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

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		

BSE - INTERNAL

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	2018-19	2019-20
Production	25,814	26,588
Imports	9,238	8,856
Exports	9,067	8,999
Consumption	26,227	22,340
Closing Stocks	17,406	21,519
Source: United States Department of Agriculture, March 2021 report		

India Cotton Scenario		
In lakh bales of 170 kgs	2018-19 (P)	2019-20 (P)
Opening Stocks	42.91	44.41
Production	330	360
Import	31	25
Total Supply	361.0	385.0
Exports	44	50
Domestic Consumption	315.5	381
Closing Stocks	44.41	48.41
Source: Cotton Corporation of India		

BSE - INTERNAL

Top 10 Major producing countries

Top 10 Major producing countries (in 1000 MT)			
Country	2018-19	Country	2019-20 (p)
China	6,042	India	6,641
India	5,552	China	5,933
United States	3,999	United States	4,336
Brazil	2,787	Brazil	2,874
Pakistan	1,676	Pakistan	1,350
Turkey	806	Turkey	784
Uzbekistan	718	Uzbekistan	762
Australia	544	Greece	365
Mexico	368	Mexico	342
Greece	307	Benin	316
Source: United States Department of Agriculture, March 2021 report			

Top major Consuming Countries

Top 10 Major Consuming countries (in 1000 MT)			
Country	2018-19	Country	2019-20
China	8,818	China	7,403
India	5,400	India	4,463
Pakistan	2,308	Pakistan	1,960
Bangladesh	1,742	Bangladesh	1,415
Vietnam	1,524	Turkey	1,393
Turkey	1,415	Vietnam	1,372
Brazil	762	Brazil	675
Indonesia	697	Uzbekistan	653
United Stes	675	United States	588
Uzbekistan	599	Indonesia	588
Source: United States Department of Agriculture, March 2021 report			

Top 10 Major Exporting countries (in tonnes)

Top 10 Major Exporting countries (in 1000 MT)			
Country	2018-19	Country	2019-20
United States	3,211	United States	3,266
Brazil	1,263	Brazil	1,872
India	914	India	697
Australia	914	Greece	305
Benin	288	Australia	272
Mali	283	Benin	261
Greece	272	Mali	256
Burkina	239	Burkina	180
Cote d'Ivoire	185	Cameroon	109
Uzbekistan	174	Argentina	93
Source: United States Department of Agriculture, March 2021 report			

BSE - INTERNAL

Top 10 Major Importing countries

Top 10 Major Importing countries (in 1000 MT)			
Country	2018-19	Country	2019-20
China	1,851	China	1,633
Bangladesh	1,742	Bangladesh	1,437
Vietnam	1,546	Vietnam	1,415
Indonesia	697	Turkey	827
Turkey	653	Pakistan	697
Pakistan	653	Indonesia	621
India	305	India	435
Thailand	256	Malaysia	283
Mexico	185	Thailand	152
Korea, s	174	Mexico	131
Source: United States Department of Agriculture, March 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	2018-19	State	2019-20
Gujarat	87.5	Gujarat	95
Maharashtra	75.5	Maharashtra	82
Tealangana	43	Tealangana	53
Rajasthan	26	Rajasthan	25
Madhya Pradesh	24	Harayana	22
Harayana	23	Madhya Pradesh	20
Karnataka	15	Andhra pradesh	20
Andhra pradesh	14	Karnataka	18
Punjab	10	Punjab	13
Tamil Nadu	5	Tamil Nadu	6
Source : Cotton Corporation Of India			

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 2019-20

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

- Cotton prices have been suffering from negative news since the market hit its seasonal high
- Tepid expectations for global economic expansion
- Trade differences between China and the US at the G20 meeting

BSE - INTERNAL

2. **Trading related parameter**

a) **Monthly and Annual traded volume**

Month	Traded Volume (in Bales)
Apr-19	4,93,920
May-19	5,60,300
Jun-19	2,63,980
Jul-19	3,26,720
Aug-19	4,28,345
Sep-19	4,36,450
Oct-19	3,02,400
Nov-19	3,22,150
Dec-19	3,92,250
Jan-20	7,43,475
Feb-20	6,66,575
Mar-20	6,98,550
Total	**56,35,115**

b) **Annual traded volume as proportion of total deliverable supply: 14.95%**

- Annual Traded Volume: 56,35,115 bales
- Deliverable Supply: 3,77,00,000 bales

c) **Annual traded volume as proportion of total annual production: 17.08%**

- Annual Traded Volume: 56,35,115 bales
- Annual Production 19-20: 3,30,00,000 bales

d) **Annual average Open interest as proportion of total production: 0.003%**

- Annual Average OI: 891 bales
- Annual Production: 3,30,00,000 bales

e) **Annual average Open interest as proportion of total deliverable supply: 0.002%**

