Parameters for Performance Review of Commodity

ROBUSTA CHERRY AB COFFEE

1. Background

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

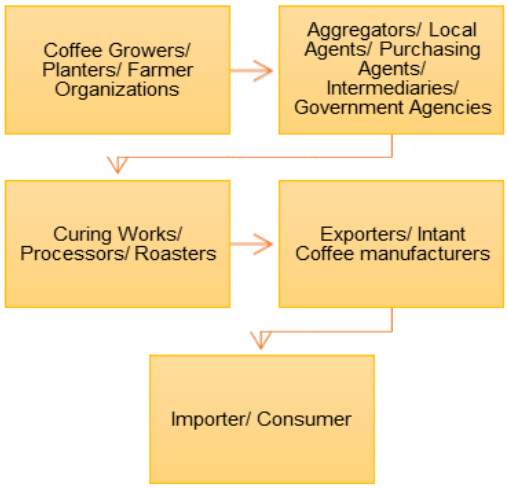
Coffee is a world famous beverage and it is widely drunk in almost every part of the world. The seeds from which this drink is made are actually seeds of the fruit borne by the coffee plant and are called 'beans' in trading terms. Green, unroasted coffee is one of the most traded agricultural commodities in the world. In the commercial coffee industry, there are two important coffee species — coffee Arabica and Coffee Robusta.

Robusta coffee is a strong, full-bodied coffee with a unique, earthy flavor. It has other distinct attributes – such as higher bitterness and lower acidity. Its flavors are bolder and darker, and exhibit a chocolaty note in the brew that's greatly valued, especially in espressos. It contains more caffeine and antioxidants than Arabica coffee.

Robusta variety is planted at lower densities than Arabica because of the larger plant size. Though it grows well in humid conditions, it survives in diverse climatic conditions as well. Rabusta cherries are small, but larger in number per node than Arabica, varying from 40 to 60 or more. They mature in about 10 to 11 months. Robusta coffee is known to be more disease- and pest-resistant than Arabica coffee. However, it cannot endure long drought conditions.

India has been 7th largest Coffee producer globally; and 6th largest exporter. As far as production of Robusta variety is concerned, India has emerged as the 5th largest producer accounting for around 6% share in global Robusta production.

	Crop Cycle (India)												
Variety		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Arabica & Robusta	Planting												
Arabica	Harvesting												
Robusta	Harvesting												
	Planting						Harvesting						

Life Cycle: Value Chain of the Commodity	Major Varieties /Grade
	Major Varieties: Robusta and Arabica Coffee NCDEX: Important Quality Parameters: Robusta Cherry AB Coffee specifications are as given below:

Moisture	12% Max
Retention on Screen 15 (screen with round holes of 6 mm) by weight	Min 90%
Passage through screen 14 (screen with round holes of 5.5 mm) by weight	1.5% and below
Extraneous matter by weight	0%
Black cotyledon (full Black) beans by weight	0%
Triage (round small beans, spotted beans, Elephant beans, Pales, Dried and Shriveled Beans, broken beans) by weight	3% by weight Max
Pea Berry by weight	2% by weight Max

	Insect damaged beans by weight: 1.5% Brown Beans and Partially Black Beans by weight: 2.5% Immature Beans: 6% Max Bleached Beans: 3% Max Coffee shall be free from any artificial colouring, flavouring, facing extraneous matter or glazing substance and shall be in sound, dry and fresh condition, free from rancid or obnoxious flavor.

