Parameters for Performance Review of Commodity

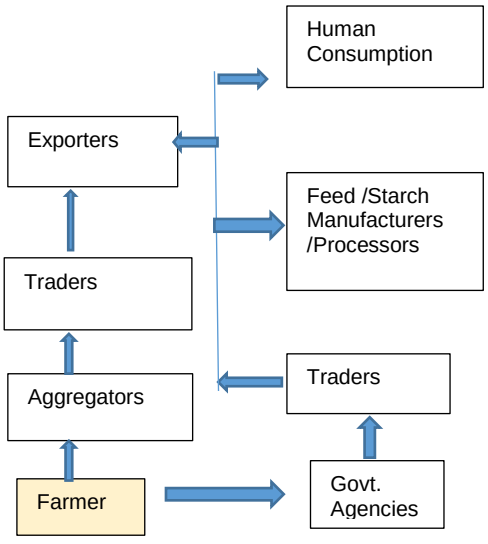
BAJRA-FEED GRADE

1. Background

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

Pearl millet/Bajra is the most widely grown type of millet. (Millets are a group of highly variable small-seeded grasses, widely grown around the world as cereal crops or grains for human food and as fodder. Millets include Pearl Millet, Finger Millet, Variga (Proso millet) Foxtail Millets and other small millets). Pearl millet goes by several common names, including Bulrush millet, Babala, Ddukn (in the Sudan), and Bajra (in India). It has been grown in Africa and on the Indian subcontinent since prehistoric times. Bajra is the major cereal crop grown in the hottest, driest areas of the world where, rainfed agriculture is practiced. Bajra is not just a resilient and dependable source of energy, but also a good source for other dietary needs, especially micronutrients. It is also mainly consumed as cattle/poultry feed in India apart from its consumption for food purpose. In India, major producers are Rajasthan, Uttar Pradesh, Haryana, Gujarat and Maharashtra. Bajra is largely grown as a rainy season crop (Kharif Crop) under rainfed conditions in Asia and Africa. Bajra has the smallest crop cycle of 80 to 85 days only, sowing starts from June and extends till August and harvesting starts from September and extends up to November.

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

Life Cycle: Value Chain of the Commodity	Major Varieties /Grade
	Major Varieties: RHB-58, Pusa-444, PAC-903, RHB-154, Jawahar Bajra Variety-2, GHB-558, Pusa- 605, Nandi-32, Ananta, GHB-526, Saburi, Nandi-35, Nandi-32, GK-1004, Proagro No 1, Avika Bajra Chari NCDEX: Quality Parameters

Moisture	12% basis, accepted upto 13% with moisture adjusted weight (MAW) of 1:1
Foreign Matter	2% Max
Damaged, Immature/Shriveled grains	5% Max
Other edible grains	2 % Max Max out of which ergot affected grains shall not exceed 0.5% by weight and Weeviled grains not more than 1% by weight

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)

Global data for Bajra (Pearl Millet) is not available. However, as per FAO, Bajra accounts for about 50% of the total global production of millets. The following Tables show data for Millets.

(In Lakh Tonnes)

Global Scenario	Previous FY (2021-22)	Current FY (2022-23)
Opening Stocks	6.20	6.20
Production	276.07	303.50
Imports	0.00	0.00
Total Supply	282.27	309.70
Exports	0.00	0.00
Domestic Consumption	276.07	304.70
Closing Stocks	276.07	304.7

Source: USDA (April 2023)
Note: Data relates to all Millets, which is inclusive of Pearl Millet.

(In Lakh Tonnes)

Indian Scenario	Previous FY (2021-22)	Current FY (2022-23)
Opening Stocks	6.20	6.20
Production	118.50	118.30
Imports	0.00	0.00
Total Supply	124.70	124.50
Exports	0.00	0.00
Domestic Consumption	118.50	119.50
Closing Stocks	118.50	119.50

Source: USDA (April 2023)
Note: Data relates to all Millets, which is inclusive of Pearl Millet.

Please refer to Table entitled “Reference Years for Commodities” to know type of years corresponding to financial year.