- Annual Average OI: 891 bales
- Deliverable Supply: 3,77,00,000 bales

f) **Monthly and Annual value of trade**

Month	Annual Value of Trade (in Crores)
Apr-19	1,383.41
May-19	1,535.48
Jun-19	726.42
Jul-19	867.56
Aug-19	1,052.21
Sep-19	680.34
Oct-19	467.93
Nov-19	486.36
Dec-19	578.35
Jan-20	1,136.95
Feb-20	1,010.79
Mar-20	1,156.45
Total	**11,082.25**

BSE - INTERNAL

g) Monthly and Annual quantity of delivery

Month	Quantity of delivery (Bales)
Apr-19	400
May-19	-
Jun-19	-
Jul-19	-
Aug-19	-
Sep-19	-
Oct-19	-
Nov-19	140
Dec-19	120
Jan-20	420
Feb-20	20
Mar-20	-
Total	**1,100**

h) Monthly and Annual value of delivery

Month	Value Of delivery (in crores)
Apr-19	0.89
May-19	-
Jun-19	-
Jul-19	-
Aug-19	-
Sep-19	-
Oct-19	-
Nov-19	0.26
Dec-19	0.22
Jan-20	0.80
Feb-20	0.04
Mar-20	-
Total	**2.20**

i) Monthly and Annual Average Open Interest (OI)

Months	Average OI (In bales)
Apr-19	1,986
May-19	6,216
Jun-19	496
Jul-19	160
Aug-19	264
Sep-19	90
Oct-19	139
Nov-19	274
Dec-19	292
Jan-20	507
Feb-20	21
Mar-20	-

Annual Average OI = 871 bales

BSE - INTERNAL

j) Annual average volume to open interest ratio: 2441%

- Average of Traded Volume = 21,757 bales
- Average of Open Interest = 891 bales

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

- Unique members = 17
- Unique clients = 20

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

- 1.40%

o) Delivery defaults

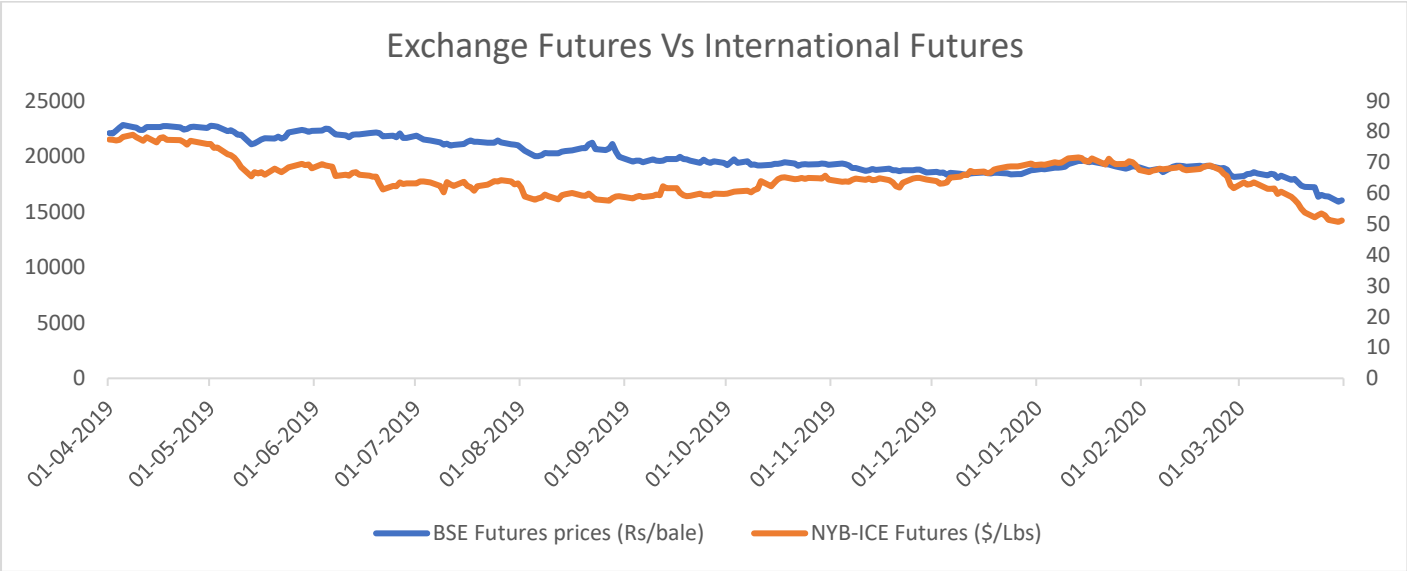
Number of instances = Nil

Quantity involved = Nil

Value involved = Nil

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)