Table: Reference Years for Commodities

Sl. No.	A	B	C
Crop Season	**Kharif**	**Kharif (Long Duration crop)**	**Rabi**
Crops	Paddy, Maize, Bajra, Moong, Soybean, Guar seed, Kapas, Sesame Seed	Castor seed and Turmeric	Wheat, Barley, Chana, RM Seed, Coriander, Jeera
Relevant Processed commodities	Guar gum, Soybean meal, Soy oil, Cotton, Cotton seed Oil cake, Gur, CPO	Castor Oil	-
Sowing Time	July onwards	July onwards	October onwards
Harvesting Time	Oct onwards	Jan onwards	March onwards
Reference Year Financial Year 2022-23 (Apr-Mar)			
Corresponding Years			
Production Year (PY)	2022-23 (July-Sept)	2021-22 (July-June)	2021-22 (July-June)
Marketing Year (MY)	2022-23(Oct-Sept)	2022-23 (Jan/Feb-Dec/Jan)	2022-23 (Mar/Apr - Feb/Mar)
Calendar Year (CY)	2022 (Jan-Dec)	2022 (Jan-Dec)	2022 (Jan-Dec)
Relationship b/w Various Years	Current Financial Year = Current Production Year = Current Marketing Year = Calendar Year	Current Financial Year = Previous Production Year = Current Marketing Year = Current Calendar Year	Current Financial Year = Previous Production Year = Current Marketing Year = Current Calendar Year
Example	FY 2022-23= PY 2022-23= MY 2022-23= CY 2022	FY 2022-23= PY 2021-22 = MY 2022-23= CY 2022	FY 2022-23= PY 2021-22 = MY 2022-23= CY 2022

Note: Coffee is a plantation crop; hence, it is not classified under either Kharif or Rabi season in the above table.

Explanatory Notes:

- India is a vast country and various crops are sown and harvested at different point of time. However, two major crop seasons, are there i.e. Kharif & Rabi. Apart from it, Zaid/Summer season is also there.
- Crop seasons are classified based upon sowing time. Normally Kharif season sowing starts from mid-June/July and new crop arrivals begin from Oct/Nov. However, early/late sowing/harvesting also takes place. Rabi season sowing usually takes place mainly from October/November and harvesting starts from March/April. Early/late sowing/harvesting also takes place. Summer crops/Zaid crops are short duration crops mainly sown during January-March and harvested during April-June.
- "Production Year" is considered as "July to June". With the start of monsoon rains during June/July the sowing of Kharif season starts and they are harvested during Sept/Oct. From Oct onwards the sowing of Rabi season crops starts and harvesting usually takes place during March/April. Thus, a single production

cycle completes between July-Sept period covering Kharif, Rabi and Zaid crops. Thus production year remains same for all season crops and the period corresponds to July-Sept.

- "Marketing Year" for each crops starts from beginning of the harvest time i.e. from start of new crop produce arrivals in the market. Thus, for Kharif crops Marketing Year is generally considered as "October to September", while for Rabi crops Marketing Year is considered as "April to March". However, Marketing Year may vary slightly for some of the crops depending upon early/late maturity/harvesting.
- For processed commodities, their production starts after the start of new season crop arrivals of their underlying crop.

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

Table - Fundamentals & Balance sheet (quantity)

(In Lakh Tonnes)

Global Scenario	Previous FY (2021-22)	Current FY (2022-23) (P)
Opening Stocks	22.8	19.5
Production	99.7	103.7
Imports	83.7	81.6
Total Supply	206.2	204.8
Exports	86.4	83.6
Domestic Consumption	100.3	100.8
Closing Stocks	19.5	20.5

Source: USDA (April 2023); P: Provisional; Data is inclusive of all varieties of Coffee

(In Lakh Tonnes)

Indian Scenario	Previous FY (2021-22)	Current FY (2022-23) (P)
Opening Stocks	0.58	0.55
Production	3.34	3.55
Imports	0.81	1.02
Total Supply	4.73	5.12
Exports	3.48	4.34
Domestic Consumption	0.71	0.74
Closing Stocks	0.55	0.03

Source: USDA (April 2023); P: Provisional; Data is inclusive of all varieties of Coffee.

(In Lakh Tonnes)

Rank	Top 10 Major Producing Countries			Top 10 Major Consuming Countries		
	Country	Previous FY (2021-22)	Current FY (2022-23) (P)	Country	Previous FY (2021-22)	Current FY (2022-23) (P)
1	Brazil	34.86	37.56	European Union	25.02	25.20
2	Vietnam	18.95	18.13	United States	16.03	16.18
3	Colombia	7.08	7.56	Brazil	13.40	13.47
4	Indonesia	6.35	6.81	Philippines	4.31	4.25
5	Ethiopia	4.89	4.95	Japan	4.33	4.20
6	Uganda	3.75	3.99	Canada	3.20	3.08
7	India	3.55	3.74	China	2.88	2.88
8	Honduras	2.88	3.60	Indonesia	2.85	2.86
9	Peru	2.52	2.52	Russia	2.43	2.55
10	Mexico	2.51	2.31	United Kingdom	2.39	2.16
	Others	12.36	12.48	Others	23.46	23.94
	World Total	99.70	103.65	World Total	100.31	100.77

Source: USDA (April 2023); P: Provisional; Data is inclusive of all varieties of Coffee.
Countries are arranged in descending order based on the data in FY (2022-23).

