<div align="center">**Parameters for Performance Review of Commodity**</div>

Mini Contracts in Jeera

1. Background

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

Cumin seed, commonly known as Jeera is the dried, white fruit with greyish brown colour of a small slender annual herb. It has a major role as a flavoring, spice and medicinal uses throughout history. In the western countries, it is used mainly in veterinary medicine, as a carminative, but it remains a traditional herbal remedy in the East. Besides being used in Ayurvedic medicines, cumin is also used as a stimulant, carminative, stomachic and astringent. Cumin seed oil is used in perfumery and for flavouring liqueurs and cordials.

Generally, raw Jeera is being processed by machine and then the Machine cleaned material is generally sold to spices processing units (Masala Manufacturers) and retail customers.

In India, Jeera is grown as a Rabi crop. Sowing is done during October to December while harvesting starts from February onwards. It requires less water and more cold for its better growth with ideal temperature of 25 to 30 degree. Jeera crop is highly sensitive to rain/ high humidity and if rain occurs during harvesting time, quality of the Jeera gets badly affected (it turns black). The major producing states are Gujarat and Rajasthan in India.

Crop Cycle (India)											
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Sowing			Growing Period		Harvesting						

Life Cycle: Value Chain of the Commodity	Major Varieties /Grade
Farmer → Kucha Adhatia → Pucca Adhatia Local Trader/ Processor — Processor/Exporter → Export Wholesaler — Wholesaler Retailer — Retailer End Consumer — End Consumer	**Major Varieties** Besides the two main types of cumin seeds, i.e., white and black cumin seeds, many improved varieties like S-404, MC-43 Gujarat Cumin-1(GC-1), GC-2, GC-3, RS-1, UC-198, RZ-19, etc. are available in India. NCDEX: Quality Parameters

NCDEX: Quality Parameters	
Foreign Matter	1.0 % Max
Seeds with Stalks	8.0 % Max
Damaged, Discolored, Shriveled and Immature seeds	4.5% Max
Insect damaged matter	Should not be > 0.5%
Test Weight (on count basis)	Maximum 300 seeds / gram
Moisture	8% Basis, 9.5% Maximum

		*Foreign matter includes anything other than Jeera seeds e.g. sand, silica, pebbles and other edible/non edible seeds	

Table: Reference Years for Commodities

Sl. No.	A	B	C
Crop Season	**Kharif**	**Kharif (Long Duration crop)**	**Rabi**
Crops	Paddy, Maize, Bajra, Guar seed, Kapas, Sesame Seed, Groundnut	Castor seed and Turmeric	Barley, Coriander, Jeera, Isabgol Seed
Relevant Processed commodities	Guar gum, Cotton, Cotton seed Oil cake, Gur, Crude Sunflower Oil	Castor Oil	-
Sowing Time	July onwards	July onwards	October onwards
Harvesting Time	Oct onwards	Jan onwards	March onwards
Reference Year **Financial Year 2023-24 (Apr-Mar)**			
Corresponding Years			
Production Year (PY)	2023-24 (July-Sept)	2022-23 (July-June)	2022-23 (July-June)
Marketing Year (MY)	2023-24 (Oct-Sept)	2023-24 (Jan/Feb-Dec/Jan)	2023-24 (Mar/Apr - Feb/Mar)
Calendar Year (CY)	2023 (Jan-Dec)	2023 (Jan-Dec)	2023 (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 2023-24= PY 2023-24= MY 2023-24= CY 2023	FY 2023-24= PY 2022-23 = MY 2023-24= CY 2023	FY 2023-24= PY 2022-23 = MY 2023-24= CY 2023

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 (2022-23)*	Current FY (2023-24)* (P)
Opening Stocks	NA	NA
Production	NA	NA
Imports	1.21	1.24
Total Supply	NA	NA
Exports	2.09	1.76
Domestic Consumption	NA	NA
Closing Stocks	NA	NA

Source: UN Comtrade; HS codes used are 090931 and 090932;
NA: Data is not available in the public domain; P: Provisional;
*Data is not available as per financial year. It is provided as per Calendar Year (CY) (Jan-Dec);

(In Lakh Tonnes)

Indian Scenario	Previous FY (2022-23)	Current FY (2023-24)
Opening Stocks	1.26	0.76
Production	3.25	3.25*
Imports	0.02	0.18
Total Supply	4.53	4.19
Exports	1.87	1.51
Domestic Consumption	1.90	1.80
Closing Stocks	0.76	0.88

Source:
Production: Market Estimates
*AS per Spice Board of India the Jeera Production is 7.26 Lakh tonnes.
Import/Export: Ministry of Commerce (HS codes 090931 and 090932);
For FY 2023-24, import and export data is available only for period of Apr 2023 to Jan 2024.