(In Lakh Tonnes)

Rank	Top 10 Major Producing Countries			Top 10 Major Consuming Countries		
	Country	Previous FY (2021-22)	Current FY (2022-23)	Country	Previous FY (2021-22)	Current FY (2022-23)
1	India	118.50	118.30	India	118.50	119.50
2	China	27.00	27.00	China	27.00	27.00
3	Niger	21.42	34.00	Niger	21.42	34.00
4	Nigeria	19.22	20.00	Nigeria	19.22	20.00
5	Mali	14.87	18.00	Mali	14.87	18.00
6	Senegal	10.39	10.00	Senegal	10.39	10.00
7	Ethiopia	10.00	11.00	Ethiopia	10.00	11.00
8	Sudan	9.00	15.00	Sudan	9.00	15.00
9	Burkina Faso	7.05	10.00	Burkina Faso	7.05	10.00
10	Chad	6.21	7.00	Chad	6.21	7.00

	Others	32.22	32.80	Others	32.22	32.80
	World	276.07	303.50	World	276.07	304.70

Source: USDA (April 2023)
Note: Data relates to all Millets, which is inclusive of Pearl Millet.

(In Lakh Tonnes)

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY (2020-21)	Current FY (2021-22)	Country	Previous FY (2020-21)	Current FY (2021-22)
1	Ukraine	1.16	1.68	Indonesia	0.76	0.78
2	India	0.76	0.91	Belgium	0.29	0.32
3	Russian Federation	0.43	0.63	Germany	0.28	0.27
4	United States of America	1.00	0.43	Türkiye	0.25	0.26
5	France	0.25	0.32	Nepal	0.21	0.22
6	Türkiye	0.14	0.18	United Arab Emirates	0.18	0.22
7	Canada	0.06	0.17	Canada	0.16	0.21
8	Mali	0.03	0.12	Kenya	0.09	0.21
9	Austria	0.07	0.08	United States of America	0.03	0.17
10	Argentina	0.03	0.08	Iraq	0.19	0.15
	Others	0.99	0.58	Others	2.55	2.41
	World	4.92	5.18	World	4.99	5.23

Source: FAO (April 2023). Latest available data is for Calendar Year 2021
*Data is not available as per financial year. It is provided as per Calendar Year (Jan-Dec)
Countries are arranged in descending order based on the data in Previous FY.

(In Lakh Tonnes)

Top 10 Major producing states in India			
Rank	States	Previous FY (2019-20)	Current FY (2020-21)*
1	Rajasthan	46.86	45.61
2	Uttar Pradesh	19.39	20.14
3	Haryana	10.19	13.50
4	Gujarat	9.13	10.08
5	Madhya Pradesh	6.57	7.37
6	Maharashtra	5.12	6.56
7	Karnataka	3.67	2.75
8	Tamil Nadu	1.85	1.58
9	Andhra Pradesh	0.58	0.71
10	Telangana	0.10	0.09
	Others	0.16	0.24
	All India	103.63	108.63

Source: Ministry of Agriculture, *Latest data for state wise production after Year 2021-22 is not available in public domain.
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
08-Jun-22	Govt. hiked MSP of Bajra for the Marketing Season 2022-23 at Rs. 2350 per quintal i.e. an increase of 4% on y-o-y basis.

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

No Bajra specific geo-political issue was observed during period under review. However, Year 2023 is celebrated as International Year of Millets. With the aim to create awareness and increase production & consumption of millets, United Nations in Year 2022, at the behest of the Government of India, declared 2023 the International Year Millets.

2. Trading related parameter

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

Month	Year	Symbol	Traded volume (MT)
Apr	2022	BAJRA	130
May	2022	BAJRA	10
June	2022	BAJRA	-
July	2022	BAJRA	10
August	2022	BAJRA	-
September	2022	BAJRA	1,300
October	2022	BAJRA	2,020
November	2022	BAJRA	640
December	2022	BAJRA	-
January	2023	BAJRA	-
February	2023	BAJRA	-
March	2023	BAJRA	-
Annual Traded Volume (MT) (April'22 to March'23)			4,110

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

Symbol	Traded Volume (MT)	Deliverable Supply(MT)	Proportion
BAJRA	4,110.00	12,450,000	0.0

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

Symbol	Traded volume (MT)	Production(MT)	Proportion
BAJRA	4,110	11,830,000	0.0

d. Annual average Open interest as proportion of total production

Symbol	Average Open Interest (MT)	Production(MT)	Proportion
BAJRA	129.12	11,830,000	0.0

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

Symbol	Average Open Interest (MT)	Deliverable supply(MT)	Proportion
BAJRA	129.12	12,450,000	0.0

