

# Turmeric

Nutritional Supplement



**Visvesvaraya Trade Promotion Centre (VTPC)**

VTPC Building, Kasturba Road, Bengaluru-560001

# PREFACE

With a robust agro potential the Country has, the Government of India has launched the One District One Focus Product Scheme (ODOFP) for agriculture sector by the Ministry of Food Processing Industries. Among its primary objectives, the ODOFP initiative aims to enhance the value of the products which is eventually expected to boost employment and income levels of the farmers. The identified products across the country is available at <https://www.nfsm.gov.in/odopstatecropsreport.aspx>

Karnataka has identified its product mix with high demand and export potential across all the districts. The implementing agency for this initiative is the Karnataka State Agricultural Produce Processing and Export Corporation Limited (KAPPEC), the nodal agency in the State.

VTTC being the nodal agency for promotion of exports from the State has made an attempt to draw the action plan district wise, to capture the potential, present status and future prospects in domestic and international markets. Besides, detailed insights have been provided into the biological description of the product, their local, national and international varieties, export-import analysis, HS codes. For a holistic perspective for those concerned, each report also provides SPS standards, processing technologies available, export grading and packing specifications, and suggested pivotal roles and responsibilities among the government departments, boards, corporations and Universities.

Presenting the Action Plan/Report for Turmeric, a ODOFP product mapped to Chamarajanagar district of Karnataka, formulated by VTTC. I sincerely hope that this ready reckoner with first-hand information regarding the farming sector would help all those concerned, especially the FPOs and food processing entrepreneurs who have a desire to focus on exporting this product.

**S.R Satheesha**

Director (Exports) & Managing Director

# Content

## Page no.

Introduction

01

Turmeric Production (2020-21)

02

Varieties of Turmeric presently cultivated across India

02

Top 10 Exporting & Importing Countries of the World: 2021

05

Turmeric and its products: HS codes (World)

05

World Exports & Imports: 2021

05

Turmeric Export Performance of last 4 years

06

Export performance of Turmeric products: 2021-22

07

SPS – TBT Measures of Turmeric (A general note)

09

Turmeric Value Addition and Processing

10

Action plan

10

Responsibility Matrix

11

Regulators and Service providers

11



## Introduction

Turmeric is a flowering plant, *Curcuma longa*, of the ginger family, Zingiberaceae, the rhizomes of which are used in cooking. The plant is a perennial, rhizomatous, herbaceous plant native to the Indian subcontinent and Southeast Asia that requires temperatures between 20 and 30 °C (68 and 86 °F) and a considerable amount of annual rainfall to thrive. Plants are gathered each year for their rhizomes, some for propagation in the following season and some for consumption. These rhizomes are used fresh or boiled in water and dried, after which they are ground into a deep orange-yellow powder commonly used as a coloring and flavoring agent in many Asian cuisines, especially for curries, as well as for dyeing.

Turmeric powder has a warm, bitter, black pepper-like flavor and earthy, mustard-like aroma. Curcumin, a bright yellow chemical produced by the turmeric plant, is approved as a food additive by the World Health Organization, European Parliament, and United States Food and Drug Administration.

Turmeric is used widely as a spice in South Asian and Middle Eastern cooking. It is one of the key ingredients in many Asian dishes, imparting a mustard-like, earthy aroma and pungent, slightly bitter flavor to foods. It is used mostly in savory dishes, but also is used in some sweet dishes, such as the cake sfouf. In India, turmeric leaf is used to prepare special sweet dishes, patoleo, by layering rice flour and coconut-jaggery mixture on the leaf, then closing and steaming it in a special utensil (chondrō).

Most turmeric is used in the form of rhizome powder to impart a golden yellow color. It is used in many products such as canned beverages, baked products, dairy products, ice cream, yogurt, yellow cakes, orange juice, biscuits, popcorn, cereals, sauces, and gelatin. It is a principal ingredient in curry powders. Although typically used in its dried, powdered form, turmeric also is used fresh, like ginger. It has numerous uses in East Asian recipes, such as a pickle that contains large chunks of fresh soft turmeric.

