

Parameters for Performance Review of Commodity

MOONG

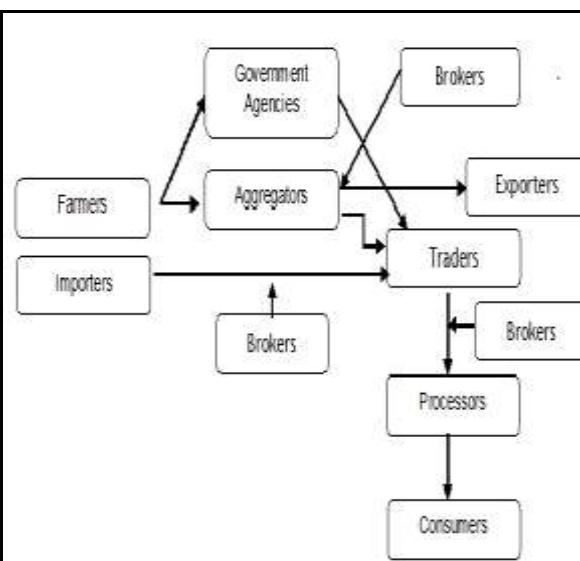
1. Background

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

Green gram is scientifically known as *Vigna radiata* and it is commonly known as Moong in India. It belongs to the commodity group "Pulse". It is short duration legume crop grown mostly as a fallow crop in rotation with rice. Moong is consumed as whole grains, sprouted form as well as dal in a variety of ways in homes. It is an excellent source of high quality protein. It is also used as green manuring crop. Moong can be used as a feed for cattle even husk of the seed can be soaked in water and used as cattle feed. India is the largest producer, importer & consumer of Moong in the world. In India Moong is cultivated in three different seasons, viz., Kharif, Rabi and Summer. However, primarily moong is a kharif season crop. The crop needs high temperature, less humidity and moderate rainfall of about 60-80 cm. Water logging is fatal for root development and nitrogen fixation during early vegetative stage. Crop is generally grown as rain fed but under assured irrigation during summer it is grown in Indo Gangetic plains of Northern India.



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

Value Chain of the Commodity		Major Varieties /Grade	
Major Varieties		SML 668, IPM 2-3, RMG 492, HUM 1, TJM 721, Gujarat Moong 3, IPM 02-14, Pant Moong 5,	
 <pre> graph TD Farmers[Farmers] --> Aggregators[Aggregators] Aggregators --> Traders[Traders] Traders --> Processors[Processors] Processors --> Consumers[Consumers] Importers[Importers] --> Traders GovernmentAgencies[Government Agencies] --> Aggregators Aggregators --> Exporters[Exporters] Traders --> Exporters Traders --> Brokers1[Brokers] Processors --> Brokers2[Brokers] </pre>		NCDEX: Important Quality Parameters for Unprocessed Whole Raw Moong (not for direct human consumption) meeting the following criteria	
Moisture		11% (Basis) Acceptable up to 12% Max with MAW	
Foreign Matter		The limits for foreign matter (extraneous matter) shall be maximum 3.0% by weight of which the maximum 0.5% by weight may be the inorganic matter and	

		impurities of animal origin.
	Other edible grains	1% Max
	Damaged Seeds	5% Max
	Immature, Shrunken, Shriveled, Broken, Split seeds	3% Max
	Weevilled	1% Max
	Small Seeds (passing through 2.5 mm long hole sieve)	2% Max
	Discolored seeds (other than dark green seeds)	4% Max
	Seeds with loss of Lustre	5% Max
	Kaudi seeds	0.5% Max
	The material should be tested for 2.5 mm Long Hole Sieve. The material should be free of live infestation and Fungus.	

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
Reference Year Financial Year 2021-22 (Apr-Mar)			
Corresponding Years			
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	NA	NA
Production	NA	NA
Imports	NA	NA
Total Supply	NA	NA
Exports	NA	NA
Domestic Consumption	NA	NA
Closing Stocks	NA	NA

Note: Data is not available in public domain.

