

**Dissertation Report on**

**Indian Pulses Markets – Role & Impact of  
Futures on Major Value Chain Participants**

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**Jan -May 2014**

## CERTIFICATE

This is to certify that the Project Report titled **Indian Pulses Markets – Role & Impact of Futures on Major Value Chain Participants** , is a bonafide work carried out by **Ms. Jaspreet Kaur** of MBA 2012-14 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Guide

Signature of Head (DSM)

Seal of Head

Place:

Date:

## DECLARATION

I **Jaspreet Kaur**, student of MBA 2012 -14 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that Summer Internship Report on **Indian Pulses Markets – Role & Impact of Futures on Major Value Chain Participants** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me. The information and data given in the report is authentic to the best of my knowledge. This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Jaspreet Kaur

Place:

Date:

## **ACKNOWLEDGEMENTS**

Preparing a project of this nature is an arduous task and I was fortunate enough to get support from a large number of people to whom I shall always remain grateful. I would like to express my gratitude to Ms. Meha Joshi, my mentor, for her guidance, motivation, clarity and vision.

Last but not the least, I would also like to thank all the respondents for giving me their precious time, relevant information and advice without which I would not be able to complete this project.

## **EXECUTIVE SUMMARY**

The purpose of this report is to provide an overview of Agricultural Commodity Futures in India by taking into account the variability of empirical results of some selected studies on agricultural commodity futures. This report is based on review of empirical results of studies on agricultural commodity futures for the 2008-2014 periods. The report gives a brief idea regarding the global and domestic scenario of production/consumption. It also contains the government policies, prices and trade patterns of pulses.

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# 1. INTRODUCTION

## 1.1 Industry Overview

Over the past decade the pulse industry has experienced accelerated growth. The industry forecast is continued growth. Expansion has been fuelled by several factors including: rapid market expansion, increased world demand, lifestyle changes regarding diet due to an increase in disposable income, and heightened health awareness.

Although pulse production has increased in North America, there has been little development of novel processed food where pulse is a major ingredient. Pulses have been incorporated into conventional products such as soups and stews; however, very few high value-added, high pulse content products are found on the market. The inability to modify the undesirable image North American consumers have of pulses has been a contributing factor to low product development. Pulses have traditionally been viewed as a “poor man’s food” that require long preparation times and have the undesired side effect of producing intestinal gas.

## 1.2 Definition of Pulses

Pulse crops are annual grain legumes that produce relatively large edible seeds. The term “pulses” refers to crops harvested solely for dry grain, excluding crops that are harvested “green” for food, which are more commonly classified as vegetable crops. The term also excludes those crops harvested for oil extraction and sowing purposes. Pulses are used for food for humans and other animals. Included in the pulses are: dry beans like pinto beans, kidney beans and navy beans; dry peas; lentils; and others. Aside from their food value, pulses play an important role in the cropping system because the plants produce soil-enriching nitrogen. Pulses contain carbohydrates, proteins, including essential amino acids, and fat. Research shows that pulse consumption can promote heart health and aid in diabetes management due to nutritional composition.