(In Lakh Tonnes)

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY (2021-22)	Current FY (2022-23) (P)	Country	Previous FY (2021-22)	Current FY (2022-23) (P)
1	Brazil	23.8	22.0	European Union	27.9	26.7
2	Vietnam	17.4	16.6	United States	16.2	16.0
3	Colombia	7.4	7.7	Japan	4.4	4.3
4	Indonesia	4.4	4.7	Philippines	3.9	3.9
5	Uganda	3.7	3.9	Canada	3.2	3.1
6	India	4.3	3.7	Russia	2.4	2.6
7	Honduras	2.8	3.4	China	2.5	2.3
8	Ethiopia	2.9	2.8	United Kingdom	2.4	2.2
9	Peru	2.4	2.5	Korea, South	2.0	2.0
10	European Union	2.8	2.1	Switzerland	2.0	2.0
	Others	14.4	14.3	Others	16.5	16.6
	World Total	86.4	83.6	World Total	83.7	81.6

Source: USDA (April 2023); P: Provisional; Data is inclusive of all varieties of Coffee.
Countries are arranged in descending order based on the data in FY (2022-23).

(In Lakh Tonnes)

Top 10 Major producing states in India							
Rank	States	FY 2021-22			FY 2022-23		
		Arabica	Robusta	Total	Arabica	Robusta	Total
1	Karnataka	0.68	1.74	2.42	0.73	1.82	2.55
2	Kerala	0.02	0.68	0.70	0.02	0.72	0.74
3	Tamil Nadu	0.13	0.05	0.18	0.14	0.05	0.19
4	Andhra Pradesh	0.12	0.00	0.12	0.12	0.00	0.12
5	Orissa	0.01	0.00	0.01	0.00	0.00	0.00
6	North Eastern Region	0.001	0.001	0.002	0.001	0.001	0.002
	All India	0.95	2.47	3.42	1.02	2.59	3.61

Source: Coffee Board of India (April 2023)
States are arranged in descending order based on the data in the Current Year;
Please refer to Table entitled “Reference Years for Commodities” to know type of years corresponding to financial year.

c. Major changes in the polices governing trade in the spot markets of the commodity (FY 2022-23)

Date	Major Policies governing trade and related changes
-	No Coffee specific policy change was observed during period under review.

d. Geo political issues in the commodity and its impact on Indian scenario (FY 2022-23)

Month	Date	Event	Key Details	Key Implications/Impact
-	-	No Coffee specific geo-political issue was observed during period under review.	NA	NA

NA: Not Applicable

2. Trading related Parameters

a. Monthly and Annual traded volume (quantity in appropriate units)

Month	Year	Symbol	Traded Volume (MT)
September	2022	COFFEE	9
October	2022	COFFEE	8
November	2022	COFFEE	1
December	2022	COFFEE	-
January	2023	COFFEE	3
February	2023	COFFEE	2
March	2023	COFFEE	-
Yearly Traded Volume			**23**

b. Annual traded volume as proportion of total deliverable supply (quantity in appropriate units)

Symbol	Traded volume (MT)	Deliverable supply(MT)	Proportion
COFFEE	23.00	367,682	0.00

c. Annual traded volume as proportion of total annual production (quantity in appropriate units)

Symbol	Traded volume (MT)	Production(MT)	Proportion
COFFEE	23	259,000	0.00

d. Annual average Open interest as proportion of total production

Symbol	Avg Open Int (MT)	Production(MT)	Proportion
COFFEE	0.77	259,000	0.00

e. Annual average Open interest as proportion of total deliverable supply

Symbol	Avg Open Int (MT)	Deliverable supply(MT)	Proportion
COFFEE	0.77	367,682	0.00

f. Monthly and Annual value of trade (in Rs. Crores)

