

## Parameters for Performance Review of Commodity

### Mustard

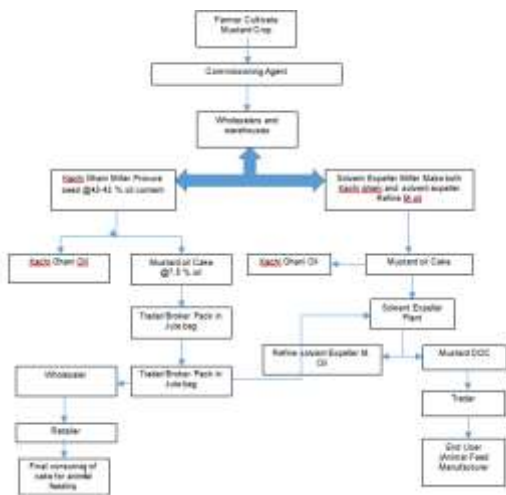
#### 1. Background

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

The cultivation of mustard-rapeseed dates back to 2000 B.C. both in sub-tropical and tropical countries. The mustard-rapeseed plants grow all over the world but their cultivation is mainly confined to India, China, Canada, Germany, France, Australia, USA, etc. The rapeseed was cultivated in Europe since 13th century. Mustard-Rapeseed is the second major oilseed in India. The mustard seeds can come from three different plants: black mustard (*Brassica nigra*), brown Indian mustard (*B. juncea*), and white mustard (*B. hirta/Sinapis alba*). India is the third largest producer of Mustard seed. Mustard oil extracted from the black mustard seed is lighter in colour and stronger in taste whereas yellow mustard seed produces more yellowish and pungent oil. Mustard seed is a rich source of oil and protein. The seed has approximately 36 to 42 per cent of oil and the whole seed meal has about 43 per cent of protein.



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 of Mustard and NCDEX Quality Specifications												
	<p><b>Major Varieties</b></p> <p>Rai, ryada, raya, laha, lahta, sasve, herbo, Toria, tori, lahi, Brown-sarson, Bhoori- sarson, Yellow sarson, Pilli sarson, Gobhi sarson, Karan rai, Duan, tera, tara, saundh, taramira</p> <p><b>NCDEX Quality Parameters</b></p> <table border="1"> <tr> <td>Moisture content</td><td>5% (basis)</td></tr> <tr> <td>Oil Content (at 5% moisture content level):</td><td>42% (basis)</td></tr> <tr> <td>FFA%</td><td>1.0 (max)</td></tr> <tr> <td>Foreign Matter</td><td>0.50% (basis)</td></tr> <tr> <td>Damaged or Shriveled or discolored seeds</td><td>0.75% (max)</td></tr> <tr> <td>Insect damaged matter</td><td>Insect damaged matter should be within 0.75%.</td></tr> </table>	Moisture content	5% (basis)	Oil Content (at 5% moisture content level):	42% (basis)	FFA%	1.0 (max)	Foreign Matter	0.50% (basis)	Damaged or Shriveled or discolored seeds	0.75% (max)	Insect damaged matter	Insect damaged matter should be within 0.75%.
Moisture content	5% (basis)												
Oil Content (at 5% moisture content level):	42% (basis)												
FFA%	1.0 (max)												
Foreign Matter	0.50% (basis)												
Damaged or Shriveled or discolored seeds	0.75% (max)												
Insect damaged matter	Insect damaged matter should be within 0.75%.												