BSE - INTERNAL

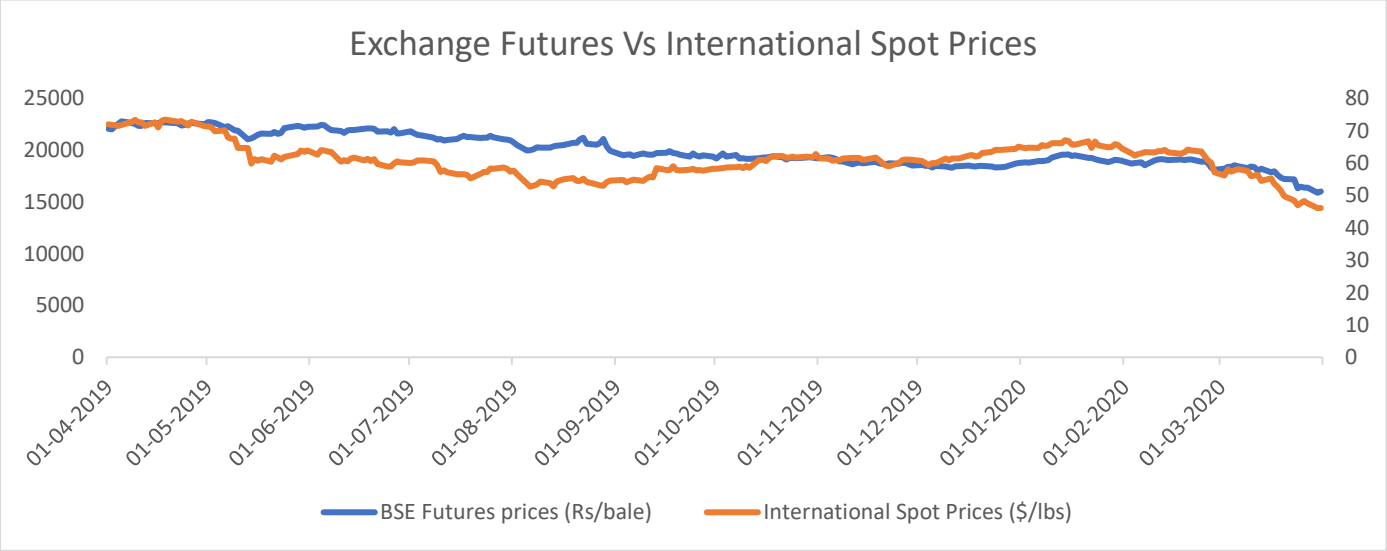
The correlation between Exchange futures and International futures Prices was 0.5120 for the period April 01, 2019 to March 31,2020

The standard deviation of Exchange Futures prices was 0.96% for period for the period April 01, 2019 to March 31 ,2020

The standard deviation of International Futures prices was 1.48% for period for the period April 01, 2019 to March 31,2020

The ratio of Standard Deviation for the same period was 0.65

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



The correlation between Exchange futures and International Spot Prices was 0.4125 for the period April 01, 2019 to March 31,2020

