

## Parameters for Performance Review of Commodity

# WHEAT

## 1. Background

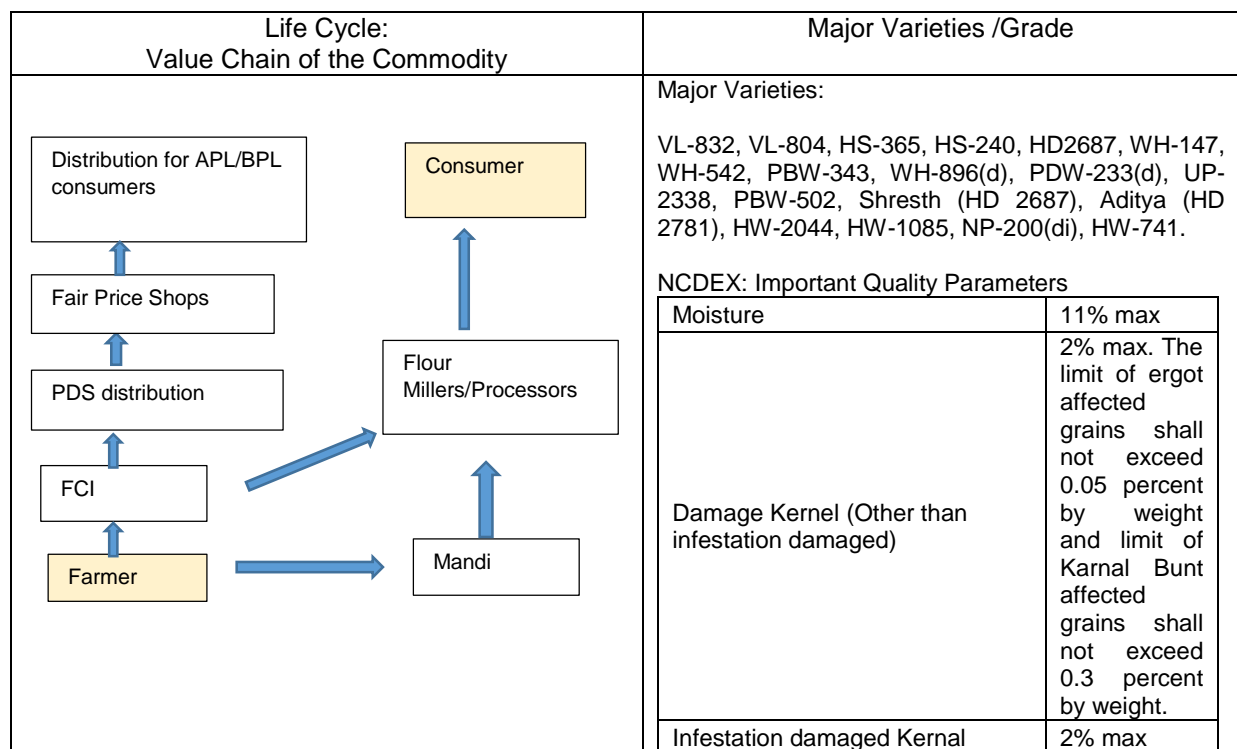
**a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India**

Wheat is a cereal grain that belongs to the grass family of the genus 'Triticum'. A dry, one seeded fruit named kernel is obtained from this spiky grass like grain, which is ground to make flour and is consumed throughout the world as one of the most important staple food. It is the second largest cereal grain consumed on earth. Wheat is important especially for making breads and other bakery products as it has got the maximum number of glutens as compared to any other grain. This crop is also grown as a forage crop for the livestock.



Wheat requires a cooler weather and a good level of moisture in the early plantation period and once the grain is formed, it needs a warmer weather to dry up. That is why the best-suited climate needed for the wheat crop to prosper is the temperate climate. In India, wheat is cultivated as a Rabi crop and it is planted in the month of October and November. It is harvested from March onwards and new season arrivals peak in April and May. Uttar Pradesh, Punjab, Haryana, Madhya Pradesh and Rajasthan are the major wheat producing states in India.