**Phytochemistry:** Turmeric powder is about 60–70% carbohydrates, 6–13% water, 6–8% protein, 5–10% fat, 3–7% dietary minerals, 3–7% essential oils, 2–7% dietary fiber, and 1–6% curcuminoids. The golden yellow color of turmeric is due to curcumin.



## Turmeric Production (2020-21)

While there is speculation that turmeric may have originated from South or South-East Asia, its center of domestication is certainly the Indian subcontinent. Currently, India is the major producer of turmeric, and it is also the major user of its own production. Turmeric is part of India's culture: an important ingredient in curry dishes; also used in many religious observances, as a cosmetic, a dye, and enters in the composition of many traditional remedies. Other producers in Asia include Bangladesh, Pakistan, Sri Lanka, Taiwan, China, Burma (Myanmar), and Indonesia. Turmeric is also produced in the Caribbean and Latin America, Jamaica, Haiti, Costa Rica, Peru, and Brazil.

## Turmeric Production - Worldwide: Year 2021

The global production of turmeric is around 11 lakhs tonnes per annum. India dominates the world production scenario contributing 80% followed by China (8%), Myanmar (4%), Nigeria (3%) and Bangladesh (3%). In 2020-21, India had exported 1.71 lakh tonnes of turmeric compared to 1.37 lakh tonnes of the previous year.

## Turmeric production state-wise: India (2019-20)

Rank	State	Area (Hectares)	Production (tonnes)	Yield (Kgs/ha)	Share
	All India	1,101,920	7,652,414	3,856	100
1.	Telangana	49,000	313,000	6,388	28.40.%
2.	Maharashtra	57,669	226,714	3,931	20.57%
3.	Karnataka	21,496	130,928	6,091	11.88%
4.	Tamil Nadu	20,894	86,513	4,141	7.85%
5.	Andhra Pradesh	30,514	73,244	2,400	6.65%
6.	Madhya Pradesh	17,053	60,097	3,524	5.45%
7.	West Bengal	17,749	45,698	2,575	4.15%
8.	Orissa	27,867	43,611	1,565	3.96%
9.	Mizoram	7,653	29,510	3,856	2.68%
10.	Assam	16,359	20,885	3,809	1.90%

Source: [https://agriexchange.apeda.gov.in/India%20Production/India\\_Productions.aspx?code=1099](https://agriexchange.apeda.gov.in/India%20Production/India_Productions.aspx?code=1099)

## Varieties of Turmeric presently cultivated across India

India is a leading producer and exporter of turmeric in the world. Andhra Pradesh, Tamil Nadu, Orissa, Karnataka, West Bengal, Gujarat, Meghalaya, Maharashtra, Assam are some of the important states that cultivate turmeric, of which, Andhra Pradesh alone occupies 35.0% of area and 47.0% of production.

A number of cultivars are available in the country and are known mostly by the name of the locality where they are cultivated. Some of the popular cultivars are Duggirala, Tekurpeta, Sugandham, Amalapuram, Erode local, Alleppey, Moovattupuzha, and Lakadong.



IISR -Pragati



IISR-Kedaram



Prathibha



Prabha



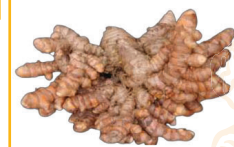
Suguna



Sudharsana



Suvarna



IISR-Alleppey  
Supreme



## Turmeric of South India



### Karnataka Varieties:

**Pragati: Curcumin  
5.02%, Oil 6.3%**



**Kedaram: Curcumin  
5.7%, Oil 3.0%**



**Pratibha: Curcumin  
6.5%, Oil 6.2%**



**Prabha:  
Curcumin 6.5%, Oil 6.5%**



**Suvarna:  
Curcumin 4.0%, Oil 7.0%**



**Alleppey Supreme:  
Curcumin 5.5%**

### Top 10 Exporting Countries of the world: 2021

Rank	Country	% Share	Value USD
1	India	62.83%	\$225.66M
2	Netherlands	4.27%	\$15.32M
3	Vietnam	3.24%	\$11.64M
4	Fiji	2.93%	\$10.53M
5	Myanmar	2.84%	\$10.19M
6	Peru	2.59%	\$9.30M
7	Indonesia	2.50%	\$8.99M
8	Germany	2.09%	\$7.50M
9	United States	1.36%	\$4.89M
10	Spain	1.19%	\$4.28M