**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 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
<b>Reference Year</b>			
<b>Financial Year 2021-22 (Apr-Mar)</b>			
<b>Corresponding Years</b>			
Production Year (PY)	2021-22 (July-Sept)	2020-21(July-June)	2020-21(July-June)
Marketing Year (MY)	2021-22 (Oct-Sept)	2021-22 (Jan/Feb-Dec/Jan)	2021-22 (Mar/Apr - Feb/Mar)
Calendar Year (CY)	2021 (Jan-Dec)	2021 (Jan-Dec)	2021 (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 2021-22 = PY 2021-22 = MY 2021-22 = CY 2021	FY 2021-22 = PY 2020-21 = MY 2021-22 = CY 2021	FY 2021-22 = PY 2020-21 = MY 2021-22 = CY 2021

**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 (2020-21)	Current FY (2021-22) (P)
Opening Stocks	99	78
Production	696	736
Imports	157	167
Total Supply	952	981
Exports	159	180
Domestic Consumption	715	741
Closing Stocks	78	60

Source: USDA (Apr 2022); P= Provisional,

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

(In lakh Tonnes)

Indian Scenario	Previous FY (2020-21)	Current FY (2021-22) (P)
Opening Stocks	4.69	2.69
Production	74.00	85.00
Imports	-	-
Total Supply	78.69	87.69
Exports	-	-
Domestic Consumption	76.00	84.00
Closing Stocks	2.69	3.69

Source: USDA (Apr 2022); P= Provisional,

Please refer to Table entitled “Reference Years for Commodities” to know type of years corresponding to financial year. Majorly India does not export or Import Mustard Seed

(In lakh Tonnes)

Rank	Top 10 Major Producing Countries			Top 10 Major Consuming Countries		
	Country	Previous FY (2020-21)	Current FY (2021-22) (P)	Country	Previous FY (2020-21)	Current FY (2021-22) (P)
1	Canada	199	195	European Union	217	229
2	European Union	152	167	China	160	165
3	China	135	140	Canada	110	107
4	India	74	85	India	76	84
5	Australia	23	45	Japan	23	24
6	Ukraine	35	28	Russia	17	19
7	Russia	20	26	United States	19	19
8	United States	16	16	United Kingdom	20	16

9	United Kingdom	17	11	Mexico	13	14
10	Belarus	6	7	Australia	9	11
	Others	19	17	Others	51	53
	World Total	696	736	World Total	715	741

Source: USDA (Apr 2022), P= Provisional,

Countries are arranged in descending order based on the figure in Current FY (2021-22) (P)

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 Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY (2020-21)	Current FY (2021-22) (P)	Country	Previous FY (2020-21)	Current FY (2021-22) (P)
1	Canada	100	106	European Union	60	58
2	Australia	17	37	China	26	28
3	Ukraine	30	24	Japan	22	24
4	Russia	4	7	Mexico	13	15
5	EU	3	2	UAE	10	12
6	United States	2	2	Pakistan	7	9
7	Kazakhstan	1	1	UK	4	7
8	UK	1	1	United States	6	4
9	Moldova	1	1	Bangladesh	4	4
10	Argentina	0	0	Belarus	2	2
	Others	0	0	Others	4	3
	World Total	159	180	World Total	157	167

Source: USDA (Apr 2022), P= Provisional,

Countries are arranged in descending order based on the figure in Current FY (2021-22) (P)

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

(In Lakh Tonnes)

Top 10 Major Producing States in India			
Rank	States	Previous FY (2020-21)	Current FY (2021-22) (P)
1	Rajasthan	30.00	35.00
2	West Bengal, Eastern India & Others	10.00	14.50
3	Uttar Pradesh	10.00	13.50
4	Punjab/Haryana	10.00	9.50
5	Madhya Pradesh	6.00	8.50
6	Gujarat	3.00	4.00
	All India	69.00	85.00

Source: Jaipur based Pvt. Agency, States are arranged in descending order based on the figure in Current FY (2021-22) (P)

### c. Major changes in the policies governing trade in the spot markets of the commodity

Date	Major Policies governing trade and related changes
19-May-21	The central government has directed states and UTs to monitor prices of 22 essential commodities, especially pulses, oilseeds, vegetables and milk in order to discourage hoarding activities and taking undue advantage of Covid-19 situation.