(In Lakh Tonnes)

Indian Scenario	Previous FY (2020-21)	Current FY (2021-22)
Opening Stocks	NA	NA
Production	30.9	30.6
Imports	0.82	1.85
Total Supply	NA	NA
Exports	0.13	0.24
Domestic Consumption	NA	NA
Closing Stocks	NA	NA

Source: Production: Ministry of Agriculture and Import/Export: Ministry of Commerce (HS code 07133190); For FY 2021-22 import and export data is for period Apr-21 to Feb-22

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	FY 2020-21	FY 2021-22	Country	FY 2020-21	FY 2021-22

Note: Data is not available in public domain.

(In Lakh Tonnes)

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	FY 2020-21	FY 2021-22	Country	FY 2020-21	FY 2021-22

Note: Data is not available in public domain.

(In Lakh Tonnes)

Top 10 Major Producing States in India			
Rank	States	Previous FY (2019-20)	Current FY (2020-21)*

1	Rajasthan	13.03	14.07
2	Madhya Pradesh	2.48	6.42
3	Karnataka	1.41	1.82
4	Gujarat	1.04	1.10
5	Bihar	1.10	0.93
6	Andhra Pradesh	0.86	0.81
7	Uttar Pradesh	0.53	0.61
8	Tamil Nadu	0.76	0.59
9	Odisha	0.81	0.58
10	West Bengal	0.32	0.55
	Others	2.74	3.38
	All-India	25.09	30.85

Source: Ministry of Agriculture; *Data for Latest year, i.e., FY 2021-22 is not available.

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 policies governing trade in the spot markets of the commodity (FY 2021-22)

Date	Major Policies governing trade and related changes
09-Jun-21	Hike in MSP of Moong (1.1% to 7275/Qt.) y-o-y for KMS 2021-22
24-Jun-21	The Govt. has fixed an annual quota for imports of Urad and Tur from Myanmar as well as that of Tur from Malawi for 5 financial years starting from FY 2021-22
28-Jun-21	NAFED issued a notification on June 27, 2021 for commencing of the sale of pulses in Madhya Pradesh from Jul 1, 2021
02-Jul-21	The central govt. imposed stock limits on pulses except for wholesalers, retailers, millers and importers till October 31.
19-Jul-21	As an amendment to the notification dated July 02, 2021, the central govt. exempted importers of pulses from stock limits, and also relaxed the norms for millers and wholesalers
26-Jul-21	The central govt. reduced BCD on import of Masoor from countries other than the US by 10% and halved the AIDC on Masoor imports to 10%
16-Aug-21	SEBI directive w.r.t. Chana trading on the Exchange applicable w.e.f. Aug 17, 2021 - (a) no new chana 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.
08-Sep-21	Govt. announced MSP for Rabi crops for marketing season 2022-23. Hike of 2.5% y-o-y to Rs 5230/Qt. for Chana and 7.8% y-o-y to Rs 5500/Qt. for Masur
13-Sep-21	The Govt. extended import window for Tur and Urad
20-Nov-21	Farm laws repealed: Govt. announced repealing of three farm laws after a year of protests.
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.
20-Dec-21	Extension in Free Import Policy of Tur, Urad and Moong till March 31, 2022
11-Feb-22	Import Policy for Moong is revised from "Free" to " Restricted" with immediate effect as per notification issued dated 11 Feb 2022

Date	Major Policies governing trade and related changes
28-Feb-22	DGFT has decided to relax the foreign trade policy (FTP) provision to allow importers to ship in moong for fiscal 2021-22, subject to some conditions. The quantity eligible for import would be proportionate to the amount paid prior to February 11, 2022, as advance. If the advance payment had been made in full for the entire contracted quantity, then the eligibility would be for the entire contracted quantity. "If there is a partial payment, quantity admissible for import shall be limited to the quantity in proportion to the advance payments made," DGFT said in a trade notice issued on Feb 28, 2022. DGFT said the import contracts should have been entered into prior to February 11 with payments made. Details of such contracts have to be registered before March 15 at the jurisdictional regional offices of additional DGFT in Delhi, Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Ludhiana.
29-Mar-22	Govt. has extended the "Free Import Policy" for Tur and Urad till 31 Mar 2023

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

There were no major Geo political issues which has any significant impact on market sentiments for Moong in India during the FY 2021-22.

