

Performance Review of Commodity

CORIANDER

1. Background

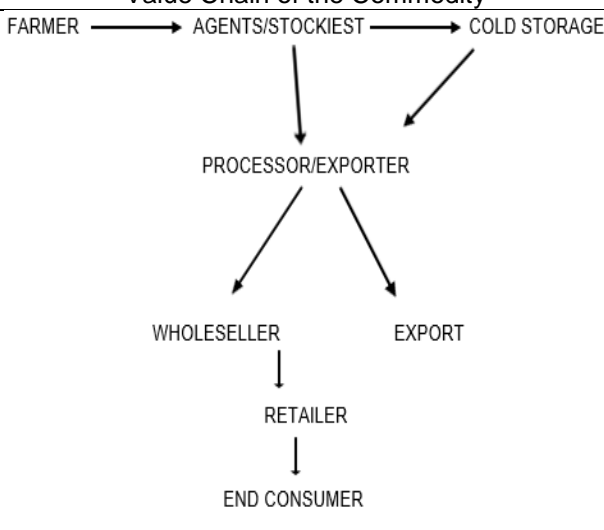
a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India

Coriander is one of the most widely used spices in the world. It is one of those herbs whose all parts are edible; however, the commercial parts of the plant are its leaf and seed. Coriander oil is extracted from the crushed ripe coriander seeds by steam distillation, which yields 0.8 - 1.0% oil. Good quality oleoresin is also extracted from coriander seeds, which is been used for flavouring beverages, pickles, sweets, etc. Coriander Powder is also used as a flavouring agent in a number of pharmaceutical preparations, especially the digestive medicines.



Coriander is grown as a Rabi season crop in India. A dry and cold weather free from frost especially during flowering and fruit setting stage favours good grain production. The sowing period is from October to December. The crop gets ready for harvest in about 90 to 110 days depending upon the varieties and growing season. Harvesting generally takes place during February and April. Madhya Pradesh, Rajasthan and Gujarat are the important Coriander producing states in India.

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
 <pre> graph TD FARMER --> AGENTS[AGENTS/STOCKIEST] AGENTS --> COLD_STORAGE[COLD STORAGE] COLD_STORAGE --> PROCESSOR[PROCESSOR/EXPORTER] AGENTS --> PROCESSOR PROCESSOR --> WHOLESELLER[WHOLESELLER] PROCESSOR --> EXPORT[EXPORT] WHOLESELLER --> RETAILER[RETAILER] RETAILER --> END_CONSUMER[END CONSUMER] </pre>	<p>Major Varieties</p> <p>Major varieties are Badami, Eagle, Scooter, Double Parrot, Single Parrot, and Super Green. Badami is the most prominent variety.</p> <p>NCDEX Quality Parameters</p> <p>Coriander to be necessarily machine cleaned</p> <ul style="list-style-type: none"> • Moisture – Basis 8% and acceptable upto 9%(Max) with 1:1 discount • Foreign Matter – Max 0.90% • Damaged & Discolored Seeds– Max 1.90% • Shriveled Seeds- Basis 1% Acceptable upto 1.5 % with 1:1 discount • Weevil seeds – Max 0.5% • Coriander splits (Dal) – Basis 5% and acceptable up to 9.50% with 1:0.5 discount • Live infestation – Not allowed

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 (2018-19)*	Current FY (2019-20)*
Opening Stocks	NA	NA
Production	NA	NA
Imports	1.36	0.83
Total Supply	NA	NA
Exports	1.80	1.33
Domestic Consumption	NA	NA
Ending Stocks	NA	NA

Source: UN Comtrade (April 2020); HS codes used are 090921 and 090922

*Data is only available for Calendar Year (Jan-Dec); Thus Previous Year is 2018 (Jan-Dec) and Current Year is 2019 (Jan-Dec).