08-Jun-21	FSSAI issued an order asking all the Commissioners of Food Safety of States/UTs and Central Licensing Authority to carry out an inspection drive to ensure effective imposition of ban blending of mustard oil with other cooking oil
29-Jun-21	The Govt. reduced import duty on CPO to 10% from 15% and that for RBD to 37.5% from 45% w.e.f. June 30, 2021 till September 30, 2021
23-Jul-21	The Solvent Extractors' Association (SEA) of India has asked the government to allow the import of soybean meal to help the domestic poultry industry to cool down the increased prices of Soy meal.
30-Jun-21	The Govt. amended import policy of refined palm oil from 'restricted' to 'free' w.e.f. June 30, 2021 till December 31, 2021
05-Aug-21	Market talk of Govt. considering import of non-GM Soybean meal
16-Aug-21	The Ministry of Commerce in an Office Memorandum directed to facilitate import of 12 lakh tonnes of `GM Soya de-oiled cake with immediate effect.
19-Aug-21	The Govt. reduced import duty on crude soy oil and crude sunflower oil to 7.5% from 15% and that of refined soy oil and refined sunflower oil from 45% to 37.5% w.e.f. August 20, 2021 till September 30, 2021.
24-Aug-21	The govt. relaxed the import policy rules to allow imports of 12 lakhs metric tonne of crushed and de-oiled GM soya cake (only non-living organism) from Nhava Sheva port and LCS Petrapole, till 31st October, 2021 or until further orders, whichever is earlier.
03-Sep-21	The Govt. allowed GM soya cake imports via Mumbai, Tuticorin and Vishakhapatnam Sea Ports in addition to Nhava Sheva Port.
08-Sep-21	Govt. announced MSP for Rabi crops for marketing season 2022-23. Mustard MSP announced for 2022-23 at 5050 Rs/Qtl, an increase of 9% as compared to last year
10-Sep-21	Govt. reduced Import Duty of Edible Oils — mainly palm group of oils, soyabean oil and sunflower oil — w.e.f. September 11, 2021
13-Sep-21	The Govt. extended import window for Soymeal
08-Oct-21	The central govt. imposed stock limits on all Edible oils and oilseeds for the period Oct 08, 2021 till Mar 31, 2022. The stock limit will be decided by the respective States/UT on the basis of available stock and consumption pattern of the State/UT.
08-Oct-21	SEBI directive w.r.t. RMSeed trading on the Exchange applicable w.e.f. October 08, 2021 - (a) no new RMseed contract should be launched till further notice (b) in respect of the running contracts, no new position will be allowed to be taken. Only squaring up of the position will be allowed.
12-Oct-21	UP Govt. imposed stock limits on edible oil and oilseeds
13-Oct-21	With effect from October 14, 2021, Govt. scrapped basic customs duty as well as slashed Agri cess on crude varieties of palm, soybean and sunflower oil. Govt. also reduced Agricess on Crude Edible oils (Palm Oil, Crude Soy Oil, Crude Sunflower Oil)
25-Oct-21	The central govt. directed States and UTs to speed up the process of issuing stock limit notification before the festive season and ensure that the consumers get the benefit of the same.
15-Nov-21	Poultry Breeder Association writes to Ministry of Fisheries to allow soymeal import through extending the deadline of import by 31 March 2021. Letter further talks about high speculation in NCDEX Futures along with other demands
23-Nov-21	Fisheries Ministry writes a letter to Commerce Minister to consider request of Poultry Breeder Association demand
24-Nov-21	Fisheries Ministry writes a letter to DGFT to consider request of Poultry Breeder Association demand
26-Nov-21	The state govt. of Rajasthan imposed stock limits on Edible oils and oilseeds w.e.f. Nov 26, 2021 till Mar 31, 2022.
10-Dec-21	Ministry of consumer affairs held a meeting with Edible Oilseeds/Oil associations about passing the benefits of duty cut to the end consumers

