**Parameters for Performance Review of Commodity for the Financial year 2019-20**

**Turmeric**

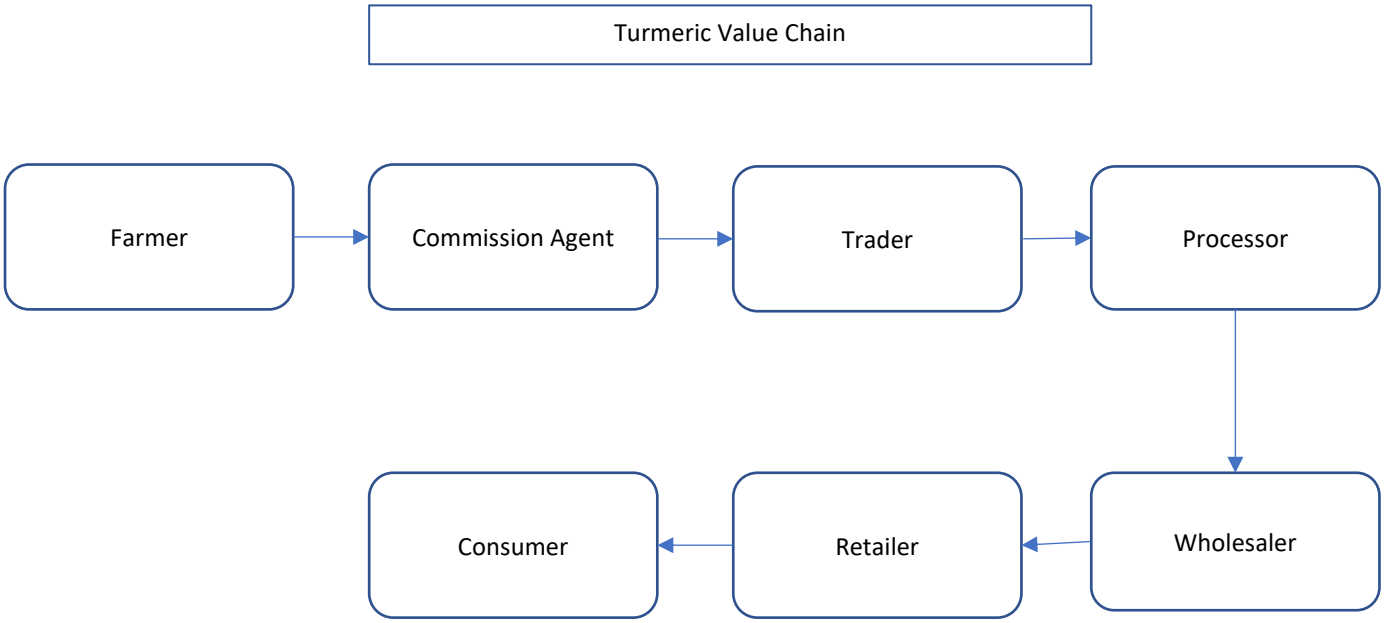
## 1. Background

### a) Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India

Turmeric is the boiled, dried, cleaned, and polished rhizomes of Curcuma longa. The plant is a herbaceous perennial, 60-90 cm high, with a short stem and tufted leaf. There are 7 to 12 leaves, the leaf sheaths forms the pseudo stem. The lamina is green above and pale green below and has a length of 30-40 cm and width 8-12 cm. Inflorescence is a central spike of 10-15 cm length. 1-4 flowers are born in axil of the bract opening one at a time. About 30 flowers are produced in a spike. Seeds are produced in capsules and there will be one to numerous sunken capsules in an inflorescence.

***Source: Spices Board of India***

**Value Chain for Turmeric**

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**Various grades of Turmeric Produced in India**

There are about 30 turmeric varieties grown in India. Among them Alleppey and Madras (Perianadan) are of great commercial importance. Some of the improved varieties are: CO-11983, BSR-11986, Krishna, Roma, Suroma, Ranga, Rasmi, Megha Turmeric-1, Suguna, Sudarshana, Suranjana, Duggirala, Kodur, Suvarna, Varna, IISR Prabha, IISR Pratibha, Rajendra Sonia etc. In India most of the turmeric used is of dried variety, one of the best and popular variety is the 'Erode'. Other major varieties are Alleppey Finger' (Kerala) 'Rajapore' and 'Sangli turmeric' (Maharashtra), 'Nizamabad Bulb' (Andhra Pradesh).