## Top 10 Importing Countries of the world: 2021

Rank	Country	% Share	Value USD
1	United States	18.49%	\$62.76M
2	India	9.16%	\$31.08M
3	Bangladesh	8.55%	\$29.02M
4	Germany	4.89%	\$16.59M
5	Netherlands	4.23%	\$14.34M
6	United Kingdom	4.00%	\$13.58M
7	Malaysia	3.62%	\$12.27M
8	UAE	2.70%	\$9.17M
9	Japan	2.56%	\$8.68M
10	Canada	2.52%	\$8.54M

## Turmeric and its products: HS codes (World)

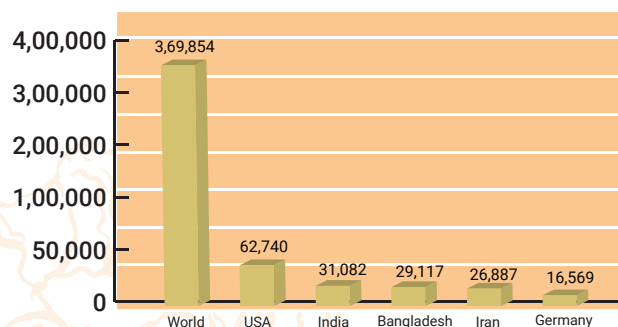
09103010	Fresh Turmeric
09103020	Dry Turmeric
09103030	Turmeric Powder
09103090	Other Turmeric

## World Exports & Imports: 2021

091030: "Turmeric " Curcuma

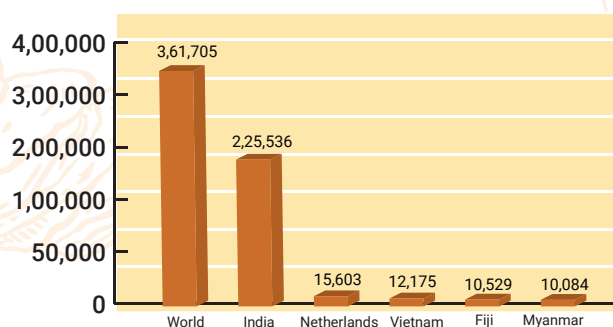
2021 Global Imports 369,854 USD.

No.	Country	Value USD
1.	USA	62,740
2.	India	31,082
3.	Bangladesh	29,117
4.	Iran	26,887
5.	Germany	16,569



