Parameters for Performance Review of Commodity for the Financial year 2020-21

Cotton

1. **Background**

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

Cotton is a natural, soft fiber that grows with the seeds of the cotton plant. (Fiber is long and thin, like hair.) After, the cotton fiber is gathered from the plant, it can be spun into cotton thread. The cotton thread can then be made into cloth. The cloth can be used to make clothes for people and many other things.

There are different types of cotton plants. Some cotton plants grow wild in tropical and subtropical areas of the world. This is how cotton was discovered many years ago. Most of the cotton gathered to make cloth comes from crops grown on cotton plantations. Cotton is farmed in Africa, Asia, Europe, Australia, and the Americas.

Growth Stages of Cotton

The developmental phases for cotton can be divided into five main growth stages:

(1) germination and emergence

(2) seedling establishment

(3) leaf area and canopy development

(4) flowering and boll development

(5) maturation

Growth Stage	Days	Heat Units – DD60s
Planting to Emergence	4 to 9	50 to 60
Emergence to First Square	27 to 38	425 to 475
Square to Flower	20 to 25	300 to 350
Planting to First Flower	60 to 70	775 to 850
Flower to Open Boll	45 to 65	850 to 950
Planting to Harvest Ready	130 to 160	2200 to 2600
Source: Cotton.org		

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Value Chain for Cotton

Cotton is also one of the most important commercial crops cultivated in India. In the raw material consumption basket of the Indian textile industry, the proportion of cotton is around 59%. It plays a major role in sustaining the livelihood of an estimated 5.8 million cotton farmers and 40-50 million people engaged in related activity such as cotton processing & trade. The textile industry contributes significantly to the economy in terms of industrial output, employment generation and the export earnings of the country. It contributes about 4% to GDP, 14% to the industrial production and 17% to the country's export earnings. The Indian textile industry provides direct employment to over 35 million people. The textile sector is the second largest provider of employment after agriculture. India is one of the few countries in the world to have a well-established, complete value chain in the textile industry.

Supply chain is typically thought to be linear - a simple string of value chain actors that transform a raw material into a final product. For cotton, this involves

1) picking the cotton ball – which is Kapas

2) separating the lint from stems and other materials (ginning)

3) spinning the lint into yarn

4) knitting or weaving the yarn into fabric

5) converting the fabric into a final product

6) distributing and selling the product, and finally using the product. These activities occur within a global marketplace—an extensive physical infrastructure that connects buyers and sellers worldwide, all supported by an international financial market. Considering such a large value chain, there is possibility of high number of participants interested in derivatives trading of cotton.

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

Global Cotton Scenario		
1000 MT (Season Beginning August 1)	2019-20	2020-21
Production	26,588	24,672
Imports	8,867	9,694
Exports	9,032	9,698
Consumption	22,411	25,574
Closing Stocks	21,426	20,595
Source: United States Department of Agriculture 2020-21, April 2021 report		

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India Cotton Scenario		
In lakh bales of 170 kgs	2019-20 (P)	2020-21 (P)
Opening Stocks	56.2	120.95
Production	365	371
Import	15.5	11
Total Supply	380.5	382.0
Exports	47.04	78
Domestic Consumption	269.03	330
Closing Stocks	120.95	97.95
Source: Cotton Corporation Of India, Meeting of Committee on Cotton Production and Consumption (COCPC) held on 25-01-2021		

Top 10 Major producing countries

Top 10 Major producing countries (in 1000 MT)			
Country	2019-20	Country	2020-21
India	6,641	China	6,314
China	5,933	India	6,314
United States	4,336	United States	3,201
Brazil	2,874	Brazil	2,504
Pakistan	1,350	Pakistan	980
Turkey	784	Uzbekistan	762
Uzbekistan	762	Turkey	631
Greece	365	Australia	544
Mexico	342	Greece	305
Benin	316	Benin	294
Source: United States Department of Agriculture, April 2021			