(In Lakh Tonnes)

Rank	Top 10 Major Producing Countries			Top 10 Major Consuming Countries		
	Country	Previous FY	Current FY	Country	Previous FY	Current FY
	NA			NA		

Data is not available in public domain. India is the largest producer of Jeera in the world, which accounts for 80-85% of the world production. The other major producers are Syria and Turkey, which together accounts for rest of the production.

(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 (2022-23)*	Current FY (2023-24)*(P)
1	India	1.89	1.34	China	0.38	0.31
2	Turkey	0.07	0.10	USA	0.16	0.22
3	Egypt	0.02	0.03	India	0.02	0.17
4	Netherlands	0.02	0.02	Turkey	0.08	0.05
5	USA	0.01	0.01	United Kingdom	0.05	0.05
6	Spain	0.02	0.01	Malaysia	0.00	0.04
7	Lithuania	0.01	0.01	Netherlands	0.03	0.03
8	Germany	0.01	0.01	Pakistan	0.00	0.02
9	United Kingdom	0.00	0.00	Japan	0.03	0.02
10	Czech Rep.	0.02	0.00	Germany	0.02	0.02
	Others	0.03	0.22	Others	0.39	0.29
	World	2.09	1.76	World	1.21	1.24

Source: UN Comtrade; HS codes used are 090931 and 090932; P: Provisional
*Data is not available as per financial year 2023-24. It is provided as per Calendar Year (CY) (Jan-Dec);
Countries are arranged in descending order based on the data in the Current Year;

(In Lakh Tonnes)

Top 10 Major producing states in India			
Rank	States	Previous FY (2022-23)	Current FY (2023-24)*
1	Gujarat	3.23	2.75
2	Rajasthan	2.31	1.85
	Others**	0.02	0.02
	Total	5.56	4.62

Source: Spices Board of India; 2023-24* Third adv. Estimate and R: Revised
**: The share of other states (except for top 2 states) in total domestic production is negligible. Gujarat and Rajasthan together accounts for more than 90% of the domestic production.
States are arranged in descending order based on the data in the Current Year;

c. Major changes in the polices governing trade in the spot markets of the commodity (FY 2023-24)

Date	Major Policies Governing Trade and related Changes
	No major policy change related to Jeera was observed during period under review.

d. Geo political issues in the commodity and its impact on Indian scenario (FY 2023-24)

Date	Event	Key Details	Key Implications/Impact

	No geopolitical concerns related to Jeera were observed during review period.		

2. Trading related Parameters

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

Monthly Traded Volume		
Month	**Year**	**Traded Volume (MT)**
December	2023	38
January	2024	96
February	2024	31
March	2024	97
Yearly Traded Volume		**262**

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

Traded volume (MT)	Deliverable supply(MT)	Proportion
262.00	418,737	0.00

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

Traded volume (MT)	Production(MT)	Proportion
262	325,000	0.00

d. **Annual average Open interest as proportion of total production**

Avg Open Int (MT)	Production(MT)	Proportion
21.88	325,000	0.00

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

Avg Open Int (MT)	Deliverable supply(MT)	Proportion
21.88	418,737	0.00

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

Monthly Traded Value		
Month	**Year**	**Traded Value(in Cr.)**
December	2023	1.14
January	2024	2.74
February	2024	0.81
March	2024	2.50
Yearly Value of Trade		**7.20**

g. **Monthly and Annual quantity of delivery (in appropriate units)**
No delivery in FY 2023-24.

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

No delivery in FY 2023-24.