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

Month	Year	Symbol	Traded value (in Rs. Crores)
Apr	2022	BAJRA	0.29
May	2022	BAJRA	0.02
June	2022	BAJRA	-
July	2022	BAJRA	0.02
August	2022	BAJRA	-
September	2022	BAJRA	2.38
October	2022	BAJRA	3.66
November	2022	BAJRA	1.25

December	2022	BAJRA	-
January	2023	BAJRA	-
February	2023	BAJRA	-
March	2023	BAJRA	-
Annual Traded Volume (in Rs Crores) (April'22 to March'23)			7.62

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

Expiry Month	Year	Symbol	Total Delivery (in MT)
April	2022	BAJRA	40
May	2022	BAJRA	10
June	2022	BAJRA	-
July	2022	BAJRA	10
August	2022	BAJRA	-
September	2022	BAJRA	-
October	2022	BAJRA	1,630
November	2022	BAJRA	230
December	2022	BAJRA	-
January	2023	BAJRA	-
February	2023	BAJRA	-
March	2023	BAJRA	-
Annual value of delivery (in MT) (April'22 to March'23)			1,920

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

Expiry Month	Year	Symbol	Total Delivery Value (in Cr)
April	2022	BAJRA	0.09
May	2022	BAJRA	0.02
June	2022	BAJRA	-
July	2022	BAJRA	0.02
August	2022	BAJRA	-
September	2022	BAJRA	-
October	2022	BAJRA	2.94
November	2022	BAJRA	0.47
December	2022	BAJRA	-
January	2023	BAJRA	-
February	2023	BAJRA	-
March	2023	BAJRA	-
Annual value of delivery (in Crores) (April'22 to March'23)			3.54

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

Month	Year	Symbol	Average Open Interest (MT)
Apr	2022	BAJRA	28
May	2022	BAJRA	1
June	2022	BAJRA	-
July	2022	BAJRA	4
August	2022	BAJRA	-
September	2022	BAJRA	207

October	2022	BAJRA	1,338
November	2022	BAJRA	149
December	2022	BAJRA	-
January	2023	BAJRA	-
February	2023	BAJRA	-
March	2023	BAJRA	-
Annual Average OI (MT) (April'22 to March'23)			129

j. Annual average volume to open interest ratio

12.68%

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

Symbol	Member Count	Client Count
BAJRA	12	24

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

Annual Average	N/A
Maximum Daily Value	0%

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

Commodity	Count
BAJRA	0

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

n. Algorithmic trading as percentage of total trading

Commodity	%
BAJRA	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		
Spot	0.607437	1	
Mandi	0.16876	0.231703	1

Standard Deviation			
	Futures	*Spot*	*Mandi*
Futures	1	0.720335	1.822623
Spot	1.388243	1	2.530244
Mandi	0.54866	0.395219	1

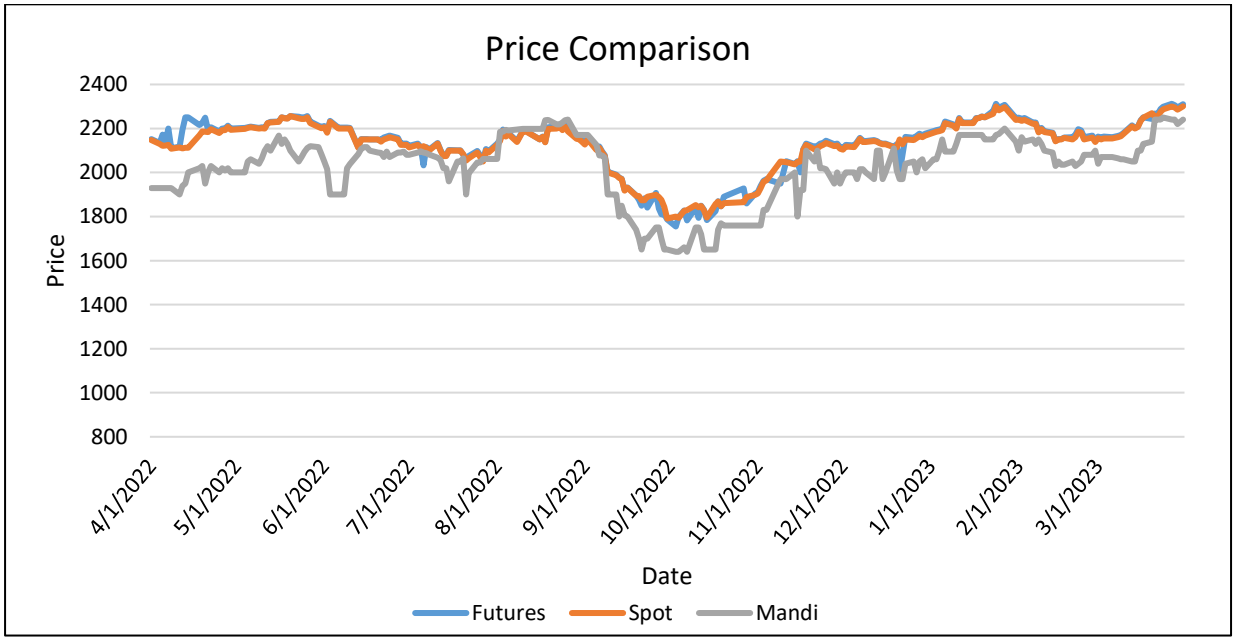
d. Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available).