Top major Consuming Countries

Top 10 Major Consuming countries (in 1000 MT)			
Country	2019-20	Country	2020-21
China	7,403	China	8,655
India	4,463	India	5,291
Pakistan	1,960	Pakistan	2,243
Bangladesh	1,415	Bangladesh	1,676
Turkey	1,393	Turkey	1,633
Vietnam	1,372	Vietnam	1,481
Brazil	675	Uzbekistan	686
Uzbekistan	653	Brazil	653
United States	588	Indonesia	523
Indonesia	588	United States	501
Source: United States Department of Agriculture, April 2021			

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Top 10 Major Exporting countries (in tonnes)

Top 10 Major Exporting countries (in 1000 MT)			
Country	2019-20	Country	2020-21
United States	3,266	United States	3,429
Brazil	1,872	Brazil	2,286
India	697	India	1,241
Greece	305	Australia	305
Australia	272	Greece	294
Benin	261	Benin	283
Mali	256	Cote d'Ivoire	239
Burkina	180	Burkina	180
Cameroon	109	Mali	131
Argentina	93	Cameroon	125
Source: United States Department of Agriculture, April 2021 report			

Top 10 Major Importing countries

Top 10 Major Importing countries (in 1000 MT)			
Country	2019-20	Country	2020-21
China	1,633	China	2,558
Bangladesh	1,437	Bangladesh	1,611
Vietnam	1,415	Vietnam	1,481
Turkey	827	Pakistan	1,154
Pakistan	697	Turkey	1,045
Indonesia	621	Indonesia	490
India	435	Malaysia	185
Malaysia	283	Mexico	185
Thailand	152	India	174
Mexico	131	Egypt	131
Source: United States Department of Agriculture, April 2021 report			

Top 10 Major producing States in India (in tonnes)

Top 10 Major producing states in India (in lakh bales of 170 kg)			
State	2019-20 (p)	State	2020-21 (p)
Gujarat	89	Gujarat	90.5
Maharashtra	87	Maharashtra	86
Telangana	54	Telangana	60
Rajasthan	29	Rajasthan	27
Haryana	26.5	Haryana	25
Madhya Pradesh	20	Madhya Pradesh	21
Karnataka	20	Karnataka	20

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Andhra Pradesh	18	Andhra Pradesh	18
Punjab	9.5	Punjab	12
Tamil Nadu	6	Tamil Nadu	5
Source: Cotton Corporation Of India, Meeting of Committee on Cotton Production and Consumption (COCPC) held on 25-01-2021			

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

There were no changes in policies related to cotton for the period FY 2020-21.

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

- In July 2020 the cotton prices were below international rates due to weak demand and increased sowing for the season. Also excessively high estimates made by USDA increased the pressure on India Cotton prices
- Higher imports by China and low carry forward stocks
- US -China Trade war tensions
- Covid Induced traded barriers also affected the demand side of cotton.

2. Trading related parameter

a) Monthly and Annual traded volume

Month	Traded Volume (in Bales)
Apr-20	2,47,650
May-20	2,09,200
Jun-20	3,51,375
Jul-20	76,950
Aug-20	-
Sep-20	-
Oct-20	-
Nov-20	-
Dec-20	-
Jan-21	-
Feb-21	-
Mar-21	-
Total	**8,85,175**

b) Annual traded volume as proportion of total deliverable supply: 2.31%

- Annual Traded Volume: 8,85,175 bales
- Deliverable Supply: 3,82,00,000 bales

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c) Annual traded volume as proportion of total annual production: 2.38%

- Annual Traded Volume: 8,85,175 bales
- Annual Production: 3,71,00,000 bales

d) Annual average Open interest as proportion of total production: Nil

- Annual Average OI: Nil
- Annual Production: 3,71,00,000 bales

e) Annual average Open interest as proportion of total deliverable supply: Nil

- Annual Average OI: Nil
- Deliverable Supply: 3,82,00,000 bales

f) Monthly and Annual value of trade

Month	Value of Trade (In Crores)
Apr-20	402.02
May-20	329.30
Jun-20	568.92
Jul-20	123.51
Aug-20	-
Sep-20	-
Oct-20	-
Nov-20	-
Dec-20	-
Jan-21	-
Feb-21	-
Mar-21	-
Total	**1,424**

g) Monthly and Annual quantity of delivery

Month	Quantity of delivery (Bales)
Apr-20	-
May-20	-
Jun-20	-
Jul-20	-
Aug-20	-
Sep-20	-
Oct-20	-
Nov-20	-
Dec-20	-
Jan-21	-