2021 Global Exports 361,705 USD.

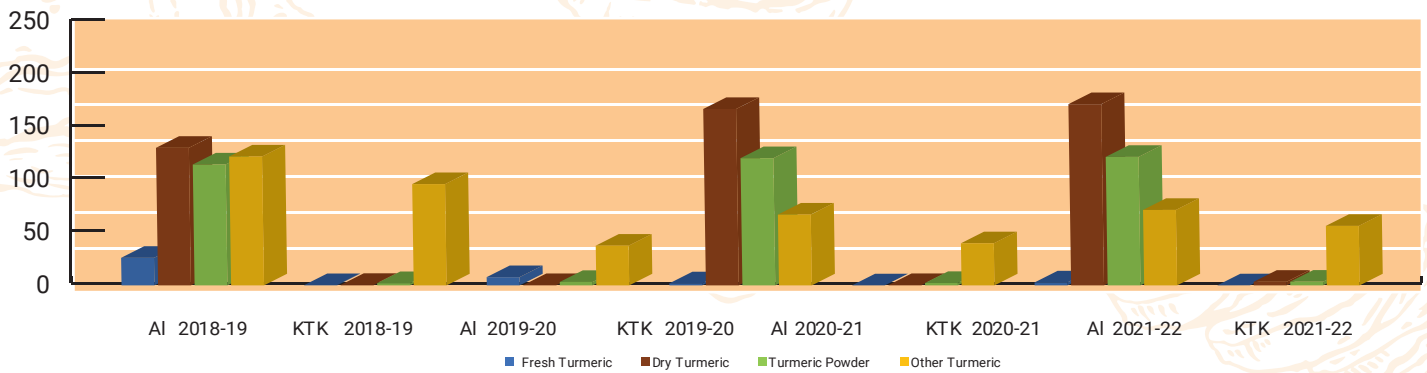
No.	Country	Value USD
1.	India	225,536
2.	Netherlands	15,603
3.	Vietnam	12,175
4.	Fiji	10,529
5.	Myanmar	10,084



Source: ITC - Trade-map.

## Turmeric Export Performance of last 4 years value in Mn USD

No	HS Code	Description	2018-19		2019-20		2020-21		2021-22		Major Importing Countries
			AI	CTK	AI	CTK	AI	CTK	AI	CTK	
1	09103010	Fresh Turmeric	16.98	0.14	5.07	0.05	1.25	0.01	1.80	0.03	UAE, Nepal & USA
2	09103020	Dry Turmeric	84.83	0.27	87.52	0.17	108.78	0.19	111.78	2.20	Bangladesh, UAE & Malaysia
3	09103030	Turmeric Powder	74.55	1.38	67.75	2.10	78.45	1.47	79.24	2.26	USA, Germany & Netherland
4	09103090	Other Turmeric	79.46	62.44	36.98	24.48	43.66	25.95	46.54	36.68	USA, Germany & UAE

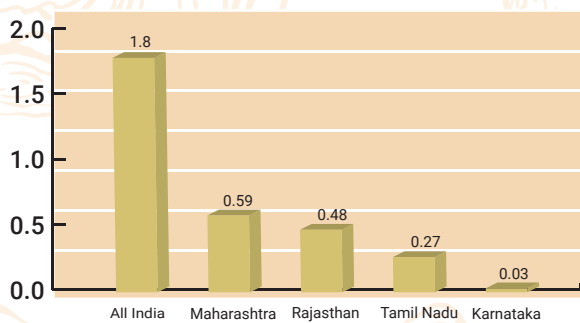


## Export performance of Turmeric products: 2021-22

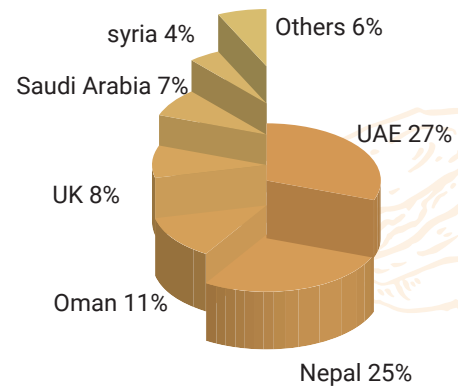
### 09103010: Fresh Turmeric

Rank	State	Value USD Mn	Destination
0	All India	1.80	UAE, Nepal, USA (+34)
1.	Maharashtra	0.59	UAE, UK, Syria (+19)
2.	Rajasthan	0.48	Nepal, UAE, UK (+4)
3.	Tamil Nadu	0.27	UAE, Bangladesh, Qatar (+18)
7.	Karnataka	0.03	UAE, Kyrgyzstan, UK (+3)