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

Month	Year	Avg Open Int (MT)
December	2023	6.50
January	2024	23.43
February	2024	27.48
March	2024	20.39
Yearly Average OI		**21.88**

j. Annual average volume to open interest ratio

Volume to OI Ratio
17.61%

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

Member Count	Client Count
21	51

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	-
Maximum Daily value*	-

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
JEERAMINI	-

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

n. Algorithmic trading as percentage of total trading

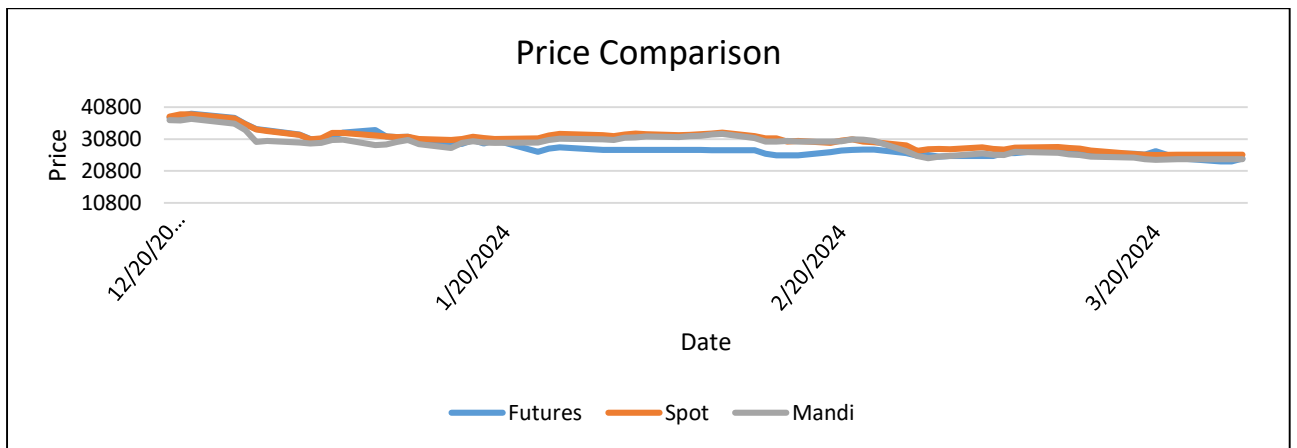| Commodity	%
JEERAMINI	0

o. Delivery defaults

No delivery in FY 2023-24.

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		
Spot	0.55	1	
Mandi	0.43	0.69	1

Standard Deviation	Futures	Spot	Mandi
Futures	1	0.763594	0.921656
Spot	1.309596	1	1.206996
Mandi	1.085004	0.828503	1

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 centre.

Correlation			
	Futures	*Spot*	*Mandi*
Futures	1		
Spot	0.55	1	
Mandi	0.43	0.69	1

Standard Deviation			
	Futures	*Spot*	*Mandi*
Futures	1	0.763594	0.921656
Spot	1.309596	1	1.206996
Mandi	1.085004	0.828503	1

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 01 April 2023 to 31 March 2024**)

Volatility	Futures Price		Spot Price	
	Month	**Value**	**Month**	**Value**
Max	Jan	0.031937	Dec	0.024769
Min	Feb	0.018239	Mar	0.012138

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	0
backwardation	47

4. Other Parameters

a. Qualitative and quantitative measure for Hedge effectiveness ratio (**Methodology in Annexure I**) and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations. (**Volatility calculated by Square root of Standard Deviation of daily returns for the period from 19 December 2023 to 31 March 2024**)

Basis Volatility	27.01922263
Hedge Efficiency	0.018919943

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 center
Gujarat	Unjha	Basis
	Rajkot	
	Radhanpur	
	Tharad	
	Jamjodhpur	
	Morbi	
Rajasthan	Jodhpur	ADC
	Merta City (Nagaur)	
	Nagaur	
	AnandpurKalu	

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	GUJARAT (in MT)	RAJASTHAN (in MT)	MAHARASHTRA (in MT)
Dec-23	1	2	0
Jan-24	11	23	5
Feb-24	9	32	6
Mar-24	3	26	4

"Note - The OI for CP 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 2023-24.

Sr. No.	Program Type	Location	Participants
1.	Investor Awareness Programme	Sirsa	35
2.	Investor Awareness Programme	Delhi	35
3.	Investor Awareness Programme	Indore	30
4.	Investor Awareness Programme	Raigarh	38
5.	Investor Awareness Programme	Kavardha, Raipur	35
6.	Investor Awareness Programme	Ratlam	26
7.	Investor Awareness Programme	Kolkata	94
8.	Investor Awareness Programme	Ratlam	36
9.	Investor Awareness Programme	Neemuch	40
10.	Investor Awareness Programme	Delhi	41

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 hedging and targeting the major Masala processors/ Traders/ Stockiest
➢ Awareness Programme in major trading centres as well as remote location
➢ One to one meeting with market participants and hedgers

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 FY 2023-24.

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—Meas