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Feb-21	-
Mar-21	-
Total	**-**

h) Monthly and Annual value of delivery

Month	Value of delivery
Apr-20	-
May-20	-
Jun-20	-
Jul-20	-
Aug-20	-
Sep-20	-
Oct-20	-
Nov-20	-
Dec-20	-
Jan-21	-
Feb-21	-
Mar-21	-
Total	**-**

i) Monthly and Annual Average Open Interest (OI)

Month	Average OI (In bales)
Apr-20	-
May-20	-
Jun-20	-
Jul-20	-
Aug-20	-
Sep-20	-
Oct-20	-
Nov-20	-
Dec-20	-
Jan-21	-
Feb-21	-
Mar-21	-
Total	**-**

Annual Average OI = Nil

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j) Annual average volume to open interest ratio: Nil

- Average of Traded Volume = 10,800 bales
- Average of Open Interest = Nil

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

- Unique members = 4
- Unique clients = 4

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

Nil

BSE is creating awareness for various stakeholders by conducting awareness programs

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

Nil

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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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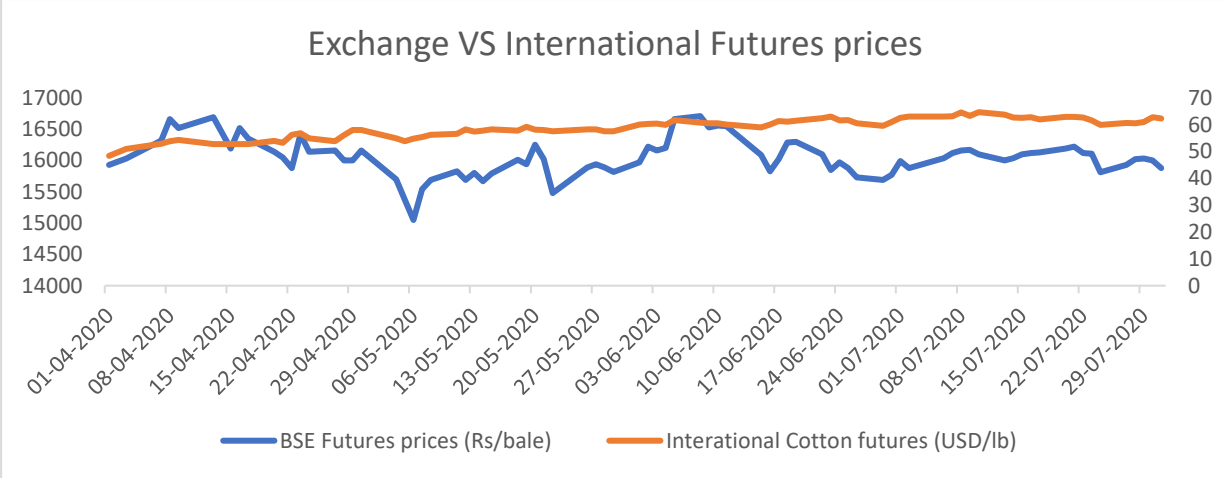
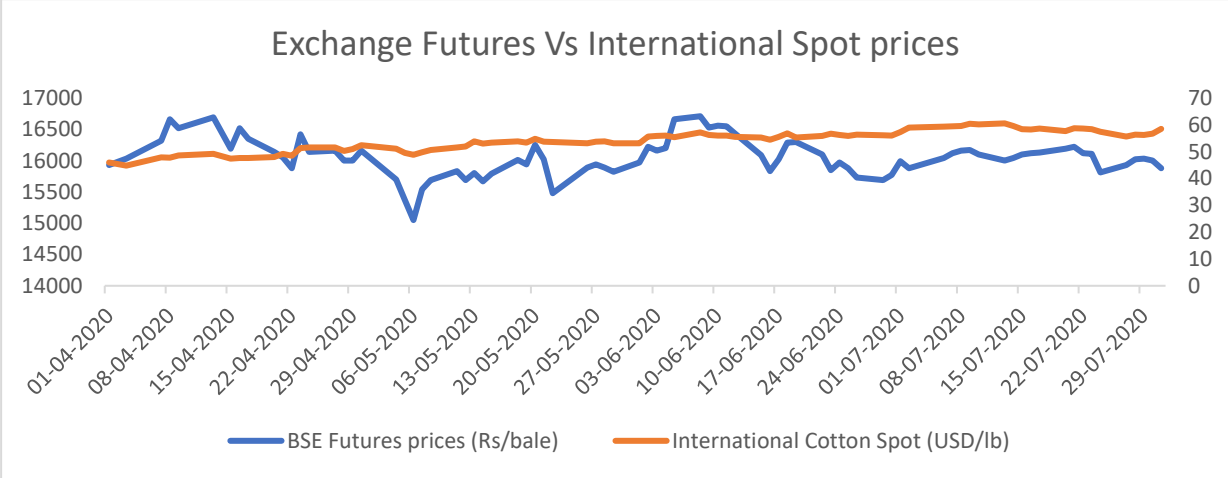
3. **Price movements**