#### Exporting states



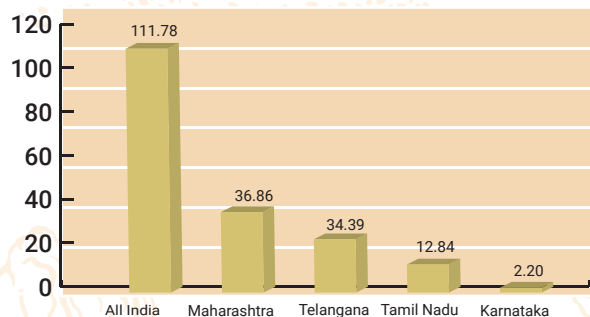
#### Importing Countries



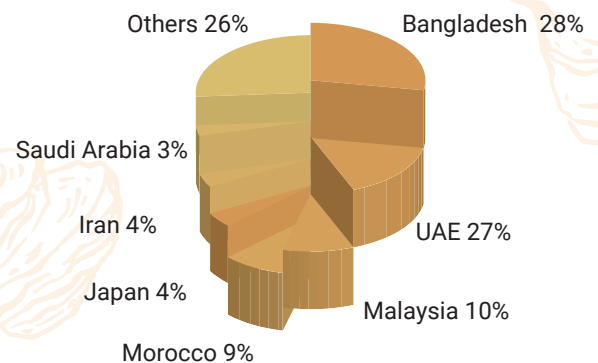
### 09103020: Dry Turmeric

Rank	State	Value USD Mn	Destination
0	All India	111.78	Bangladesh, UAE, Malaysia (+81)
1.	Maharashtra	36.86	Morocco, Bangladesh, Japan (+59)
2.	Telangana	34.39	UAE, Bangladesh, Saudi Arabia (+33)
3.	Tamil Nadu	12.84	Malaysia, UAE, Indonesia (+41)
7.	Karnataka	2.20	China, Morocco, Egypt (+6)

#### Exporting states



#### Importing Countries

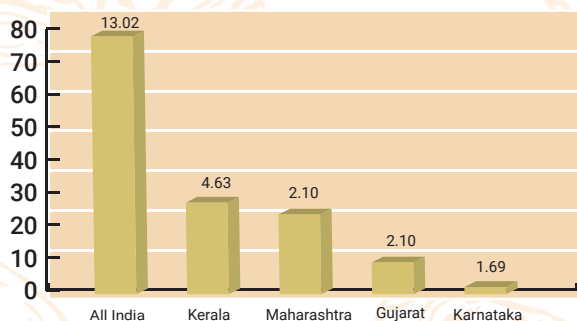




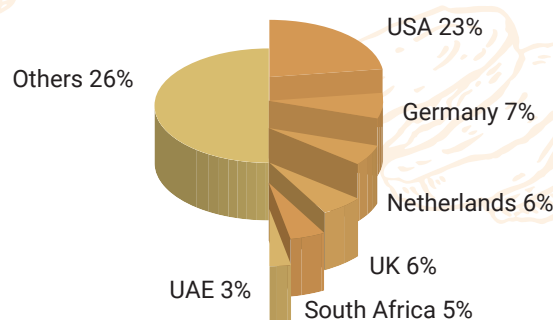
## 09103030: Turmeric Powder

Rank	State	Value USD Mn	Destination
0	All India	79.21	USA, Germany, Netherlands (+145)
1.	Kerala	28.15	USA, Indonesia, Germany (+64)
2.	Maharashtra	24.48	USA, South Africa, UK (+108)
3.	Gujarat	9.75	USA, UAE, Tunisia (+107)
4.	Karnataka	2.22	USA, Germany, UK (+23)