## 1.3 Food Uses for Pulses

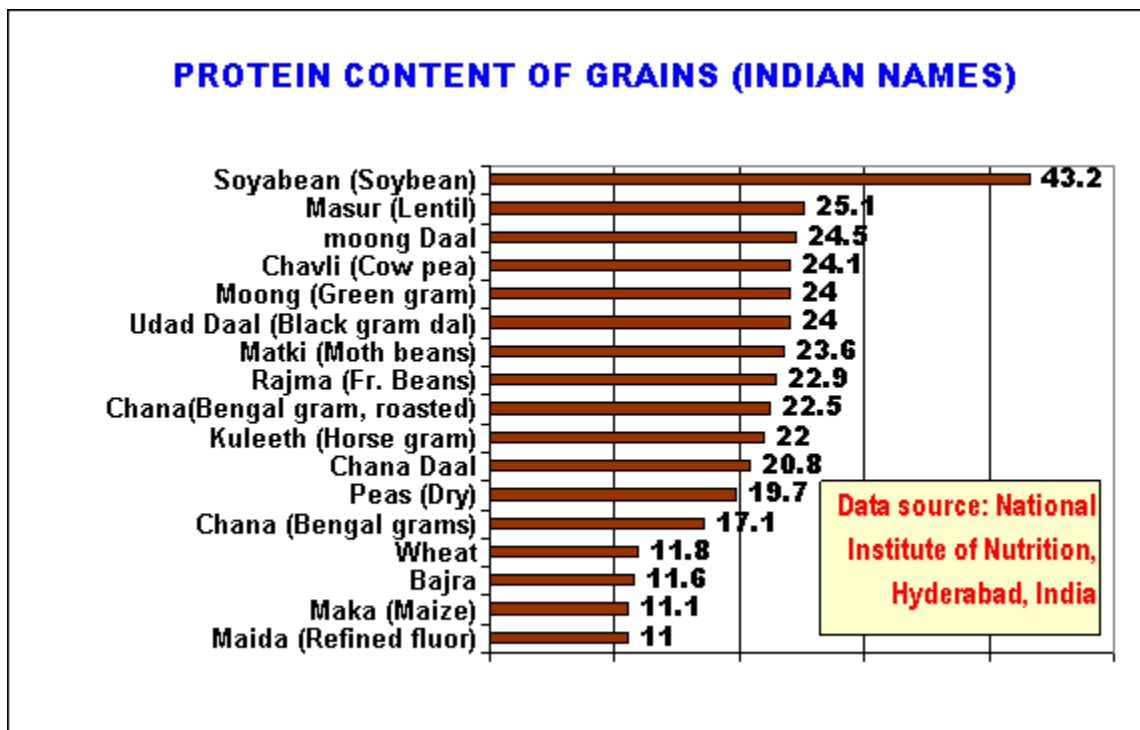
As food sources, pulses are found in many forms. Peas, lentils and beans can be used whole in soups and stews, pureed or ground into a powder or flour for use in noodles or sauces. Because of their rapid re-hydration rate, precooked powders are being used as natural thickeners in soups,

gravies, stews and casseroles. Chickpeas are used to make Hummus and dal and are widely used in Middle Eastern, Asian and Indian cooking. Recently, there has been a trend towards incorporation of processed pulses in pre-made food items; particularly, traditional ethnic dishes.

#### 1.4 The nutritional value of pulses

Pulses have a high nutritional value. They are rich in proteins (21 gram per 100 gram), carbohydrates (43 gram per 100 gram), fiber, the minerals phosphate, calcium and iron and the vitamins of the B-complex. The vegetable proteins in pulses can replace to a great extent animal proteins. This is important for vegetarians who use pulses as a substitute for meat.

They are low in sodium and saturated fats. Carbohydrate is a starch, which provides energy in the human body. Unpeeled pulses contain many nutritious fibers or cellulose: Podded pulses (with the skins removed) lose a large amount of this indigestible cellulose, which stimulates digestion in the stomach and intestines. Soaking dried beans for several hours brings them back to life, activating enzymes, proteins, minerals and vitamins.



## 1.5 Different types of pulses

Pulses can be divided into three main groups on the basis of their shape, which in turn can be sub-divided according to their race.

- Peas are round in shape such as green or yellow peas, split peas, marrowfat peas or chickpeas
- Beans are mostly oval or kidney shaped such as brown beans, white and black beans, lima beans, kidney, mung or flageolet beans
- Lentils are flat disks such as peeled or unpeeled red, brown, yellow and green lentils

### *Overview of some important pulses*

*Chickpeas (Chana):* Chickpea is a legume which belongs to Fabaceae family. It has been recorded as a crop which was cultivated since more than 7000 years. It is one of the most primitive crops whose traces have been found in the remains of various cultures in Middle East. This is a highly popular bean. They were even considered to be of medicinal value in primitive times.