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



- The correlation between Exchange futures and International futures Prices was -0.1040 for the period April 01, 2020 to July 31,2020
- The standard deviation of Exchange Futures prices was 1.14% for period for the period April 01, 2020 to July 31,2020
- The standard deviation of International Futures prices was 1.72% for period for the April 01, 2020 to March 31,2021
- The ratio of Standard Deviation for the period April 01, 2020 to July 31,2020 was 0.68

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**



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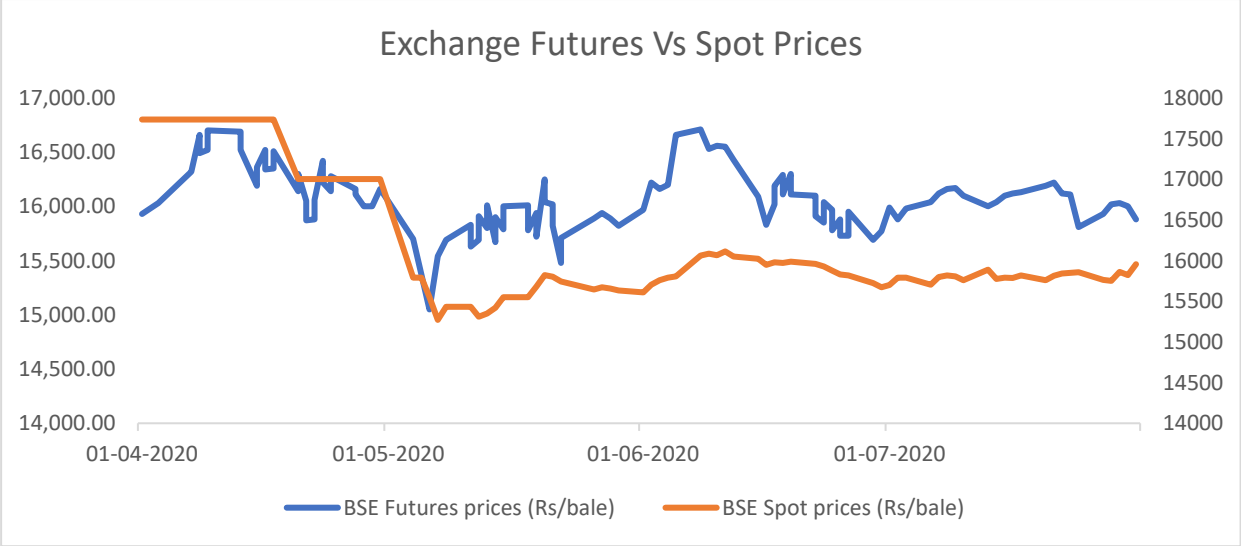
- The correlation between Exchange futures and International Spot Prices was -0.0762 for the period April 01, 2020 to July 31,2020
- The standard deviation of Exchange Futures prices was 1.14% for period for the period April 01, 2020 to July 31,2020
- The standard deviation of International Spot prices was 1.82% for period for the period April 01, 2020 to March 31,2021
- The ratio of Standard Deviation for the period April 01, 2020 to July 31,2020 was 0.69