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



	Foreign Matter (Organic/Inorganic)	1% max (minerals not more than 0.25% and animal origins not more than 0.1%)
	Other edible grains	2% max
	Shrunken / Shriveled / Broken grains (not damaged)	5% max
	Total defects sum of: a) Foreign Matter b) Other edible grains c) Damaged Kernel (Other than infestation damaged) d) Shrunken/Shriveled/Broken grains (not damaged)	10% max The limit of ergot affected grains shall not exceed 0.05 percent by weight and limit of Karnal Bunt affected grains shall not exceed 0.3 percent by weight
	Test Weight	76 Kg/hl minimum
	Grain Size with diameter less than 3 mm	8% max

**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)
Opening Stocks	2968.30	2906.66
Production	7762.64	7788.28
Imports	1947.68	1971.54
Total Supply	12678.62	12666.48
Exports	2026.40	2001.02
Domestic Consumption	7745.56	7881.30
Closing Stocks	2906.66	2784.16

Source: USDA (May 2022)

(In Lakh Tonnes)

Indian Scenario	Previous FY (2020-21)	Current FY (2021-22)
Opening Stocks	247.00	278.00
Production	1078.60	1095.86
Imports	0.18	0.25
Total Supply	1325.78	1374.11
Exports	25.61	85.00
Domestic Consumption	1022.17	1079.11
Closing Stocks	278.00	210.00

Source: USDA (May 2022)

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 (2020-21)	Current FY (2021-22)	Country	Previous FY (2020-21)	Current FY (2021-22)
1	European Union	1266.94	1384.18	China	1500.00	1475.00
2	China	1342.50	1369.46	European Union	1047.50	1082.50
3	India	1078.60	1095.86	India	1022.17	1079.11
4	Russia	853.52	751.58	Russia	425.00	417.50
5	United States	497.51	447.90	United States	263.00	274.00
6	Australia	333.00	363.00	Pakistan	206.00	206.00
7	Ukraine	254.20	330.00	Turkey	206.00	205.00
8	Pakistan	252.48	274.64	Egypt	174.00	182.00
9	Canada	351.83	216.52	Iran	134.55	153.00
10	Argentina	176.40	210.00	United Kingdom	304.76	305.62
	Others	1355.66	1345.14	Others	2462.58	2501.57
	World Total	7762.64	7788.28	World Total	7745.56	7881.30

Source: USDA (May 2022)

Countries are arranged in descending order based on the figure in Current FY

(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	European Union	297.40	340.00	Egypt	121.49	120.00
2	Russia	391.00	330.00	Indonesia	104.50	110.00
3	Australia	238.46	275.00	China	106.18	95.00
4	United States	269.85	213.64	Turkey	80.81	90.00
5	Ukraine	168.51	190.00	Algeria	76.80	78.00
6	Canada	264.29	155.00	Bangladesh	63.95	65.00
7	Argentina	109.34	134.88	Brazil	22.00	65.00
8	India	81.94	70.00	Iran	65.86	62.00
9	Kazakhstan	64.69	62.50	Philippines	72.00	75.00
10	Turkey	115.31	145.00	Nigeria	61.13	63.00
	Others	25.61	85.00	Others	1172.96	1148.54
	World Total	2026.40	2001.02	World Total	1947.68	1971.54

Source: USDA (May 2022)

Countries are arranged in descending order based on the figure in Current FY

(In Lakh Tonnes)

Top 10 Major Producing States in India			
Rank	States	Previous FY (2020-21)	Current FY (2021-22)
1	Uttar Pradesh	338.15	355.07
2	Madhya Pradesh	196.07	181.82
3	Punjab	176.16	171.86
4	Haryana	118.76	123.94
5	Rajasthan	109.16	110.35
6	Bihar	55.80	61.50
7	Gujarat	33.27	32.59
8	Maharashtra	17.94	20.71
9	Uttarakhand	9.04	9.55
10	West Bengal	5.10	5.95
	Others	19.16	22.52
	All India	1078.61	1095.86