19-Dec-21	Ministry of Finance, Department of Economic affair wrote to SEBI to suspend futures trading in Chana, mustard seed, crude palm oil, moong, paddy (Basmati), wheat and soybean and its derivatives with immediate effect.
20-Dec-21	SEBI in its press release (PR No 36/2021) directed suspension of futures and options trading for one year in a host of agricultural commodities including chana, mustard seed, crude palm oil, moong, paddy (Basmati), wheat and soybean and its derivatives. The suspension of trading in these commodities came into effect on Monday (20-Dec) following a communication from the Department of Economic Affairs. No fresh positions (including intra-day) will be allowed in respect of Futures and Options contracts of these commodities. No new Futures and Options contracts will be launched till further notice in any of the commodities.
23-Dec-21	Maximum stock of 90 days production of Soya Meal, as per daily input production capacity of Plant/Miller/Processor, defined in its IEM (The storage location should be declared). Trading company/Trader/Private Chaupals: Only Government registered enterprise, maximum stock of 160 MT with a defined and declared storage location.
03-Feb-22	Department of Food and Public Distribution has issued a stock limit notification (S.O. 452(E)) on oilseed and edible oil. Govt. has imposed stock limit on edible oil and oil seed with specified quantity till 30th June22. However, six states, Uttar Pradesh, Karnataka, Himachal Pradesh, Telangana, Rajasthan and Bihar are exempted from the quantities specified, as they have already imposed stock limit.
30-Mar-22	Department of Food and Public Distribution has issued a stock limit notification (S.O. 1509(E)) on oilseed and edible oil. Govt. has extended stock limit period on edible oil and oil seed with specified quantity from June 30, 2022 to 31st Dec 2022. In the notification govt. has also directed that that Edible Oils and Edible Oilseeds stock to be regularly declared and updated on the portal of this Department i.e. Department of Food & Public Distribution by the participants. As per the notification stock limit will be applicable on all Edible Oils and Oilseeds put together for all States/Union Territories.

**d. Geo political issues in the commodity and its impact on Indian scenario.**

Date	Event	Key Details	Key Implications/Impact
23-Mar-21	Suez Canal traffic jam between 23 March to early hours of 29 March caused by stuck ship	The Suez Canal, a critical shipping artery that connects the Mediterranean and Red Seas through Egypt, was blocked after a large cargo ship ran aground while passing through it bringing traffic on the busy trade route to a halt.	Supply Chain bottleneck with container shortage and port congestion. Freight rate hike.  The congestion of the Suez Canal may delay nearly 7% of seaborne U.S. major grain shipments, according to USDA and vessel data analysed by Bloomberg. More than 80% of the impacted grain shipments are corn, with close to 60% of it on six vessels headed to China. However, Moderate effect on prices were observed as this Jam was temporary in nature.
27-Jan-22	Indonesia imposed mandatory domestic sales for palm oil	In order to control the palm oil prices in the domestic market, Indonesian govt. made a policy that palm oil exporters have to sell 20% of their total export at lower prices in the domestic market. This also has affected the supply of palm oil in the market.	This Policy has affected the supply of palm oil in the global market. It was reported that sellers/exporters quoted higher rates for selling / exporting the 80% of the oil in order to compensate for the loss incurred while selling 20% of the Export quota at lower rates in the domestic market.



24-Feb-22	Russia's Invasion on Ukraine	Russian President Vladimir Putin on Feb 24, 2022 informed that he has launched a military operation in Ukraine.	Russia's invasion on Ukraine has raised supply concern for wheat, corn and edible oil supply in the Global market. Further, it is feared that it may lead to a food crisis on the global scale. Ukraine is the largest source for sunflower oil import in India. Further, Russia and Ukraine are key source of world wheat product and trade. Prices of edible oils and grains are feared to get impacted from it.
09-Mar-22	Indonesia revised quota for mandatory domestic sales for palm oil from their export obligations	In order to control palm oil prices in the local market, Indonesia revised quota from 20% to 30% for Indonesian companies to sell their planned exports of crude palm oil and olein at home under a scheme known as Domestic Market Obligation (DMO) at lower prices (fixed by Govt.).The new restriction will stay in place for at least six months.	This revised policy is expected to further squeeze the supply of palm oil in the global market adversely impacting the prices.
Ongoing since Mar 28, 2022	China imposed lockdown	China Imposes Lockdown In Largest City- Shanghai Amid Biggest Outbreak Of COVID In 2 Years	Agriculture commodity export to China has slowed down due to prevailing lockdowns