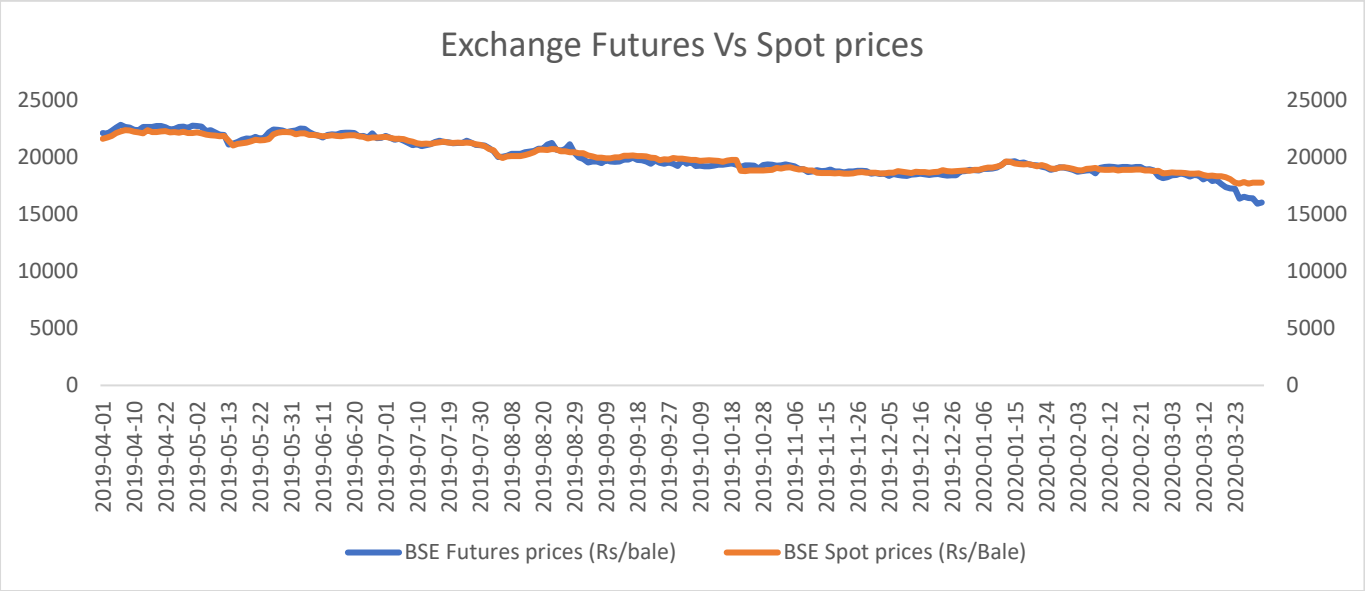
The standard deviation of Exchange Futures prices was 0.96% for period for the period April 01, 2019 to March 31 ,2020

The standard deviation of International Spot prices was 1.55% for period for the period April 01, 2019 to March 31,2020

The ratio of Standard Deviation for the same period was 0.61

BSE - INTERNAL

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



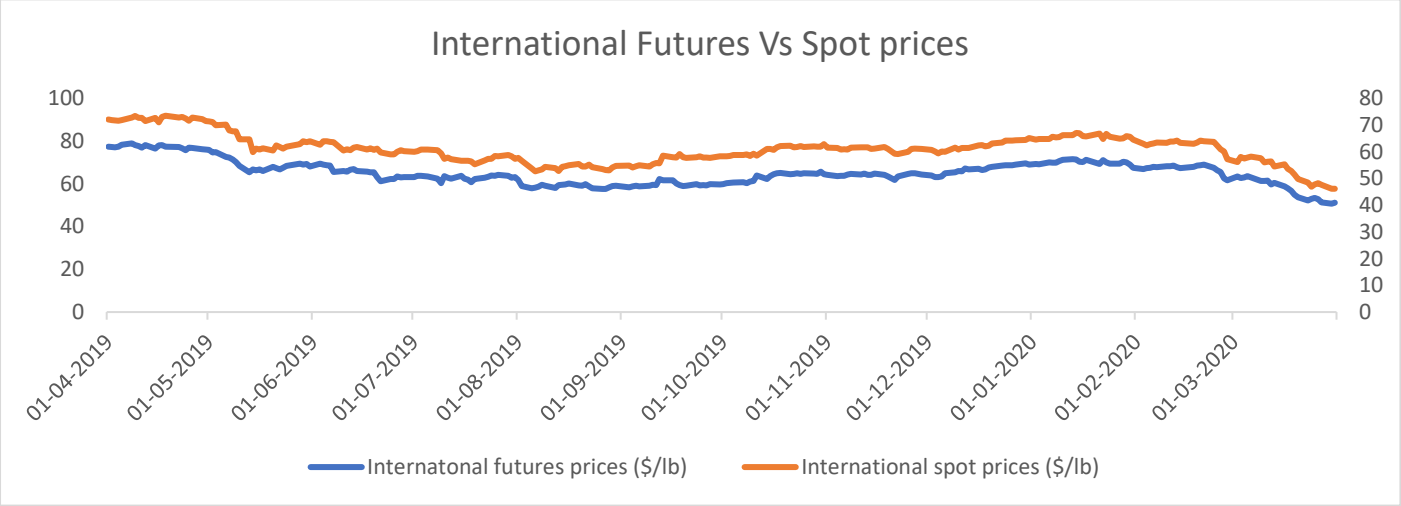
The correlation between Exchange futures and Exchange Spot Prices was 0.9786 for the period April 01, 2019 to March 31,2020