Source: Ministry of Agriculture,

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

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

### c. Major changes in the policies governing trade in the spot markets of the commodity (FY 2021-22)

Date	Major Policies governing trade and related changes
07-Jun-21	The Prime Minister in his address to the nation on 7th June 2021, announced the extension of the PMGKAY (2021) Scheme for a further period of five months still Diwali in November, 2021. An additional allocation of 5 kg of foodgrains(Wheat or Rice), free of cost, involving a total quantity of around 204 LMT of foodgrains for a period of further 5 months will be provided to around 80 Crore NFSA beneficiaries with an estimated financial implication of up to Rs. 67,266Crore. This additional free of cost allocation of food grains will be over and above the regular monthly food grains allocated for beneficiaries covered under the NFSA. The entire cost of this additional allocation under PM-GKAY,including the expenditure on intra state transportation, dealers' margin etc., will be borne by Government of India without any sharing by States/UTs.
08-Sep-21	Govt. announced MSP for Rabi crops for marketing season 2022-23. Wheat MSP has been increased by 2% y-o-y to Rs 2015/Qtl.
20-Nov-21	Farm laws repealed: Govt. announced repealing of three farm laws after a year of protests.
24-Nov-21	The central govt. has approved the extension for the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY-Phase V) for a period of another 4 months i.e. December 2021 till March 2022 @ 5 kg per person per month free of cost for all the beneficiaries covered under the National Food Security Act (NFSA) [Antodaya Anna Yojana & Priority Households] including those covered under Direct Benefit Transfer (DBT). Phase-I and Phase-II of this scheme was operational from April to June, 2020 and July to November, 2020 respectively. Phase-III of the scheme was operational from May to June, 2021. Phase-IV of the scheme is currently operational for July-November, 2021 months. The PMGKAY scheme for Phase V from December 2021 till March, 2022 would entail an estimated additional food subsidy of Rs. 53344.52 Crore.The total outgo in terms of food-grains for PMGKAY Phase V is likely to be about 163 LMT.
30-Nov-21	Farm Law Repeal Act 2021 received the assent of the President of India. This is an Act to repeal the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020, the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020, the Essential Commodities (Amendment) Act, 2020 and to amend the Essential Commodities Act, 1955.
19-Dec-21	Finance Ministry recommends Suspension of Futures Trading in 7 Agri Commodities – Issues directions to SEBI
20-Dec-21	SEBI in its press release (PR No 36/2021) directs suspension of futures and options trading for one year in a host of agricultural commodities including Paddy (non-basmati), Wheat, Chana, RM seed and its derivatives, CPO, Moong, Soybean and its derivatives.
05-Mar-22	The government has revised the Open Market Sale Scheme (OMSS) of foodgrains for bulk consumers and private traders by restoring transportation charges that were waived last year due to the COVID-19 pandemic, Food Secretary Sudhanshu Pandey said
26-Mar-22	The central govt. extended the Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) scheme for another six months i.e., till September 2022 (Phase VI). Under the extended PM-GKAY each beneficiary will get additional 5 kg free ration per person per month in addition to his normal quota of foodgrains under the NFSA. the Government had allocated about 759 LMT of free foodgrains under the PM-GKAY till Phase V. With another 244 LMT of free foodgrains under this extension (Phase VI), the aggregate allocation of free foodgrains under the PM-GKAY now stand at 1,003 LMT of foodgrains.