## 2. Trading related parameter

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

Month	Traded volume (MT)
April	970
May	-
June	-
July	-
August	-
September	-
October	-
November	-
December	-
January	-
February	-
March	-
<b>Yearly Traded Volume</b>	<b>970</b>

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

Symbol	Traded Volume (MT)	Deliverable Supply( MT)	Proportion
RMSEED	970	8,769,000	0.00

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

Symbol	Traded Volume (MT)	Production( MT)	Proportion
RMSEED	970	8,500,000	0.00

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

Symbol	Average Open Interest (MT)	Production( MT)	Proportion
RMSEED	388	8,500,000	0.00

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

Symbol	Average Open Interest (MT)	Deliverable supply( MT)	Proportion
RMSEED	388	8,769,000	0.00

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

Month	Traded Value (Rs Crore)
April	0.00
May	-



June	-
July	-
August	-
September	-
October	-
November	-
December	-
January	-
February	-
March	-
<b>Yearly Traded Value</b>	<b>0.00</b>

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

Delivery details are based on commodity and not type of derivatives. Hence they would be same as provided for futures

Month	Traded Delivery (MT)
April	10,460
May	15,280
June	7,250
July	10,900
August	8,920
September	3,780
October	7,860
November	7,260
December	5,480
January	300
February	-
March	-
<b>Yearly Delivered Quantity</b>	<b>77,490</b>

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

Delivery details are based on commodity and not type of derivatives. Hence they would be same as provided for futures

Month	Value of Delivery (Cr)
April	71
May	115
June	49
July	80
August	70
September	33
October	66
November	62
December	45
January	2
February	-

March	-
<b>Total Value of Delivery</b>	<b>594</b>

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

Month	Average Open Interest (MT)
April	613
May	50
June	-
July	-
August	-
September	-
October	-
November	-
December	-
January	-
February	-
March	-
<b>Yearly Average Open Interest</b>	<b>388</b>

