the producers in this region are heavy consumers of their own produce, and some like Sri Lanka are even net importers (Purseglove *et. al.*, 1981). In Indonesia, for example, it is known that turmeric is cultivated extensively, but none of the major importing countries

lists Indonesia as a source of turmeric and, therefore, it must be supposed that the entire produce is consumed locally (Manning, 1969).

The main types recognized in international trade are, the 'Madras' and 'Alleppey' turmerics, and 'West Indian or 'Haiti' turmeric. 'Alleppey' turmeric is distinguished from others by its deep yellow or orange colour. This property is the characteristic expression of high curcumin content in the variety. Madras turmeric possesses mustard yellow or bright yellow colour as well as a delicate aroma. 'Haiti' turmeric is regarded as of a lower quality and value in comparison with the Madras and Alleppey types due to its dull yellowish brown appearance (Manning, 1969).

In the USA and Western Europe, a substantial demand for turmeric comes from the pickle manufacturing units. However, a striking difference in the consumer's tastes and preference for texture and colour in pickle could be observed between the USA and Western Europe. On account of this difference, 'Alleppey' turmeric fetches a premium price in the USA, while 'Madras finger' gets a higher value in the UK and other Western European countries (Purseglove *et al.*, 1981).

Price trends

There has been an overall rising trend in the unit value realization from turmeric, eventhough the year-to-year variation is found to be very wide. Taking 1960–61 unit value as the base, the unit value realised from turmeric exports showed a rise upto 1963–64 then declined for two years, again moved upwards until it reached 458.3 points in 1969-70. Thereafter, the unit values fluctuated widely and touched 952.9 points in 1978–79. It then fell to 670 points in 1979–80 and further declined to 470.9 in 1980–81. During the period 1976–77 to 1980–81, the unit value averaged at Rs. 7005/tonne.

A comparison between the turmeric prices at one of the Indian markets namely, Erode market and the London international market shows that, the London market prices were 23 to 147 per cent higher than that in Erode during the 1970s. In six out of the ten year period, the difference was less than 50 per cent (Table 6). With the unprecedented rise in the internal transport, handling as well as

shipping costs in recent years, the price difference is bound to widen. The correlation coefficient (r) for the prices of Erode and London markets between 1970–71 and 1979–80 was 0.91, suggesting that the trend of turmeric prices in international market is moving closely with the trend in the Indian markets.

Table 6. Turmeric (Erode Finger) prices at Erode and London markets for the period 1970–71 to 1979–80 (Rs./Qtl.)

Year	Prices at		% Increase in price at London over the price at Erode
	Erode	London	
1970–71	265	337	27.17
1971–72	141	250	77.30
1972–73	235	289	22.98
1973–74	392	564	43.88
1974–75	327	513	56.88
1975–76	293	408	39.25
1976–77	389	534	37.28
1977–78	720	998	38.61
1978–79	694	1318	89.91
1979–80	329	812	146.81

Outlook

With the food and drug regulations becoming increasingly stringent day by day, the demand for quality turmeric and its products is bound to exhibit a rising trend. Turmeric oil has a wide acceptance in confectionery and aerated water units in the western countries. Similarly, turmeric oleoresin has a good demand from the pickle manufacturers of USA. India being one of the leading manufacturers of turmeric oil and oleoresins, the prospect for the expansion of turmeric trade at the international level is very bright.

ACKNOWLEDGEMENT

The author is grateful to Dr. K. V. Ahamed Bavappa, Director, CPCRI and Dr. M. C. Nambiar, Project Co-ordinator (Spices & Cashew) for their help in preparing this paper.

REFERENCES

ANONYMOUS, 1965. Marketing of turmeric in India. Agricultural Marketing Series No. 148, Directorate of Marketing and Inspection, Ministry of Agriculture, Govt. of India, Nagpur, 228p.

MANNING, C.E.F. 1969. A note on the market for two spices: Turmeric and Coriander. *Trop. Prod. Inst. Rep.* (G. 37), London. 35p.

MENON, K.P.G. 1975. Indian turmeric wins world market. *Indian Spices*, 12(2): 6-17.

PURSEGLOVE, J. W., BROWN, E. G., GREEN, L. and ROBBINS, S.R.J. 1981. *Spices*. 1st Ed. Longman, London. 2: 532-580.

DISCUSSION

P. S. SREENIVASAN(KAU, Vellanikkara): Is there a general downward trend in yield of turmeric?

P. K. DAS: Yes, The cultivation has been extended to marginal lands in most of the turmeric growing states; hence this outcome.

P. S. S.: A.P. has a high yield of turmeric while the adjacent State of Orissa has the lowest yield. Comment.

P. K. D.: The genetic potential of Orissa turmeric cultivars is very low as compared to Andhra cultivar. Also, the cultural practices followed in Orissa are much inferior to that of A.P.

P. S. S.: What are the reasons for the violent fluctuation in prices?

P. K. D.: Price trend in turmeric indicates that the fluctuation follows a cob-web model i.e. in one year the price is high and the following year it is low. This is because of the fact that high price incentive motivates the farmer to extend the area under the crop, which results in increased production and consequent glut in the market leading to a decline in price.

P. S. S.: Export in 1979–80 is nearly double that of 1980–81. Are there any reasons to explain the above?

P. K. D.: The variations in export figures are due to the supply situation of the competing countries in any particular year. If the crop is poor in the other producing countries, India gets a fairly large business in the international market and vice-versa. Hence such fluctuations are not unusual.