NA: Data is not available in the public domain

(In Lakh Tonnes)

Indian Scenario	Previous FY (2018-19)	Current FY (2019-20) (P)
Opening Stocks	NA	NA
Production	5.67	NA
Imports	0.12	0.10
Total Supply	NA	NA
Exports	0.50	0.40
Domestic Consumption	NA	NA
Ending Stocks	NA	NA

Source: Production: Spice board of India and Import/Export: Ministry of Commerce; HS codes used are 090921 and 090922; For 2019-20, import and export data is available only for period of Apr 2019 to Jan 2020 (HS code 091030); P: Provisional

NA: Data is not available in the public domain

(In Lakh Tonnes)

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

Data is not available in public domain. As per market feedback, India is considered as the largest producer and consumer of Coriander in the world. It contributes around 80% in the total world production. Besides India, major coriander producers are Morocco, Canada, Pakistan, Romania and the former Soviet Union. However, official estimates are rarely available for this crop in most producing countries.

(In Lakh Tonnes)

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY*	Current FY*	Country	Previous FY*	Current FY*
1	India	0.46	0.44	Pakistan	0.18	0.18
2	European union	0.21	0.37	European union	0.16	0.12
3	Italy	0.14	0.15	Egypt	0.08	0.11
4	Bulgaria	0.14	0.13	USA	0.06	0.06
5	Russia	0.42	0.05	United Kingdom	0.06	0.06
6	Canada	0.04	0.04	India	0.19	0.06
7	Ukraine	0.09	0.03	South Africa	0.05	0.04
8	Poland	0.02	0.02	Japan	0.04	0.03
9	Spain	0.03	0.02	Poland	0.04	0.02

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY*	Current FY*	Country	Previous FY*	Current FY*
10	Egypt	0.01	0.02	Malaysia	0.17	0.01
	Others	0.23	0.06	Others	0.34	0.12
	World Total	1.80	1.33	World Total	1.36	0.83

Source: UN Comtrade (April 2020); HS codes used are 090921 and 090922; Countries are arranged in descending order based on the figure in Current FY; *Data is only available for Calendar Year (Jan-Dec); Thus Previous Year is 2018 (Jan-Dec) and Current Year is 2019 (Jan-Dec); NA: Data is not available in the public domain

(In Lakh Tonnes)

Top 10 Major producing states in India			
Rank	States	Previous FY	Current FY
1	Madhya Pradesh	3.91	3.70
2	Rajasthan	1.30	0.77
3	Gujarat	1.17	0.45
4	Assam	0.31	0.22
5	West Bengal	0.15	0.15
6	Orissa	0.11	0.11
7	Uttar Pradesh	0.04	0.04
8	Andhra Pradesh	0.02	0.02
	Others*	0.22	0.22
	Total	7.21	5.67

Source: Spice Board of India; Previous FY is 2017-18 and Current Year is 2018-19

State-wise Production data for the 2019-20 is not available in the public domain.

The latest data available is for the year 2018-19

*: The share of other states (except for top 8 states) in total domestic production is negligible.

c. Major changes in the policies governing trade in the spot markets of the commodity (FY 2019-20)

Date	Major Policies governing trade and Changes
27-Mar-20	The Govt. exempted mandis, procurement agencies, farm operations, agri machinery hiring centres as well as intra- and inter-state movement of farm implements from the lockdown rules.

d. Geo political issues in the commodity and its impact on Indian scenario (FY 2019-20)

Date	Event	Key Details	Key Implications/Impact
20-Jan-20	China declared an emergency about corona virus attack.	Outbreak of Corona virus that was first reported from Wuhan, China, on 31 December 2019.	World Trade with China set to diminish. Trade disruptions resulted into reduced demand affecting export growth and overall business prospects.
11-Mar-20	COVID-19	WHO declared COVID 19 as a pandemic	Economic Slow Down
19-Mar-20 and thereafter	Lockdown in Indian States	Indian PM urged countrymen to observe Janta Curfew on 22nd March. It is followed by nation-wide lock-down for 21 days effective from Mar 25.	Physical Market activities started getting adversely impacted due to movement restrictions and closures of physical markets.