**j. Annual average volume to open interest ratio**

Symbol	Volume to OI Ratio
RMSEED	0.07

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

Symbol	Member Count	Client Count
RMSEED	7	21

**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 of ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest

Symbol	Proportion of VCPs/ Hedger
RMSEED	0.07

Maximum daily value of ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest

Symbol	Proportion of VCPs/ Hedger
RMSEED	0.05

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
RMSEED	14

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

#### n. Algorithmic trading as percentage of total trading

Commodity	Algo Percentage
RMSEED	0.00%

#### o. Delivery defaults

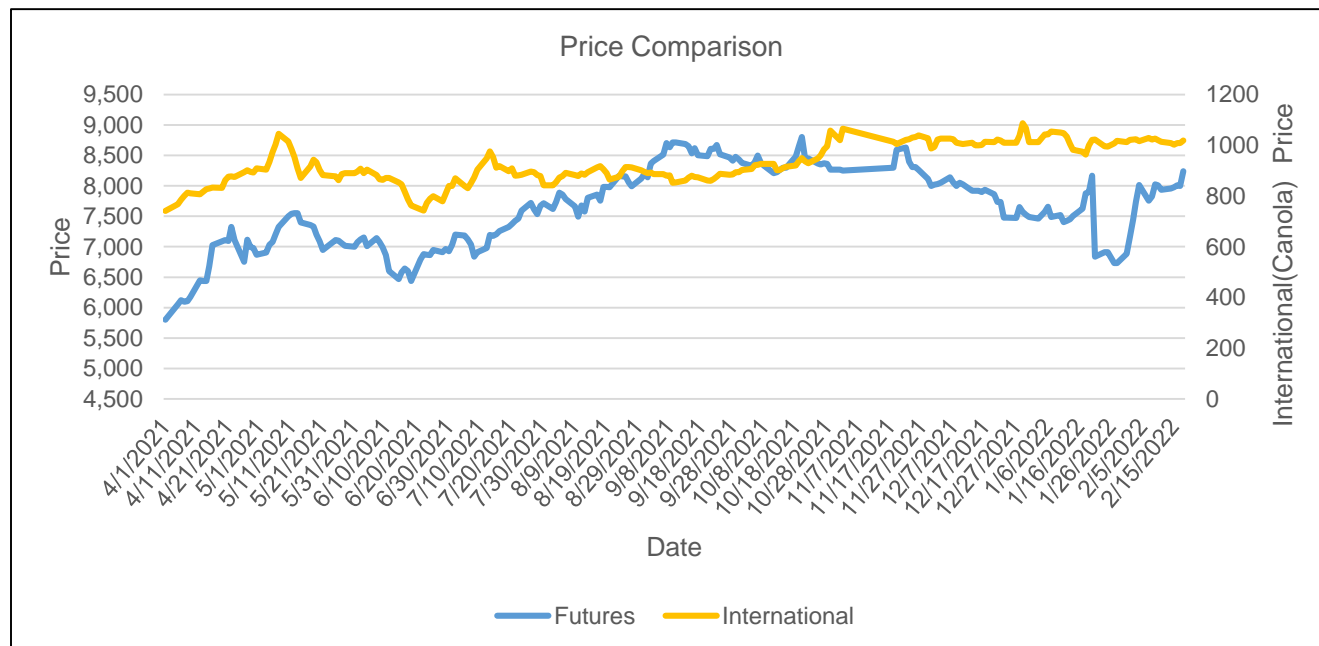
Number of instances	3
Quantity involved (MT)	30
Value involved (Crore)	0.24

### 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).

Correlation: 0.077

Standard Deviation: 0.85



**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.**

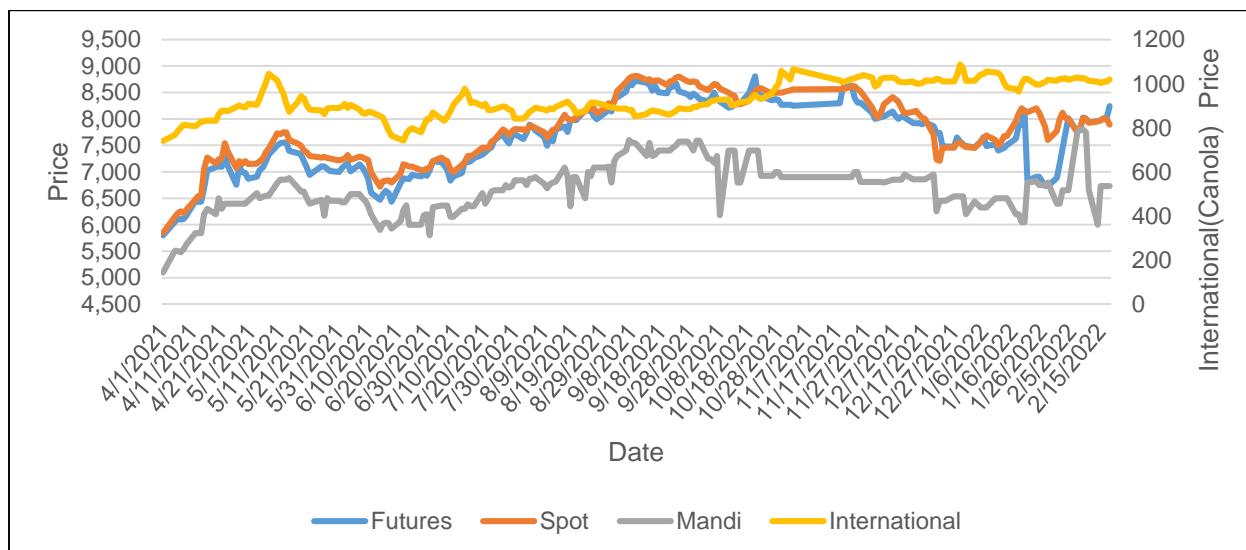
Correlation			
	Futures	Spot	Mandi
Futures	1		
Spot	0.63	1	
Mandi	0.11	0.22	1