Month	Year	Symbol	Traded Value (in Cr.)
September	2022	COFFEE	0.17
October	2022	COFFEE	0.15
November	2022	COFFEE	0.02

December	2022	COFFEE	-
January	2023	COFFEE	0.05
February	2023	COFFEE	0.04
March	2023	COFFEE	-
Yearly Value of Trade			**0.42**

g. Monthly and Annual quantity of delivery (in appropriate units)

N.A.

h. Monthly and Annual value of delivery (in Rs. Crores)

N.A.

i. Monthly and Annual Average Open Interest (OI) (in appropriate units)

Month	**Year**	**Symbol**	**Avg Open Int (MT)**
September	2022	COFFEE	2.00
October	2022	COFFEE	1.22
November	2022	COFFEE	1.00
December	2022	COFFEE	1.00
January	2023	COFFEE	1.14
February	2023	COFFEE	0.25
March	2023	COFFEE	-
Yearly Average OI			**0.38**

j. Annual average volume to open interest ratio

Volume to OI Ratio
23.96%

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

Symbol	Member Count	Client Count
COFFEE	7	12

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

	VCPs/ Hedger
Annual Average	N.A.
Maximum Daily value*	0.00%

It is calculated on the day when commodity has highest open interest during the year.

Commodity wise client categorization is as per category details as provided by the members.

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

Commodity	Count
COFFEE	0

Commodity wise client categorization is as per category details as provided by the members.

n. Algorithmic trading as percentage of total trading

Commodity	%
COFFEE	0.00%

o. Delivery defaults

Number of instances	0
Quantity involved	0
Value involved	0

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).

NA

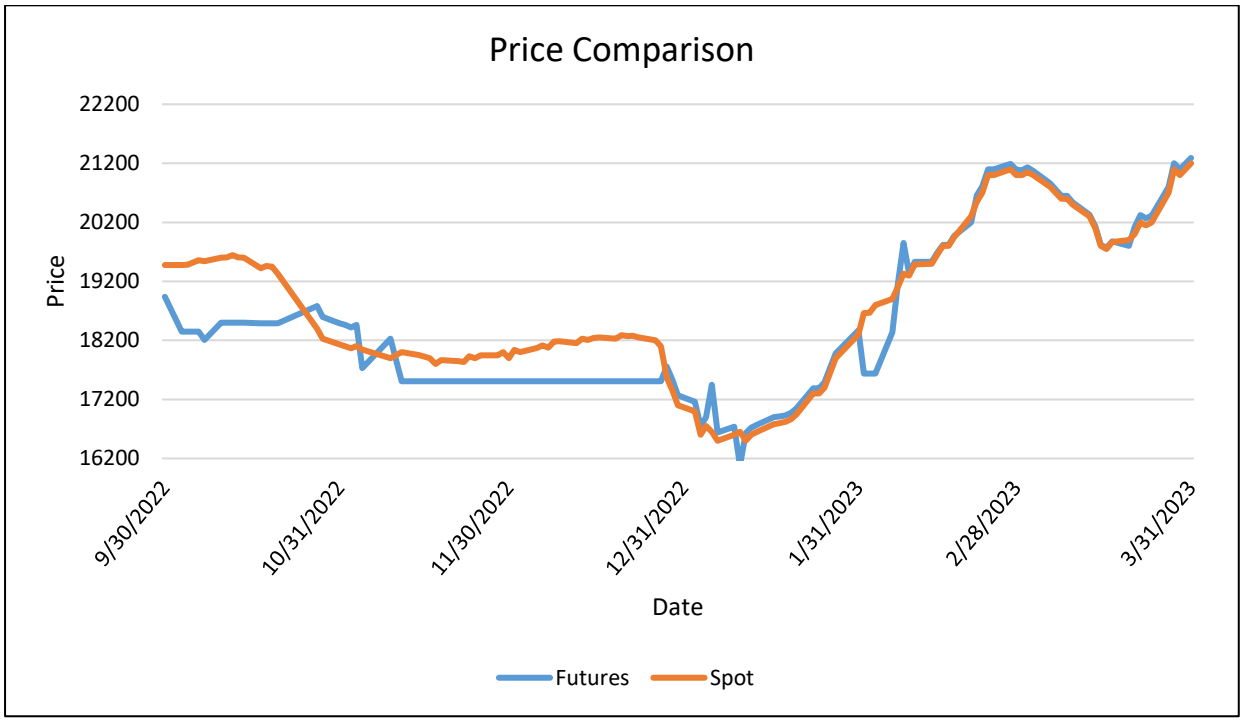
b. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price).