2. Trading related parameter

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

Month	Year	Symbol	Traded volume (MT)	Annual Traded Volume (MT) (April 21 to March 22)
Apr	2021	MOONG	0	0
May	2021	MOONG	0	
Jun	2021	MOONG	0	
Jul	2021	MOONG	0	
Aug	2021	MOONG	0	
Sep	2021	MOONG	0	
Oct	2021	MOONG	0	
Nov	2021	MOONG	0	
Dec	2021	MOONG	0	
Jan	2022	MOONG	0	
Feb	2022	MOONG	0	
Mar	2022	MOONG	0	

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

Symbol	Traded Volume (MT)	Deliverable Supply(MT)	Proportion
MOONG	0	32,45,000	0%

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

Symbol	Traded volume (MT)	Production(MT)	Proportion
MOONG	0	30,60,000	0%

d. Annual average Open interest as proportion of total production

Symbol	Average Open Interest (MT)	Production(MT)	Proportion
MOONG	0	30,60,000	0%

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

Symbol	Average Open Interest (MT)	Deliverable supply(MT)	Proportion
MOONG	0	32,45,000	0%

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

Month	Years	Symbol	Traded Value (in Cr.)	Annual Value of Trade (In Cr.)
Apr	2021	MOONG	0	
May	2021	MOONG	0	
Jun	2021	MOONG	0	
Jul	2021	MOONG	0	
Aug	2021	MOONG	0	
Sep	2021	MOONG	0	
Oct	2021	MOONG	0	
Nov	2021	MOONG	0	
Dec	2021	MOONG	0	
Jan	2022	MOONG	0	
Feb	2022	MOONG	0	
Mar	2022	MOONG	0	

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

Expiry Month	Years	Symbol	Total Delivery(MT)	Annual quantity of Delivery (MT)
Apr	2021	MOONG	0	
May	2021	MOONG	0	
Jun	2021	MOONG	0	
Jul	2021	MOONG	0	

Aug	2021	MOONG	0	
Sep	2021	MOONG	0	
Oct	2021	MOONG	0	
Nov	2021	MOONG	0	
Dec	2021	MOONG	0	
Jan	2022	MOONG	0	
Feb	2022	MOONG	0	
Mar	2022	MOONG	0	

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

Expiry Month	Years	Symbol	Value in Cr	Annual value of delivery (in Cr)
Apr	2021	MOONG	0	0
May	2021	MOONG	0	
Jun	2021	MOONG	0	
Jul	2021	MOONG	0	
Aug	2021	MOONG	0	
Sep	2021	MOONG	0	
Oct	2021	MOONG	0	
Nov	2021	MOONG	0	
Dec	2021	MOONG	0	
Jan	2022	MOONG	0	
Feb	2022	MOONG	0	
Mar	2022	MOONG	0	

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

Month	Years	Symbol	Average Open Interest (MT)	Annual Open Interest (MT)
Apr	2021	MOONG	0	0
May	2021	MOONG	0	
Jun	2021	MOONG	0	
Jul	2021	MOONG	0	
Aug	2021	MOONG	0	
Sep	2021	MOONG	0	
Oct	2021	MOONG	0	
Nov	2021	MOONG	0	
Dec	2021	MOONG	0	

Jan	2022	MOONG	0	
Feb	2022	MOONG	0	
Mar	2022	MOONG	0	

j. Annual average volume to open interest ratio

Symbol	Average of traded volume(MT)	Average of Open Interest (MT)	Traded to Open interest
MOONG	0	0	NA

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

Symbol	Member Count	Client Count
MOONG	0	0

I. 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	VCPs/ Hedger
MOONG	0%

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

Symbol	VCPs/ Hedger
MOONG*	0%

*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
MOONG*	0

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

n. Algorithmic trading as percentage of total trading

Commodity	%
MOONG	0.0%

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.