2. Trading Parameters

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

Monthly Traded Volume	
Month	Traded volume (MT)
Apr-19	307,100
May-19	280,200
Jun-19	218,410
Jul-19	293,850
Aug-19	184,590
Sep-19	175,260
Oct-19	136,800
Nov-19	137,520
Dec-19	98,320
Jan-20	92,800
Feb-20	53,820
Mar-20	57,080
Yearly Traded Volume	2,035,750

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

Traded volume (MT)	Deliverable supply(MT)	Proportion
2,035,750	895,000	227.46%

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

Traded volume (MT)	Production(MT)	Proportion
2,035,750	867,000	234.80%

d. Annual average Open interest as proportion of total production

Avg Open Int (MT)	Production(MT)	Proportion
24,043	867,000	2.77%

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

Avg Open Int (MT)	Deliverable supply(MT)	Proportion
24,043	895,000	2.69%

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

Monthly Traded Volume	
Month	Traded Value(in Cr.)
Apr-19	2,216
May-19	2,063
Jun-19	1,531
Jul-19	2,001
Aug-19	1,118
Sep-19	1,037

Oct-19	841
Nov-19	950
Dec-19	658
Jan-20	634
Feb-20	333
Mar-20	334
Yearly Value of Trade	13,715

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

Monthly Delivery Quantity	
Month	Total Delivery(MT)
Apr-19	1,150
May-19	1,840
Jun-19	1,220
Jul-19	950
Aug-19	1,830
Sep-19	2,910
Oct-19	2,380
Nov-19	4,380
Dec-19	1,750
Jan-20	3,860
Yearly Delivery Quantity	22,270

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

Monthly Delivery Value	
Month	Value in Cr
Apr-19	8
May-19	14
Jun-19	9
Jul-19	7
Aug-19	12
Sep-19	19
Oct-19	15
Nov-19	31
Dec-19	12
Jan-20	27
Yearly Delivery Value	155

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

Monthly Average OI	
Month	Avg Open Int (MT)
Apr-19	36,499
May-19	36,723
Jun-19	33,145
Jul-19	35,762
Aug-19	35,554
Sep-19	29,267
Oct-19	19,721
Nov-19	18,713

Dec-19	15,627
Jan-20	12,462
Feb-20	8,342
Mar-20	7,979
Yearly average OI	24,043

j. Annual average volume to open interest ratio

Avg of traded volume(MT)	Average of Open Int (MT)	traded to Open interest
8,242	24,043	34.28%

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

Member Count	Client Count
211	2455

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

	VCPs/ Hedger	Proprietary traders	Others
Annual Average	6.21%	16.84%	76.95%
Maximum Daily value	13.10%	0.62%	86.27%

****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
DHANIYA	27

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

n. Algorithmic trading as percentage of total trading

Commodity	%
DHANIYA	6.08%

o. Delivery defaults

Number of Instances	2
Quantity involved (MT)	40
Value Involved (Cr)	0.29

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).