**b) Commodity fundamentals and balance sheet as per the following format (to be prepared based on publicly available information on best effort basis**

| Global Scenario (In Lakh Tonnes) | 2018 | 2019 |
|---|---|---|
| Opening Stock | N.A | N.A |
| Production | N.A | N.A |
| Imports | 1.35 | 0.95 |
| Total Supply | N.A | N.A |
| Exports | 1.48 | 1.26 |
| Consumption | N.A | N.A |
| Ending Stocks | N.A | N.A |
| ***Source: UN Comtrade***<br>***As FY basis data is Not available CY basis data is considered*** | | |

| Indian Scenario (In lakh tonnes) | | |
|---|---|---|
| | 2018-19 (Est) | 2019-20 (Adv Est) |
| Production | 9.59 | 9.38 |
| Imports | 0.17 | 0.31 |
| Supply | 9,77 | 9.71 |
| Exports | 1.34 | 1.36 |
| Domestic Consumption | NA | NA |
| ***Source: Spices Board Of India*** | | |

**Top 10 Major producing countries (in tonnes)**

**Not Available**

India is by far the largest producer and exporter of turmeric in the world. As per the market and various reports, India produces nearly entire whole world's crop and consumes `80% of it. The remaining ~20% is cultivated in China, Myanmar, Nigeria and Bangladesh

**Top 10 Major consuming countries (in tonnes)**

**Not Available**

As per the market and various reports, India produces nearly entire whole world's crop and consumes ~80% of it.

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**Top 10 Major Exporting countries (in tonnes)**

| Top 10 Major Exporting Countries (In Lakh tonnes) | | |
|---|---|---|
| Country | 2018 | 2019 |
| India | 1.22 | 1.2 |
| USA | 0.01 | 0.01 |
| United Kingdom | 0.01 | 0.01 |
| EU | 0.01 | 0.01 |
| Spain | 0.01 | 0.01 |
| Belgium | 0.0 | 0 |
| Thailand | 0.0 | 0 |
| Poland | 0.0 | 0 |
| Latvia | 0.0 | 0 |
| Peru | 0.02 | 0 |
| ***Source: UN Comtrade*** | | |

**Top 10 Major Importing countries (in tonnes)**

| Top 10 Major Exporting Countries (In Lakh Tonnes) | | |
|---|---|---|
| Country | 2018 | 2019 |
| EU | 0.19 | 0.23 |
| India | 0.31 | 0.23 |
| USA | 0.1 | 0.1 |
| UK | 0.07 | 0.09 |
| Japan | 0.04 | 0.05 |
| Egypt | 0.02 | 0.03 |
| South Africa | 0.02 | 0.02 |
| Spain | 0.02 | 0.02 |
| Poland | 0.01 | 0.01 |
| Kazakhstan | 0 | 0.01 |
| ***Source: UN Comtrade*** | | |

**Top 10 Major producing States In India**

| State | 2018-19 (Est) (In lakh tonnes) | 2019-20 (Adv Est) (In lakh tonnes) |
|---|---|---|
| TELANGANA | 3.45 | 3.12 |
| KARNATAKA | 1.54 | 1.50 |
| TAMIL NADU | 0.80 | 0.90 |
| ANDHRA PRADESH | 0.86 | 0.80 |
| WEST BENGAL | 0.45 | 0.45 |
| ORISSA | 0.44 | 0.44 |
| MAHARASHTRA | 0.38 | 0.40 |
| MIZORAM | 0.30 | 0.30 |
| ASSAM | 0.19 | 0.23 |
| GUJARAT | 0.17 | 0.16 |
| HARIYANA | 0.02 | 0.03 |
| ***Source: Spices Board Of India*** | | |

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**c) Major changes in the polices governing trade in the spot markets of the commodity**

Exemption of mandis, procurement agencies, farm operations, agri machinery hiring centres as well as intra- and inter-state movement of farm implements from the lockdown rules by the central government

**d) Geopolitical issues in the commodity and its impact on Indian scenario**

- Low yield due to dumpa tegulu (tuber disease) following heavy rains
- High Moisture content due to heavy rains