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	0.607437	1	
Mandi	0.16876	0.231703	1

Standard Deviation			
	Futures	*Spot*	*Mandi*
Futures	1	0.720335	1.822623
Spot	1.388243	1	2.530244
Mandi	0.54866	0.395219	1



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

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

Value of daily futures price volatility (April 2022- March 2023)

Volatility	Month	Value
Max	Oct	0.025

Min	Mar	0.006

Value of daily Spot price volatility (April 2022- March 2023)

Volatility	**Month**	**Value**
Max	Aug	0.013
Min	Mar	0.006

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

Contango	3
Backwardation	24

4. Others 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

	BAJRA
Basis Volatility	6.12
Hedge efficiency	0.7

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 ofavailability of delivery centers (information to be provided state-wise and UT-wise).

Rajasthan	District	Availability of exchange delivery centers
	Alwar	ADC
	Dausa	ADC
	Jaipur	Basis center
	Bharatpur	
	Sikar	
	Karauli	
	Sawai Madhopur	
	Barmer	
Uttar Pradesh	District	Availability of exchange delivery centers
	Badaun	N.A.
	Aligarh	
	Agra	
	Hathras	
	Etah	

	Firozabad	
	Etawah	
	Muradabad	
Gujarat	District	Availability of exchange delivery centers
	Banaskantha	N.A.

c. Details about major physical markets of the commodity and average Open Interest for eachmonth 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)

Month	DELHI (Avg Qty (MT))	Harayana (Avg Qty (MT))	MAHARASHTRA (Avg Qty (MT))	RAJASTHAN (Avg Qty(MT)	U.P. (Avg Qty(MT)
April 2022	1	0	48	3	0
May-2022	0	0	0	3	0
July-2022	0	0	0	8	0
Sep-2022	0	0	414	0	0
Oct-2022	0	9	2517	8	0
Nov-2022	0	0	298	0	0

***Note** - The OI for 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 list of Awareness programme, Stakeholder engagement programme has conducted for FY 2022-23

Sr. Number	Programme	Location	Number of Participants
1	Awareness Programme	Niwai	22
2	Awareness Programme	Govindgarh, Jaipur	50
3	Awareness Programme	Tonk, Rajasthan	107
4	Awareness Programme	Mathura, Uttar Pradesh	61
5	Awareness Programme	Sikar, Rajasthan	50
6	Awareness Programme	Jhunjhunu, Rajasthan	85
7	Awareness Programme	Rohtak, Haryana	75
8	Awareness Programme	Bhiwani, Haryana	65
9	Awareness Programme	Morena, Madhya Pradesh	60
10	Awareness Programme	Etawah	50
11	Awareness Programme	Auraiya	50
12	Awareness Programme	Narayanpur(Hindaun)	80
13	Awareness Programme	Kherli (Alwar)	60
14	Awareness Programme	Deeg	50
15	Awareness Programme	Nadbai	60
16	Awareness Programme	Bansur	60
17	Awareness Programme	Jaipur	65
18	Awareness Programme	Kolkata	35
19	Awareness Programme	Surat	18