### d. Geo political issues in the commodity and its impact on Indian scenario (FY 2021-22)

Month	Date	Event	Key Details	Key Implications/Impact
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Feb-22	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.
Mar-22	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)
Apr 2021	20
May 2021	30
Jun 2021	320
Jul 2021	230
Aug 2021	-
Sep 2021	-
Oct 2021	-
Nov 2021	-
Jan 2022	-
Feb 2022	-
Mar 2022	-
Yearly Traded Value	600

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

Symbol	Traded volume (MT)	Deliverable supply( MT)	Proportion
WHEATFAQ	600	13,74,11,000	0.00

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

Symbol	Traded volume (MT)	Production( MT)	Proportion
WHEATFAQ	600	10,95,86,000	0.00

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

Symbol	Average Open Interest (MT)	Production( MT)	Proportion
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WHEATFAQ	130	10,95,86,000	0.00%
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**e. Annual average Open interest as proportion of total deliverable supply**

Symbol	Average Open Interest (MT)	Deliverable supply( MT)	Proportion
WHEATFAQ	130	13,74,11,000	0.00

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

Month	Traded Value (in Cr.)
Apr 2021	0.04
May 2021	0.05
Jun 2021	0.56
Jul 2021	0.41
Aug 2021	0.00
Sep 2021	0.00
Oct 2021	0.00
Nov 2021	0.00
Dec 2021	0.00
Jan 2022	0.00
Feb 2022	0.00
Mar 2022	0.00
Yearly Traded Value	1.06

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

Expiry Month	Total Delivery(MT)
Apr 2021	300
May 2021	20
Jun 2021	0
Jul 2021	0
Aug 2021	0
Sep 2021	0
Oct 2021	0
Nov 2021	0
Dec 2021	0
Jan 2022	0
Feb 2022	0
Mar 2022	0
<b>Yearly Delivery Quantity</b>	<b>320</b>

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

Expiry Month	Value in Cr
Apr 2021	0.57
May 2021	0.00
Jun 2021	0.00
Jul 2021	0.04
Aug 2021	0.00
Sep 2021	0.00



Oct 2021	0.00
Nov 2021	0.00
Dec 2021	0.00
Jan 2022	0.00
Feb 2022	0.00
Mar 2022	0.00
<b>Yearly Delivery Value</b>	<b>0.61</b>

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

Month	Average Open Interest (MT)
Apr 2021	224
May 2021	20
Jun 2021	75
Jul 2021	135
Aug 2021	0
Sep 2021	0
Oct 2021	0
Nov 2021	0
Dec 2021	0
Jan 2022	0
Feb 2022	0
Mar 2022	0
<b>Yearly Average Open Interest</b>	<b>130</b>

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

0.10

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

Symbol	Member Count	Client Count
WHEATFAQ	9	14

**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	n.a.

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

Commodity	Count
WHEATFAQ	5

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

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

Commodity	%
WHEATFAQ	0%

**o. Delivery defaults**

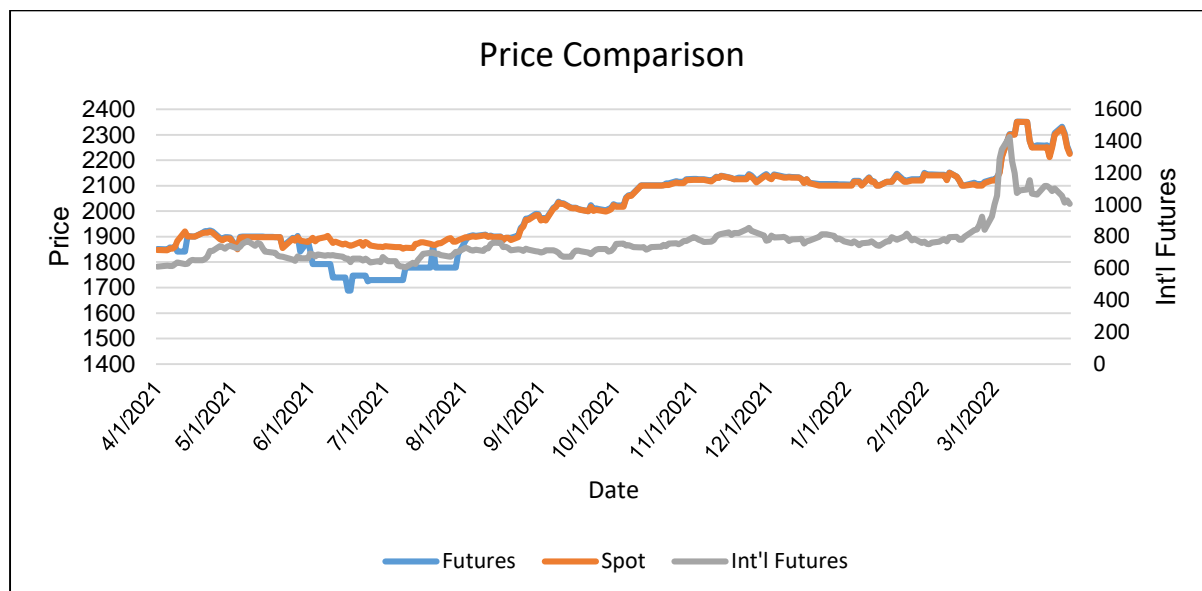
Number of Instances	Nil
Quantity involved (MT)	Nil
Value Involved (Cr)	Nil