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



- The correlation between Exchange futures and Exchange Spot Prices was 0.5724 for the period April 01, 2020 to July 31,2020
- The standard deviation of Exchange Futures prices was 1.14% for period for the period April 01, 2020 to July 31,2020
- The standard deviation of Exchange Spot prices was 0.88% for period for the period April 01, 2020 to July 31,2020
- The ratio of Standard Deviation for the same period was 1.29

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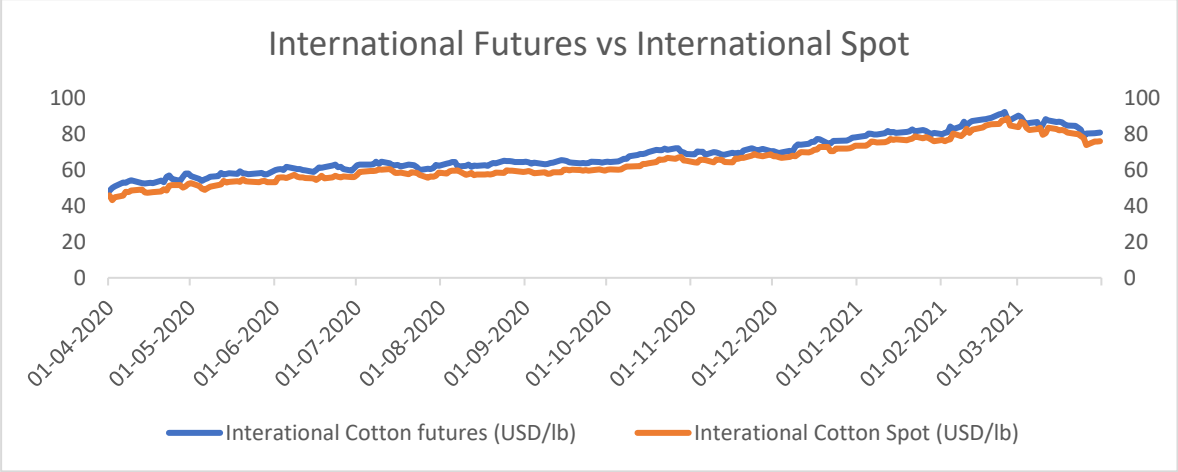
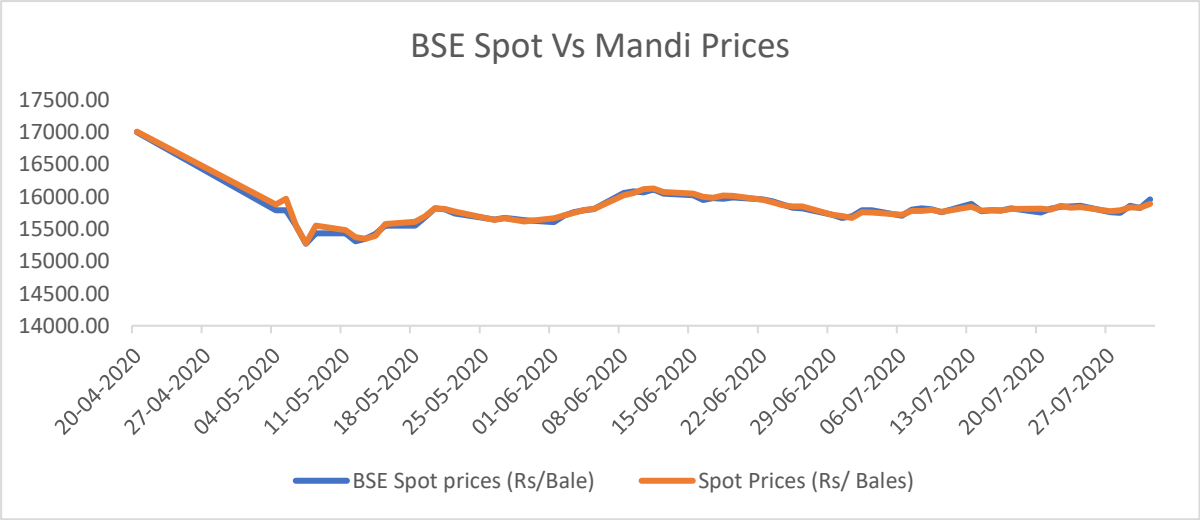
d) Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available)