The standard deviation of Exchange Futures prices was 0.96% for period for the period April 01, 2019 to March 31 ,2020

The standard deviation of Exchange Spot prices was 0.58% for period for the period April 01, 2019 to March 31,2020

The ratio of Standard Deviation for the same period was 1.68

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 0.9693 for the period FY2019-20

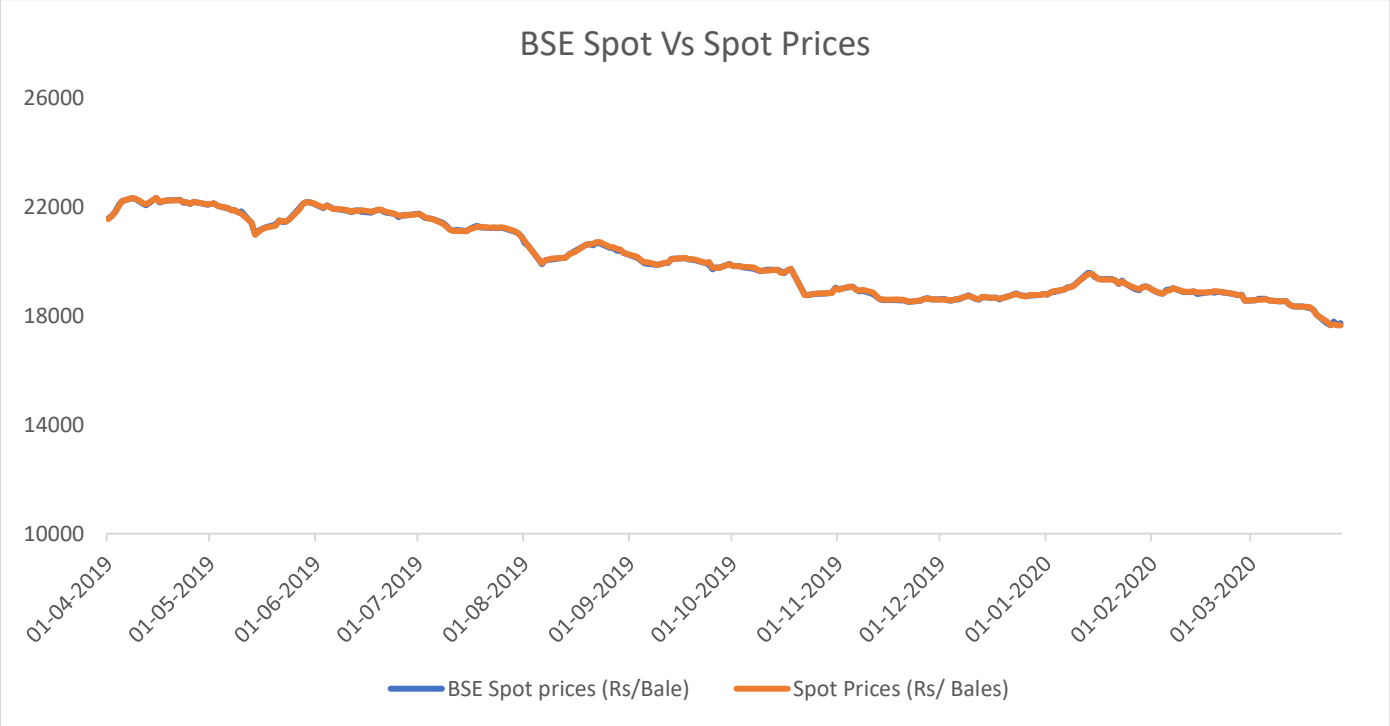
The standard deviation of International Futures prices was 1.48% 0.96% for the period FY2019-20

The standard deviation of International Spot prices was 1.54% or period for the period FY2019-20

The ratio of Standard Deviation for the same period was 0.95

BSE - INTERNAL

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 %
Cotton	2.57%	-5.11%	1.91%	-4.76%
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 – 5

Instances of Backwardation - 1

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
Cotton	99.77%

- ***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
Cotton	Rs/bales	-0.45	9.63
Note: Period 01/04/2019 to 31/03/2020			

- ***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
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

BSE - INTERNAL

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	Commodity Awareness	Mumbai	250
2	Commodity Awareness	Erode	250
3	International Cotton Conference	Mumbai	100
4	Cotton Conference	Akola	100
5	Commodity Awareness	Kolkata	500
6	Commodity Awareness	Delhi	100
7	Cotton Conclave in Association With CAI	Aurangabad	250

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

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 various client and commodity awareness programmes for the market participants

BSE - INTERNAL