### Exporting States



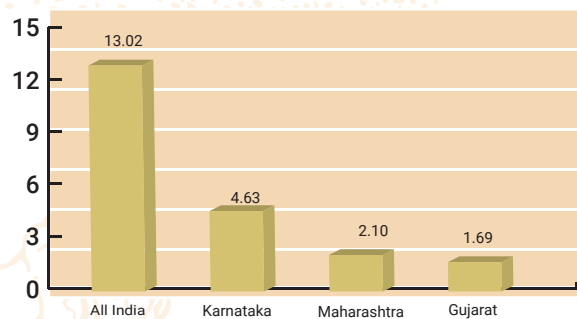
### Importing Countries



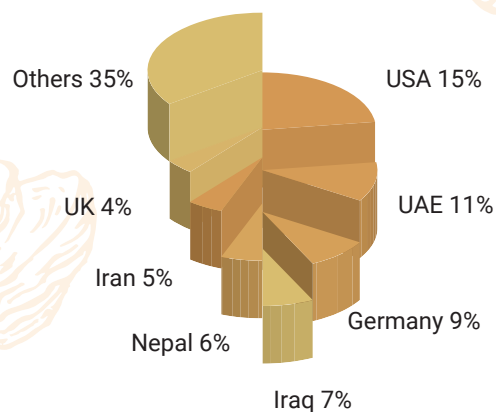
## 09103090: Other Turmeric

Rank	State	Value USD Mn	Destination
0	All India	13.02	USA, UAE, Germany (+80)
1.	Karnataka	4.63	USA, Korea, UAE (+14)
2.	Maharashtra	2.10	UK, Nepal, UAE (+35)
3.	Gujarat	1.69	UAE, Iran, USA (+28)

### Exporting States



### Importing Countries



Source: DGCIS and Exim Analytics.

## SPS – TBT Measures of Turmeric (A general note)

### General Characteristics

- It should be dried rhizomes of *Curcuma longa*, in pieces, irregular in shape, pale brown in colour. It must be free from added coloring and flavoring matter.
- It should have characteristic taste and flavour and not have a musty odour or a rancid or bitter taste.
- It should be free from mould growth and living insects and practically free from dead insects, insect fragments and rodent contamination.
- It should comply with restrictions regarding Aflatoxins, Metallic Contaminants, Insecticide or Pesticide residue, poisonous metals, naturally occurring Contaminants, Microbial load and the like as specified by the Codex Alimentarius Commission or as per buyers' requirements for Export purposes and the Prevention of Food Adulteration Rules, 1955 for domestic trade.

**USA:** The American Spice Trade Association, Inc., has established cleanliness specifications that meet or exceed the FDA food defect action levels. ASTA has a voluntary commodity tracking program, which spice buyers may use as assurance that the spice purchased meet ASTA's cleanliness standards. This program requires that the lot is examined by an ASTA approved independent laboratory, and passes all the requirements of the FDA, and the ASTA's cleanliness specifications. For more information visit: <http://www.astaspice.com>.

### ASTA Cleanliness specifications for turmeric

Whole insects, Mold dead	Excreta, Mammalian	Excreta, Other	Mold	Insect Defiled/ Infested	Extraneous Foreign Matter
by count	by mg/kg	by mg/kg	% by weight	% by weight	% by weight
3	11.1	11.1	3	2.5	0.5

Extraneous matter includes but is not restricted to stones, dirt, wire, string, stems, sticks, nontoxic foreign seeds, excreta, manure, and animal contamination.

**European Union:** EU-member countries such as the U.K., Germany and the Netherlands have their own specifications. The European Spice Association (ESA) has a set of "quality minima" for herbs.

Turmeric Product	Total Ash (% w/w) max (ISO 928)	Acid Insoluble Ash (% w/w) max (ISO 930)	Moisture (% w/w) max (ISO 939)	Volatile oil (v/w) min (ISO 6571)
Whole	8a	2a	12a	2.5a
Ground	9b	10b	10b	1.5c

a: British Standards Institute b: Indian Standards Institute c: European Spice Association