Standard Deviation			
	Futures	Spot	Mandi
Futures	1		
Spot	1.08	1	
Mandi	0.26	0.24	1

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

Data not available

**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. (Volatility calculated by Square root of Standard Deviation of daily returns for the period from 1 April 2021 to 31 March 2022)**

Value of daily price volatility (April 2021- March 2022)

Futures		
Volatility	Month	Value
Max	Apr	0.027147
Min	Nov	0.009501

Spot		
Volatility	Month	Value
Max	Apr	0.026749
Min	Oct	0.007723

**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	4
Backwardation	0

#### 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. (Volatility calculated by Standard Deviation of daily returns for the period from 1 April 2021 to 31 March 2022)**

Basis volatility: 25.37

Hedge efficiency ratio: 0.823

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 centers (information to be provided state-wise and UT-wise).**

State	Major Trading Centres	Availability of NCDEX delivery centres
Rajasthan	Jaipur	Basis centre
	Alwar	ADC
	Sri Ganganagar	ADC
	Bikaner	ADC
	Jodhpur	ADC
	Kota	ADC
	Bharatpur	NA
	Baran	NA
	Dausa	NA
Uttar Pradesh	Agra	ADC
	Gorakhpur	NA
	Aligarh	
	Badaun	
	Kanpur	

	Mathura	
	Hamirpur	
	Varanasi	
	Lalitpur	
	Hathras	
	Ghaziabad	
	Etah	
Madhya Pradesh	Morena	NA
	Bhind	
	Neemuch	
	Mandsaur	
	Gwalior	
	Satna	
	Katni	
	Shivpuri	
	Chhatarpur	
	Sheopur	
Haryana	Rewari	NA
	Bhiwani	
	Sirsa	
	Hissar	
	Fatehabad	
	Gurgaon	

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)**

Month	Rajasthan (MT)	Delhi (MT)	Madhya Pradesh (MT)	Maharashtra (MT)
Apr-21	841	50	20	341
May-21	50	-	-	50
June-21	-	-	-	-
July-21	-	-	-	-
Aug-21	-	-	-	-
Sep-21	-	-	-	-
Oct-21	-	-	-	-
Nov-21	-	-	-	-
Dec-21	-	-	-	-
Jan-22	-	-	-	-
Feb-22	-	-	-	-
Mar-22	-	-	-	-

"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 2021-22.

Serial Number	Program	Location	Number of Participants
1	Awareness Program	Online	120
2	Awareness Program	Online	130
3	Awareness Program	Online	5
4	Awareness Program	Online	51
5	Awareness Program	Online	25
6	Awareness Program	Online	5
7	Awareness Program	Online	15
8	Awareness Program	Online	50
9	Awareness Program	Online	2
10	Awareness Program	Online	2
11	Awareness Program	Online	2
12	Awareness Program	Online	2
13	Awareness Program	Online	12
14	Awareness Program	Online	37
15	Awareness Program	Online	4
16	Awareness Program	Online	3
17	Awareness Program	Online	15
18	Awareness Program	Online	3
19	Awareness Program	Online	3
20	Awareness Program	Online	1
21	Awareness Program	Online	4
22	Awareness Program	Online	7
23	Awareness Program	Online	1
24	Awareness Program	Online	2
25	Awareness Program	Online	13
26	Awareness Program	Online	26
27	Awareness Program	Online	2
28	Awareness Program	Online	3
29	Awareness Program	Online	8
30	Awareness Program	Online	17
31	Awareness Program	Online	76

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

- Creating an awareness about the Hedge policy to bona fide hedger
- Awareness Programme in Major trading centres as well as remote location
- Attend the National as well as international conferences, Trade meets, seminars etc.
- One to one meeting with market participants and hedgers.



**Annexure 1****Hedging Efficiency Methodology**

Regression analysis is carried out between near month futures returns and NCDEX polled spot prices returns of the FY2021-22.

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.