NA

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

Correlation			
	Futures	*Spot*	*Mandi*
Futures	1	0.940791	-
Spot	0.940791	1	-
Mandi	-	-	-

Standard Deviation			
	Futures	*Spot*	*Mandi*
Futures	1	0.657084	-
Spot	1.521876	1	-
Mandi	-	-	-



Source: Spot and Future Prices: NCDEX, Mandi Prices: Agmarknet

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

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

Correlation			
	Futures	*Spot*	*Mandi*
Futures	1	0.940791	-
Spot	0.940791	1	-
Mandi	-	-	-

Standard Deviation			
	Futures	*Spot*	*Mandi*
Futures	1	0.657084	-
Spot	1.521876	1	-
Mandi	-	-	-

f. Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility. (**Volatility calculated by Standard Deviation of daily returns for the period from 1 April 2022 to 31 March 2023**)

Volatility	**Futures**		**Spot**	
	Month	**Value**	**Month**	**Value**
Max	May	0.011059	May	0.009034
Min	Sep	0.003882	Sep	0.003714

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

Contango	5
backwardation	0

4. Other Parameters

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

Basis Volatility	2.11261948
Hedge Efficiency	0.376440863

The methodology for hedge efficiency ratio calculation is appended as Annexure 1

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

State	Major Physical Markets	Availability of NCDEX Delivery centre
Karnataka	Kushal Nagar	Basis
	Coorg-Kodagu	
	Viraj Pett	
	Chikmanglore	
Kerala	Wayanad	
	Kalpetta	
	Manathavady	
	Sulthan Bathery	
	Panamaram	
Tamilnadu	Nilgiris District -	
	Bodi	

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

Note – The OI for each month is classified based on the Member level. The Average OI is on gross level (Long OI + Short OI)

State	Karnataka	Maharashtra	WestBengal	Rajasthan
Sept-22	0	0	-	-
Oct-22	2	-	-	0
Nov-22	2	-	-	-
Dec-22	2	-	-	-
Jan-23	2	-	0	-
Feb-23	-	-	-	1
Mar-23	-	-	-	-

"Note - The OI for CP (Custodian Participant) is not mapped to any State/ location and hence not considered in the above data."

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

Following is the list of Awareness program, Stakeholder engagement program exchange has conducted for FY 2022-23.

Sr. No.	Program Type	Location	Participants
1	Investor Awareness Program	Kushalnagar, Karnataka	30
2	Investor Awareness Program	Wayanad	25
3	Investor Awareness Program	Chikmagalur	30
4	Investor Awareness Program	Chennai, Tamil Nadu	24
5	Investor Awareness Program	Koch	86
6	Investor Awareness Program	Karnataka	5
7	Investor Awareness Program	Online	15
8	Investor Awareness Program	Madikkeri	100

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

- Creating awareness about NCDEX Coffee Contract - "Price Discovery and Risk Management"
- Awareness Program in Major Producing and trading centers for creating awareness on NCDEX Coffee Contract –Hedging Opportunities
- Field visit and one to one meeting with all the Coffee stakeholders to improve VCP participations

5. Any other information to be disclosed as deemed important by the exchange or as suggested by the PAC

N.A

ANNEXURE I

Qualitative and quantitative measure for Hedge effectiveness ratio

Hedging Efficiency Methodology

Regression analysis is carried out between near month futures returns and NCDEX polled spot prices returns of the FY2022-23.

The R-Square value of the Regression analysis represents the "**Hedging Efficiency"**.

Note: -

Date for which spot prices were not available is not used for analysis.

Weekly returns are used for performing Regression Analysis.

The method used to calculate Hedging Efficiency does not consider liquidity risk because of this reason illiquid commodities can have high hedging efficiency.

References:

Ghosh, Ph.D, Nilanjan & Dey, Debojyoti & Moulvi, Nazir & Jain, Niteen & Sinha, Neha & Rachuri, Sarika. (2013). Hedging Efficiency—Measures and Empirical Study.