**2. Trading related parameter**

**a) Monthly and Annual traded volume**

| Month | Traded Volume (In MT) |
|---|---|
| Apr-19 | - |
| May-19 | - |
| Jun-19 | 5,450 |
| Jul-19 | 77,680 |
| Aug-19 | 79,420 |
| Sep-19 | 46,410 |
| Oct-19 | 19,210 |
| Nov-19 | 1,780 |
| Dec-19 | 5,310 |
| Jan-20 | 4,700 |
| Feb-20 | 15,820 |
| Mar-20 | 39,620 |
| **Total** | **2,95,400** |

**b) Annual traded volume as proportion of total deliverable supply: 26.2578%**

- Annual Traded Volume: 2,95,400 MT
- Deliverable Supply: 11,25,000 MT

**c) Annual traded volume as proportion of total annual production: 26.6606%**

- Annual Traded Volume = 2,95,400 MT
- Annual Production 19-20 = 11,08,000

**d) Annual average Open interest as proportion of total production: 0.0162%**

- Annual Average OI = 180 MT
- Annual Production = 11,08,000 MT

**e) Annual average Open interest as proportion of total deliverable supply: 0.0160%**

- Annual Average OI = 180 MT
- Deliverable Supply = 11,25,000 MT

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### f) Monthly and Annual value of trade

| Month | Value Of trade (In Crores) |
|---|---|
| Apr-19 | - |
| May-19 | - |
| Jun-19 | 36.42 |
| Jul-19 | 513.58 |
| Aug-19 | 520.89 |
| Sep-19 | 284.12 |
| Oct-19 | 110.63 |
| Nov-19 | 10.64 |
| Dec-19 | 32.16 |
| Jan-20 | 29.24 |
| Feb-20 | 94.27 |
| Mar-20 | 226.64 |
| **Total** | **1,858.59** |

### g) Monthly and Annual quantity of delivery

| Month | Quantity of delivery (In MT) |
|---|---|
| Apr-19 | - |
| May-19 | - |
| Jun-19 | - |
| Jul-19 | - |
| Aug-19 | 80 |
| Sep-19 | 130 |
| Oct-19 | 30 |
| Nov-19 | 10 |
| Dec-19 | 70 |
| Jan-20 | - |
| Feb-20 | - |
| Mar-20 | - |
| **Total** | **320** |

### h) Monthly and Annual value of delivery

| Month | Value of Delivery (In Crores) |
|---|---|
| Apr-19 | - |
| May-19 | - |
| Jun-19 | - |
| Jul-19 | - |
| Aug-19 | 0.54 |
| Sep-19 | 0.81 |
| Oct-19 | 0.17 |
| Nov-19 | 0.06 |
| Dec-19 | 0.42 |
| Jan-20 | - |
| Feb-20 | - |
| Mar-20 | - |
| **Total** | **2.01** |

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i) **Monthly and Annual Average Open Interest (OI)**

| Month | Average OI (In MT) |
|---|---|
| Apr-19 | - |
| May-19 | - |
| Jun-19 | 410 |
| Jul-19 | 620 |
| Aug-19 | 430 |
| Sep-19 | 360 |
| Oct-19 | 300 |
| Nov-19 | 270 |
| Dec-19 | 80 |
| Jan-20 | - |
| Feb-20 | - |
| Mar-20 | - |

**Annual Average Open Interest (OI) = 180 MT**

***Note: Average OI is taken since launch date till the end of the year***

j) **Annual average volume to open interest ratio: 833.33%**

- Average of Traded Volume: 1500 MT
- Average of Open Interest: 180 MT

k) **Total number of unique members and clients who have traded during the financial year**

- unique members = 23
- unique clients = 33

l) **Ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest (Annual average as well as maximum daily value)**

**Not Available**

m) **Number of unique FPOs / farmers and VCPs/hedgers who traded in the financial year**