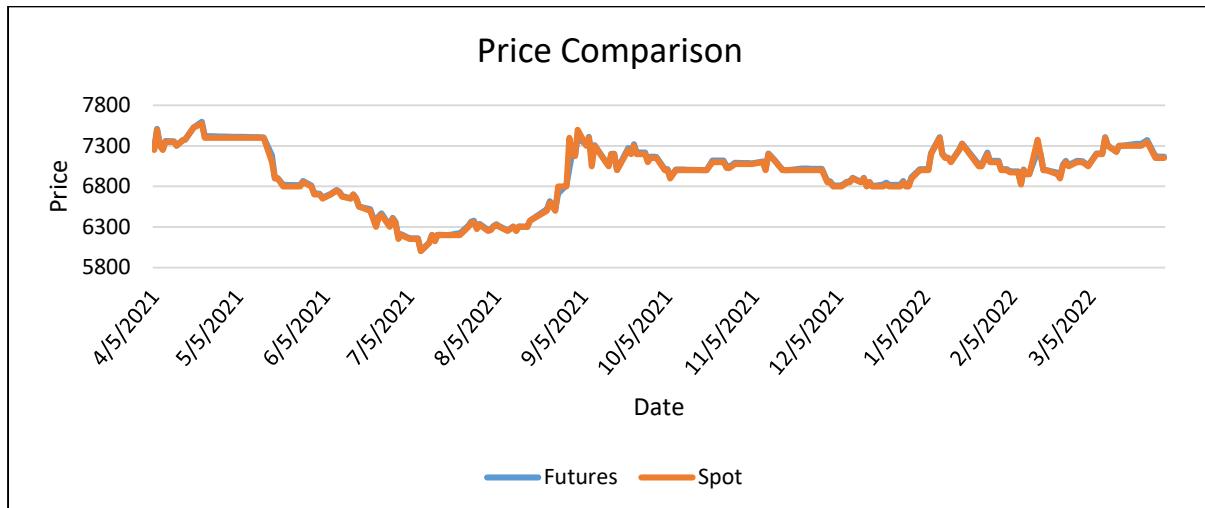
	Futures	Spot
Futures	1	
Spot	0.907628	1

Standard Deviation				
	Futures	Spot	Mandi	
Futures	1	1.316486	5.56589	
Spot	0.759598	1	4.227837	
Mandi	0.179666	0.236528	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.



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 2021 to 31 March 2022)

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

Volatility	Month	Value
Max	Sep	0.019414
Min	Dec	0.008053

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

Volatility	Month	Value
Max	Sep	0.024189
Min	Dec	0.008041

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

There were 0 instances where futures contract was in contango and 0 instances where futures contract was in backwardation by more than 4% for the near month contract in the period for April 2021- March 2022.

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	4.856056
Hedge Efficiency	

Note: Sufficient price points are not available to find the hedge efficiency ratio for Moong

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 Centers	Availability of exchange delivery centers
Rajasthan	Nokha	ADC
	Merta	Basis
	Sri Ganganagar	ADC
	Jodhpur	ADC
	Hanumangarh	
	Swai Madhopur	N.A.
	Baran	

	Dausa	
	Jaipur	ADC
	Nagaur	ADC

	Major Trading Centres	Availability of exchange delivery centers
		N.A.
Madhya Pradesh	Dewas	
	Harda	
	Hoshangabad	
	Narshinghpur	
	Sheopur	

	Major Trading Centres	Availability of exchange delivery centers
		N.A.
Karnataka	Gulbarga	
	Gadag	
	Bidar	

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

NA

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

Following list of Awareness program, Stakeholder engagement program has conducted for FY 2021-22

Sr. Number	Programme	Location	Number of Participants
1	Awareness Programme	Webex	17
2	Awareness Programme	Webex	17
3	Awareness Programme	Webex	17
4	Awareness Programme	Webex	11
5	Awareness Programme	Webex	8
6	Awareness Programme	Merta Mandi	19

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 I

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.