- The correlation between International futures and International Spot Prices was 0.9930 for the period FY20-21
- The standard deviation of International Futures prices was 1.58% 0.96% for the period FY20-21
- The standard deviation of International Spot prices was 1.65% or period for the period FY20-21
- The ratio of Standard Deviation for the same period was 0.96

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



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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 Daily Futures Price Volatility %	Min Daily Futures Price Volatility %	Max of Daily Spot Price Volatility %	Min of Daily Spot Price Volatility %
Cotton	3.40%	-3.37%	1.60%	-7.13%
Note: for period April 2020 to July 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 – Nil
Instances of Backwardation – Nil

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 20-21**

Commodity	Hedge Efficiency
Cotton	32.76%

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 Duration considered: April 2020 to July 2020

- **Basis Risk for FY 2019-20**

Commodity	Unit	Average Return of Basis (Unit)	Standard deviation
Cotton	Rs/bales	-0.3137	2.27
Note: for period April 2020 to July 2020			

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

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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
Gujarat	Keshod, Bardoli, Jetpur Pavi, Gondal, Balasienor, Rajkot, Babra, Amreli, Sabarkantha, Visnagar, Vijapur, Halvad, Unai, Manavadar, Bevla, Mansa, Mandvi, Kutch.	Rajkot- Basis Centre Kadi, Mundra - Additional Delivery Centres
Maharashtra	Nagpur, Narkhed, Nanded, Yavatmal, Hinganghat, Wardha, Pulgaon,Akola, Amaravati, Murtizapur, Aurangabad, Jalna, Sillod, Dhule, Jalgaon	Yavatmal, Jalna - Additional Delivery Centres
Punjab	Bhatinda, Ferojpur, Sangur, Muktsar, Faridkot, Mansa	No delivery centre
Haryana	Hisar, Fatehabad, Sirsa, Bhiwani, Rohtak, Panipat, Jind, Kaithal, Gurgoan	No delivery centre
Karnataka	Bailhogal, Bellary, Bijapur, Gadaj, Haliyal, Hubli, Kottur, Jamkhand, Raichur, Ranebennur, Savadatti, Shimoga, Yellapur	No delivery centre
Madhya Pradesh	Badwani, Betul, Chindwara, Dhar, Dewas, Harda, Jhabua, Khandwa, Khargone, Ratlam, Shajapur	No delivery centre
Telangana	Adilabad, Warangal, Nirmal,	Warangal- Additional Delivery Centre
Andhra Pradesh	Guntur, Khammam	No delivery centre
Rajasthan	Hanumangarh, Pili Banga, Sriganga– nagar, Palampur, Sangriya,Suratgarh, Sri Vijayanagar, Shadulshakar, Rawatsar, Kherthal,Bijaynagar, Rajsighnagar.	No delivery centre
Tamil Nadu	Cuddallore, Villupuram, Vellore, Thiruvannamalai, Salem,Dharamapuri, Coimbatore, Erode, Tiruchilapalli, Thanjavur,	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.

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

- BSE organized 100 webinars in association with Investor Protection Fund and Cotton Guru for FPO's and farmers and farmers. All these webinars are also available on YouTube channel for the benefit of all.
- The webinars were arranged to create awareness amongst the FPO's and Farmers producing Cotton on how to utilize Exchange's platform to mitigate their price risk, better price discovery and to avail benefit of delivery in the Exchange platform.

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

- As detailed in response to question 4d.

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