**Not Available**

n) **Algorithmic trading as percentage of total trading**

**Nil**

o) **Delivery defaults**

**Number of instances = Nil**

**Quantity involved = Nil**

**Value involved = Nil**

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3. **Price movements**

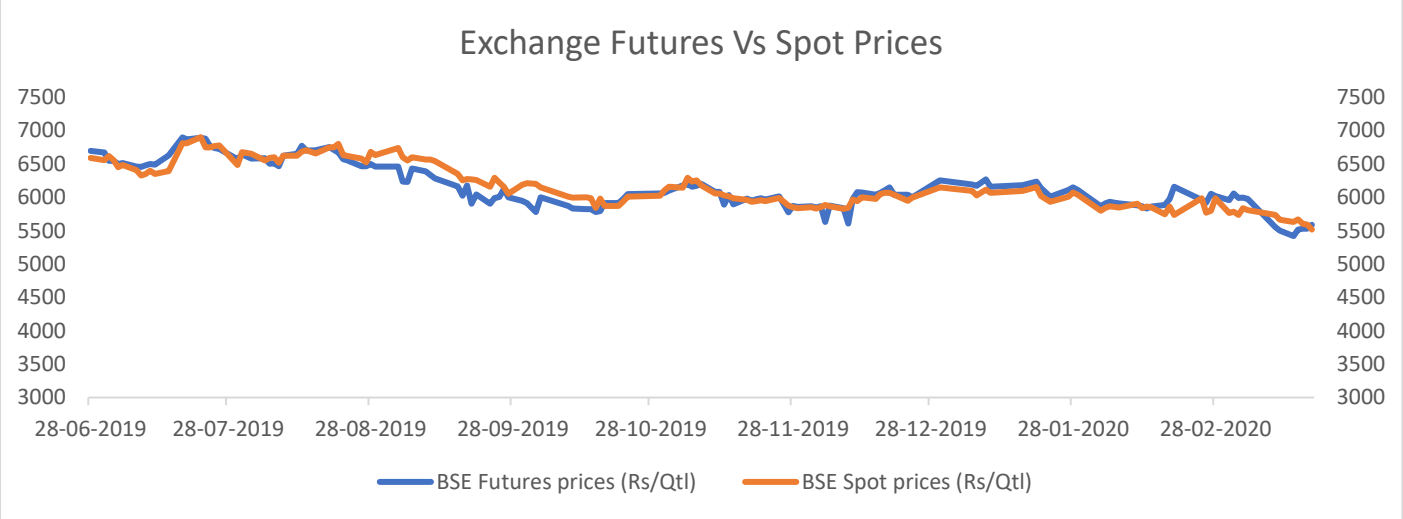
a) **Comparison, correlation, and ratio of standard deviation of Exchange futures price vis-à-vis international futures price (wherever relevant comparable are available)**

**Not Available**

b) **Comparison, correlation, and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price)**

**Not Available**

c) **Correlation between exchange futures & domestic spot prices along with ratio of standard deviation.**




The correlation between Exchange futures and Exchange Spot Prices was 0.9164 for the period June 28,2019 to March 20,2020

The standard deviation of Exchange Futures prices was 1.77% for period for the period June 28,2019 to March 20,2020

The standard deviation of Exchange Spot prices was 1.48% for period for the period June 28,2019 to March 20,2020

The ratio of Standard Deviation for the same period was 1.20

d) **Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available)**

**Not Available**

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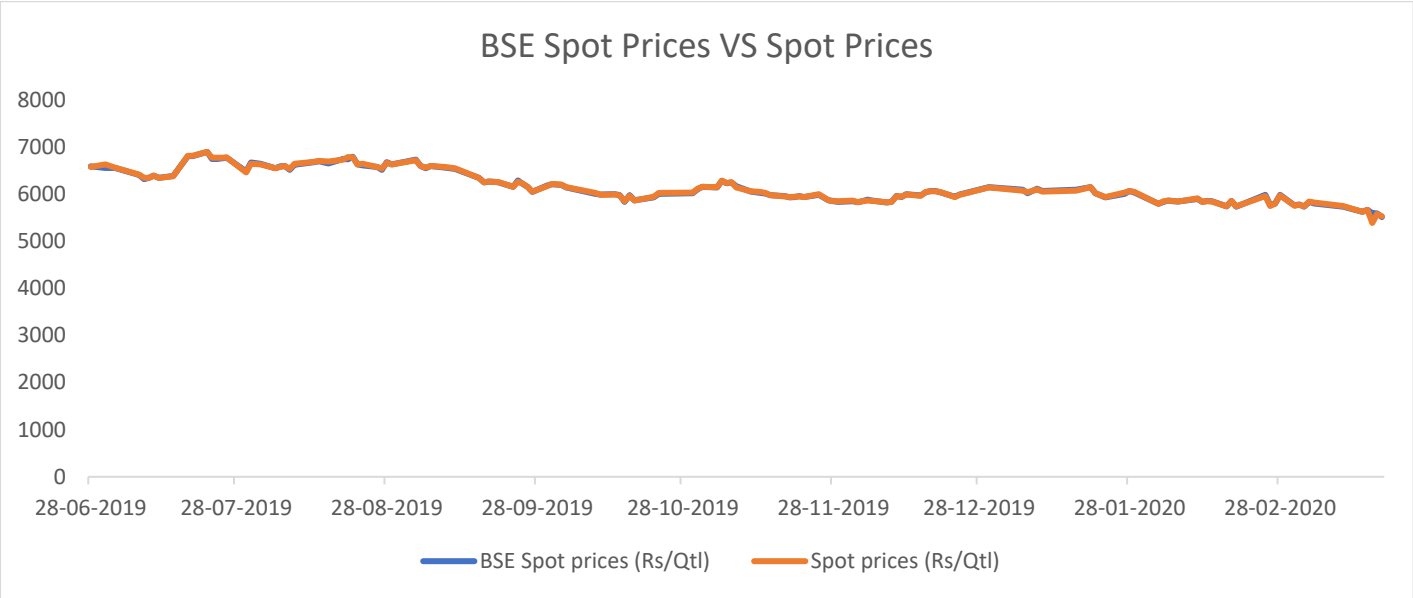
**e) Comparison of Exchange polled price and mandi price (in case of agricultural commodities) / other relevant price (in case non-agricultural commodities) at basis centre**