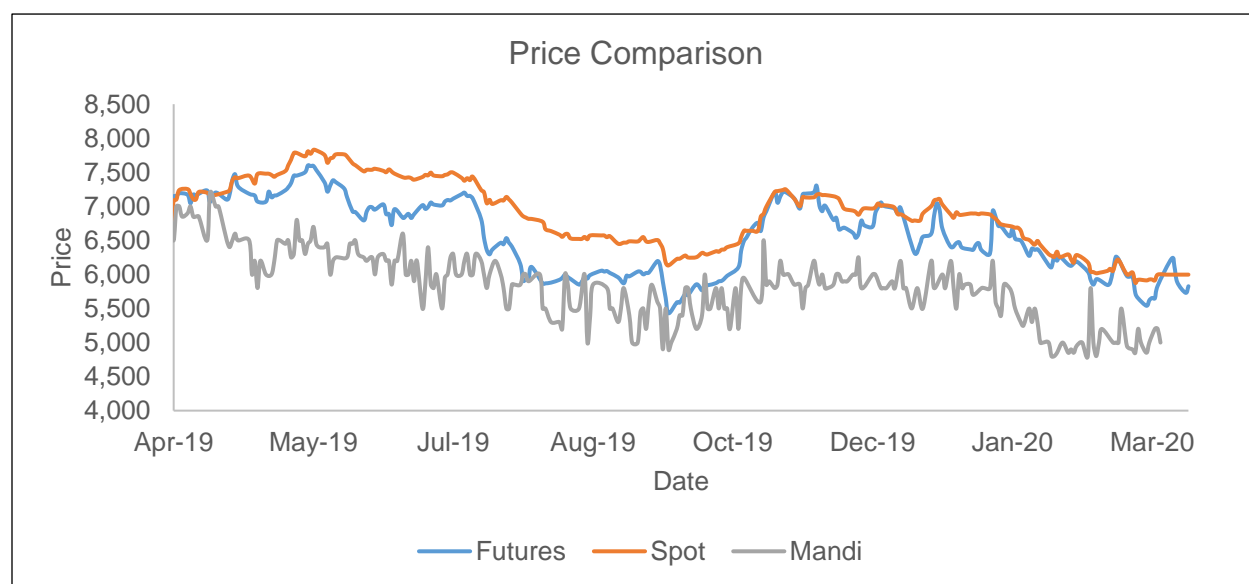
NA

- 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	0.54
Standard Deviation	1.78



- 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	-0.04
Standard Deviation	0.19

- 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 2019 to 31 March 2020**)

Volatility	Futures		Spot	
	Month	Value	Month	Value
Max	Mar	0.025	Apr	0.014
Min	May	0.011	Jun	0.005

- 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

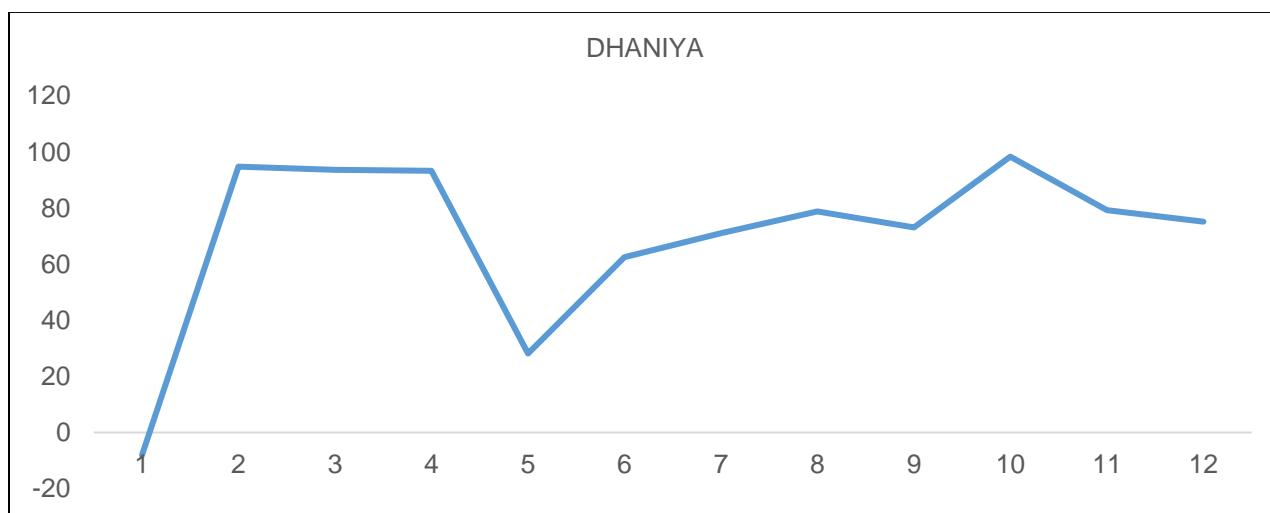
Contango	18
backwardation	13

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 2019 to 31 March 2020)

Basis Risk (Volatility of Basis) - 4.309

Period	DHANIYA	
	Hedge Ratios	Hedge Efficiency (in percentage)
Week 1-4	0.56	-8.03
Week 5-8	0.58	94.77
Week 9-12	0.6	93.66
Week 13-16	0.62	93.32
Week 17-20	0.63	28.15
Week 21-24	0.64	62.46
Week 25-28	0.59	71.05
Week 29-32	0.58	78.79
Week 33-36	0.52	73.13
Week 37-40	0.51	98.36
Week 41-44	0.53	79.28
Week 45-48	0.53	75.22



b. Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centres (information to be provided state-wise and UT-wise).