### 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).

Correlation	0.0735
Standard Deviation	0.3432



- 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).

International spot prices not available

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

Correlation	0.6584
Standard Deviation	1.2262

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

International spot prices 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.

Correlation	0.1828
Standard Deviation	0.5692

- f. Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility.

Volatility	Futures Price		Spot Price	
	Month	Value	Month	Value
Max	Mar	0.0163	Mar	0.0172
Min	Dec	0.0033	Dec	0.0033

- 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	3
Backwardation	0

#### 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 1 April 2021 to 31 March 2022)**

	WHEATFAQ
Basis Volatility	22.8363
Hedge efficiency	69.45%

- 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 Physical Markets	Availability of NCDEX Delivery center
Rajasthan	Hanumangarh	
	Kota	Basis Center
	Chittorgarh	
	Ganganagar	ADC (Sri Ganganagar)
	Baran	
	Bundi	
	Alwar	
Madhya Pradesh	Indore	ADC
	Ujjain	
	Vidisha	
	Hoshangabad	
	Sehore	
	Ratlam	
	Shajapur	
	Dewas	
	Neemuch	
	Sagar	
Uttar Pradesh	Agra	ADC
	Gonda	
	Hardoi	
	Lakhimpur	
	Kanpur	
	Shahjahanpur	
	Bahraich	

	Lalitpur	
	Aligarh	
	Etah	
Gujarat	Rajkot	ADC
	Sabarkantha	
	Dahod	
	Mehsana	
	Vadodara(Baroda)	
	Banaskanth	
	Anand	
	Ahmedabad	

- 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), in MT**

	Madhya Pradesh	Maharashtra	Rajasthan	Uttar Pradesh
Apr-21	10	434	10	0
May-21	0	20	10	10
Jun-21	0	137	18	0
Jul-21	0	270	0	0
Aug-21	0	0	0	0
Sep-21	0	0	0	0
Oct-21	0	0	0	0
Nov-21	0	0	0	0
Dec-21	0	0	0	0
Jan-22	0	0	0	0
Feb-22	0	0	0	0
Mar-22	10	10	0	0

**Note -** The OI for Custodian Participation 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.

Sr. Number	Programme	Location	Number of Participants
1	Awareness Programme	Online	12
2	Awareness Programme	Online	16
3	Awareness Programme	Online	29
4	Awareness Programme	Online	13
5	Awareness Programme	Online	22
6	Awareness Programme	Online	14

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

- Regular meetings with the key Wheat value chain participants on latest development regarding commodity fundamentals and Government policies like – center procurement, OMSS price, import duty, MSP and its impact on trade

2. Awareness programs to be conducted at major trading centers with complete value chain participants
3. Awareness and Education Program to be conducted at major trading centers

**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 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.