**f) Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility.**

| Commodity | Max of Daily Futures Price Volatility % | Min Daily Futures Price Volatility % | Max of Daily Spot Price Volatility % | Min Daily Spot Price Volatility % |
|---|---|---|---|---|
| Turmeric | 6.62% | -7.08% | 6.52% | -4.31% |
| ***Note: for the period June 28,2019 to March 20,2020*** | | | | |

**g) Number of times the futures contract was in backwardation/contango by more than 4% for the near month contract in the period under review**

**Instances of Contango** – 14

**Instances of Backwardation** - 7

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4. **Other's parameters**

a) **Qualitative and quantitative measure for Hedge effectiveness ratio and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations**

**Hedge Effectiveness for FY 2019-20**

| Commodity | Hedge Efficiency |
|---|---|
| Turmeric | 99.64% |

***Note: Hedging efficiency is the 'R Square' value of the regression equation between BSE futures prices and BSE polled spot prices during the financial year.***

**Basis Risk for FY 2019-20**

| Commodity | Unit | Average Return of Basis (Unit) | Standard deviation |
|---|---|---|---|
| Turmeric | Rs/Qtl | -0.96 | 9.64 |
| ***Note: Period 28/06/2019 to 20/03/2019*** | | | |

- ***Note: Basis Risk is computed as the Standard deviation of daily normal return in Basis, which is excess of Spot over Futures price.***

b) **Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centers (information to be provided state-wise and UT-wise)**

| **Name of State** | **Name of the physical markets** | **Market Reach of Exchange delivery Centers** |
|---|---|---|
| **Telangana** | Nizamabad, Warangal, Ksamudram, Vikarabad | Nizamabad -Basis Centre |
| **Maharashtra** | Sangli, Hingoli, Basmat, Nanded ,Jalgaon | Sangli, Basmat-Additional Delivery Centre |
| **Tamil Nadu** | Erode, Salem, Coimbatore | Erode-Additional Delivery Centre |
| **Andhra Pradesh** | Cuddapah, Duggirala | No Delivery Centre |

c) **Details about major physical markets of the commodity and average Open Interest for each month generated from those regions**

Details about physical markets are given above. Region-wise open interest is not available

d) **Details, such as number and target audience, of stakeholders' awareness programs carried out by the exchange**

| Sr. No. | Program Type | Location | Participants |
|---|---|---|---|
| 1 | Turmeric Event | Jaipur | 70 |
| 2 | Commodity Awareness | Mumbai | 250 |
| 3 | Turmeric Event | Sangli | 250 |
| 4 | Turmeric Awareness Program | Erode | 250 |

- Exchange conducted meeting with physical market participants to create awareness about Turmeric Contract

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- Apart from the above Awareness Programs, Exchange also participated in the following Events and show cased BSE's Commodity derivatives Segment.

  Agrovision Event Nagpur

  Globoil 2019- Mumbai

  International Soy Conclave -Indore

  Exchange had also arranged client awareness session with Brokers.

**e) Steps taken / to be undertaken to improve hedging effectiveness of the contracts as well as to improve the performance of illiquid contracts**

Exchange has conducted several client and product awareness programmes for the market participants

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