State	Major Physical Markets	Availability of NCDEX Delivery centre
Rajasthan	Baran	
	Jhalawar(Bhawani Mandi)	
	Kota	Basis
	Bundi	
	Ramaganj Mandi	ADC
Madhya Pradesh	Mandsaur	

Gujarat	Neemuch	
	Guna	
	Binagunj	
	Biaora	
	Kumbhraj	
	Junagadh	
	Gondal	ADC
	Rajkot	

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

Note – The OI for each month is classified based on the Member level. The Average OI is on gross level (Long OI + Short OI)

State	GUJARAT (in MT)	MADHYA PRADESH (in MT)	RAJASTHAN (in MT)
19-Apr	8,827	3,444	16,012
19-May	9,704	3,343	15,520
19-Jun	8,539	3,060	13,225
19-Jul	7,668	3,893	12,263
19-Aug	5,838	3,966	7,991
19-Sep	3,332	3,428	6,937
19-Oct	3,173	444	13,454
19-Nov	3,141	653	13,674
19-Dec	2,753	826	12,878
20-Jan	2,060	1,627	9,722
20-Feb	1,166	1,297	5,715
20-Mar	2,389	1,052	5,374

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 2019-20.

IEP/RS	Location	Target Audience	Actual Participant
Investors Education Programme	Ahmedabad, Gujarat	Retail Investors/ Traders/ Hedgers	52
Investors Education Programme	Junagadh, Gujarat	Farmers, FPO, Traders	51
Investors Education Programme	Gondal, Gujarat	Traders, Brokers and Processors	40
Investors Education Programme	Rajkot, Gujarat	Traders, Brokers and Processors	40
Investors Education Programme	Baran, Rajasthan	Farmer, FPO and NABRAD	80
Investors Education Programme	Kota, Rajasthan	Farmer, FPO and NABRAD	50
Investors Education Programme	Bundi, Rajasthan	Farmer, FPO and NABRAD	60
Investors Education Programme	Jhalawar, Rajasthan	Farmer, FPO and NABRAD	80

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

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

ANNEXURE I

Qualitative and quantitative measure for Hedge effectiveness ratio

Methodology

$$\text{Hedge Efficiency} = 1 - \frac{\text{Var (hedged portfolio)}}{\text{Var (unhedged portfolio)}}$$

Unhedged portfolio is portfolio comprising of spot commodity, and hedged portfolio is a portfolio comprising of spot commodity and short futures.

If there is no variance reduction, i.e.

$$\text{Var (hedged portfolio)} = \text{Var (unhedged portfolio)}$$

Then,

$$\text{Hedge Efficiency} = 1 - 1 = 0$$

If spot is completely hedged using futures, then

$$\text{Var (hedged portfolio)} = 0$$

$$\text{Hedge Efficiency} = 1$$

Position in spot commodity and in futures is not initiated at 1:1. The fraction of position size in futures contract to the position size in spot commodity is called 'Hedge Ratio'.

So, in this analysis, we are calculating:

$$\text{Hedge Efficiency} = 1 - \frac{\text{Var (spot return - hedge ratio * futures return)}}{\text{Var (spot return)}}$$

Weekly returns are used for the analysis. The hedge ratio is calculated based on previous 30 weeks' data. For example, for week 1 to week 4 of FY19-20, we use last 30 weeks' data of FY18-19 to compute hedge ratio which had highest hedge efficiency in those 30 weeks. This hedge ratio is then used to compute hedge efficiency for Week 1 – Week 4 of FY 19-20. So, hedge ratio is derived from 30-week rolling basis.

Negative hedge efficiency implies variance has increased by taking position in futures contract. Some of this can be attributed to the fact that spot price is not precisely available at the time of futures closing. So, the timing of generation of these 2 data is different.