## Turmeric Value Addition and processing

- 🔗 Turmeric powder from fresh turmeric rhizome:  
[https://cftri.res.in/technologies/SFS/turmeric\\_powder.pdf](https://cftri.res.in/technologies/SFS/turmeric_powder.pdf)
- 🔗 Water soluble turmeric colorant (odorless) formulation (WTCTF):  
<https://cftri.res.in/technologies/SFS/WTCTF.pdf>
- 🔗 Turmeric Oil Processing and economics  
[www.ijirset.com/upload/2020/may/108\\_13\\_Extraction.PDF](http://www.ijirset.com/upload/2020/may/108_13_Extraction.PDF)
- 🔗 Turmeric Oleoresins scientific extraction and evaluation
- 🔗 Curcumin Extraction, Isolation and Quantification:  
<https://www.frontiersin.org/articles/10.3389/fnut.2021.747956/full>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7404808/#:~:text=In%20order%20to%20extract%20turmeric,turmeric%20oil%20extraction%20%5B66%5D>

## Action plan

- 🔗 As India is already the top producer of Turmeric, thrust must be provided on increasing our international presence.
- 🔗 Orientation and Facilitation must be prioritised to bridge the gap between research institutes, academia, industries, and farmers to facilitate exports.
- 🔗 A local APEDA testing lab and pack house in turmeric growing areas helps growers to understand quality standards and tap international markets.
- 🔗 Karnataka farmers must travel to Chennai and Madurai for processing their produce. Government intervention in this sector is very much appreciated. Encourage first generation entrepreneurs and start-ups to establish themselves in processing sector with effective hand holding.
- 🔗 Create awareness about the new products which have international market and transfer knowledge about required technology through ICAR- IISR and CFTRI, Mysuru to produce value added products.
- 🔗 Though fresh turmeric has a huge international market, up to 50% gets into local market for domestic consumption. Dried turmeric can be converted into value added products such as turmeric powder, turmeric oil and oleoresins.
- 🔗 These value-added products provide employment to a larger group locally and help the industries to establish themselves in exports as there is lot of demand in these sectors yet unexplored by Indian growers.



## Responsibility Matrix

Sl.no.	Actions	Responsibility
1.	Research on best global varieties	Agricultural and Horticultural Universities, Karnataka
2.	Farmer Sensitization program on available opportunities	Horticultural department and Spice Board, Karnataka
3.	Inviting Exporters/entrepreneurs to Investors meet for contract farming and processing industries	Spice Board, Karnataka and DIC across Districts.
4.	Farmer database and aggregation of the produce	Spice Board, Horticultural department and related FPOs
5.	Processing technology and Value Addition Handholding	Spice Board through ICAR- IISR and CFTRI, Mysuru.
6.	Export training, orientation, and Market Intelligence	VTTC Karnataka

## Regulators and Service providers

No.	Organization	Service	Contact
1.	APEDA	RCMC, Market survey and assistance.	1st Floor, Beeja Bhavan, Bellary Rd, Hebbal, Bengaluru - 560024. E: <a href="mailto:apedabl@apeda.gov.in">apedabl@apeda.gov.in</a>
2.	KAPPEC	PMFME Scheme	17, Richmond Rd, Shanthala Nagar, Richmond Town, Bengaluru - 560025. E: <a href="mailto:kappec1996@gmail.com">kappec1996@gmail.com</a>
3.	DGFT	IEC, Customs and ICEGATE	6th floor, Kendriya Sadan, C & E Wing, 17th main, Koramangala 2nd Block, Koramangala, Bengaluru - 560034 E: <a href="mailto:bangalore-dgft@nic.in">bangalore-dgft@nic.in</a>
4.	Plant Quarantine	Phyto Sanitary certification (SPS)	Hebbal-Boopasandra Road HA Farm Post, Bengaluru - 560024. E: <a href="mailto:dd-pqfsb-ka@nic.in">dd-pqfsb-ka@nic.in</a>
5.	BIAL Cool Port	Freight and Flight	KIAL Road, Devanahalli, Bengaluru -560300 W: <a href="http://www.aisats.in">http://www.aisats.in</a>
6.	Spice Board	Schemes and Incentives for turmeric exports	Shop No.2976, Krishna Rajendra Rd, Bengaluru - 560082 E: <a href="mailto:spicesboard.blr@gmail.com">spicesboard.blr@gmail.com</a>