20	Awareness Programme	Guna, Madhya Pradesh	30
21	Awareness Programme	Anjar, Lutch, Gujarat	38
22	Awareness Programme	Raipur, Chhattisgarh	112
23	Awareness Programme	Patan, Gujarat	104
24	Awareness Programme	Nashik	200
25	Awareness Programme	Udaipur	150
26	Awareness Programme	Rajkot	100
27	Awareness Programme	Hissar	100
28	Awareness Programme	Nagpur, Maharashtra	120
29	Awareness Programme	Raipur	100
30	Awareness Programme	Gwalior, Madhya Pradesh	78
31	Awareness Programme	Bhopal , MP	54
32	Awareness Programme	Indore, Madhya Pradesh	47
33	Awareness Programme	Siliguri, West Bengal	39
34	Awareness Programme	Alipurduar, West Bengal	31
35	Awareness Programme	Meerut, Uttar Pradesh	30
36	Awareness Programme	Bhopal, Madhya Pradesh	44
37	Awareness Programme	Indore, Madhya Pradesh	80
38	Awareness Programme	Chennai, Tamil Nadu	24
39	Awareness Programme	Kanpur, Uttar Pradesh	60
40	Awareness Programme	Chindwara, MP	50
41	Awareness Programme	Seoni , MP	40
42	Awareness Programme	Kolkata	25
43	Awareness Programme	Raipur, Chattisgarh	136
44	Awareness Programme	Lucknow	177
45	Awareness Programme	Rourkela	65
46	Awareness Programme	Muzaffarnagar	70
47	Awareness Programme	Kochi	86
48	Awareness Programme	Bhilai	70
49	Awareness Programme	Thalamadla	80
50	Awareness Programme	Kolkata	45
51	Awareness Programme	Online	30
52	Awareness Programme	Online	18
53	Awareness Programme	Online	23
54	Awareness Programme	Odisha	9
55	Awareness Programme	Odisha	15
56	Awareness Programme	Karnataka	5
57	Awareness Programme	Bihar	18
58	Awareness Programme	West Bengal	6
59	Awareness Programme	Andhra Pradesh	29
60	Awareness Programme	Online	11
61	Awareness Programme	Online	7
62	Awareness Programme	Online	21
63	Awareness Programme	Online	6
64	Awareness Programme	Online	9
65	Awareness Programme	Online	14
66	Awareness Programme	Online	82
67	Awareness Programme	Online	28
68	Awareness Programme	Online	25
69	Awareness Programme	Online	50
70	Awareness Programme	Online	30
71	Awareness Programme	Online	25
72	Awareness Programme	Online	5
73	Awareness Programme	Online	10

74	Awareness Programme	Online	7
75	Awareness Programme	Online	13
76	Awareness Programme	Online	16
77	Awareness Programme	Online	23
78	Awareness Programme	Online	53
79	Awareness Programme	Online	17
80	Awareness Programme	Online	30
81	Awareness Programme	Online	15
82	Awareness Programme	Online	25
83	Awareness Programme	Online	35
84	Awareness Programme	Online	10
85	Awareness Programme	Online	30
86	Awareness Programme	Online	12
87	Awareness Programme	Online	6
88	Awareness Programme	Online	7
89	Awareness Programme	Online	20
90	Awareness Programme	Online	50
91	Awareness Programme	Online	30
92	Awareness Programme	Online	13
93	Awareness Programme	Online	10
94	Awareness Programme	Online	6
95	Awareness Programme	Online	6
96	Awareness Programme	Online	8
97	Awareness Programme	Online	13
98	Awareness Programme	Online	6
99	Awareness Programme	Online	25
100	Awareness Programme	Online	8
101	Awareness Programme	Online	14
102	Awareness Programme	Online	11
103	Awareness Programme	Online	10
104	Awareness Programme	Online	6
105	Awareness Programme	Online	9
106	Awareness Programme	Online	14
107	Awareness Programme	Online	16
108	Awareness Programme	Online	11
109	Awareness Programme	Online	8
110	Awareness Programme	Online	8
111	Awareness Programme	Online	13
112	Awareness Programme	Online	15
113	Awareness Programme	Online	25
114	Awareness Programme	Online	25
115	Awareness Programme	Online	26
116	Awareness Programme	Online	18
117	Awareness Programme	Online	52
118	Awareness Programme	Online	16

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

- Creating awareness about hedging and targeting the major 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

Methodology

Regression analysis is carried out between near month futures returns and NCDEX polled spot pricesreturns 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.