It has immense viability in the food market, some of its primary usages in various fields are as follows:-

### *Medicinal Uses*

- Baby food can also be prepared from these. Traditionally it would be made into milk and fed to the children for relieving them of diarrhea.
- In Indian traditional medicine, acids derived from the pods and leaves of this plant are used for making medicines which treats bronchitis, cholera, flatulence, sunstroke, snake bites etc
- Local variety or Desi chickpeas are good for patients suffering from diabetes as it is rich in protein and fibers, which helps in the regulation of sugars in the body by stabilizing the breakdown of food.
- It is assumed that it contains such high proportions of dietary phosphorous which is almost similar to that of milk and yogurt.
- It is believed that for treating kidney stones, urine problems and inducing menstruation, chickpeas could be used.

### *Pigeon Peas (Tur/Arhar):*

The name of this plant originated from Barbados, where this crop is an important pigeon feed. There are several alternative names for this plant. This plant is grown in many regions across the world and is known by different names, such as the Tropical green pea, Red gram and Kadios in Philippines.

#### *Medicinal Uses*

- It is used in the remedy of health problems such as bronchitis, pneumonia, coughs, respiratory infections, colds, chest problems and sore throat.
- It is used to heal earache, tumors, abdominal pain and tumors, ulcers, wounds, sores, enteritis, inflammations and different kinds of pain.
- Pigeon pea can be used to heal skin problems such as Urticaria, genital irritations and Dermatitis.
- It cures health issues like blood disorders, anemia, diarrhea, dysentery, jaundice, fevers, colic, leprosy, convulsions, flu diabetes, hepatitis, yellow fever, strokes and urinary infections.

### *Black Matpe or Black Gram (Urad):*

Black gram is known with many names such as urad, urad dal, udad dal, urd bean, urd, urid, black matpe bean and black lentil. It originated in India, where it has been in cultivation from ancient times and is one of the most highly prized pulses of India. The coastal Andhra region in Andhra Pradesh is famous for black gram after paddy.

#### *Medicinal Uses*

- Preferably used as a nervine tonic, due to the essential ingredients present in it.
- When taken with gourd juice and honey, Black Gram heals mild diabetes, if taken daily for 3-4 months.
- Black Gram acts as a healthy supplement for people suffering from malnutrition.
- It heals a number of nervous disorders such as weakness of memory, schizophrenia, nervous weakness and hysteria.
- Black Gram paste, when applied on hair keeps dandruffs at bay and cures a number of hair problems at the same time lengthening the hair to a maximum level.

- Black Gram treats digestive disorders and is crucial in curing gastric catarrh, dysentery, dyspepsia and diarrhea.
- Rheumatic pains, stiff shoulder and contracted knee can be healed with the help of the medicinal properties present in Black Gram

## **1.6 OBJECTIVE OF STUDY**

The purpose of this study is “To Analyze the Role and Impact of Futures on Major Value Chain Participants.”

### *Sub Objectives*

1. To have an overview of the Indian pulses market
  - To study different types of pulses, their production and consumption patterns, demand and supply analysis
  - Highlighting the trading activities carried out in different categories
  - To find out the amount of global trade and India’s share in trade flow
  - To identify the major pulse exporters and importers across the world
  - Understanding about the plantation and harvesting season of different pulses
2. To study and analyze the trade and usage patterns
  - Usage done for different purposes such as household consumption, animal feed, processing etc.
  - To study the different products and by- products
3. To understand the price behavior dynamics
  - Study about the price movements in past 10 years
  - Understanding factors affecting prices
  - Reasons for inflation in prices
  - Understanding the reasons for price volatility
  - Minimum Support Prices set by government
4. Analyzing the major value chain participants
  - To identify different participants in value chain
  - Understanding their role in value addition

- How they are interlinked and affected by movements at one point?
5. To understand the role of futures in pulses market
- Study and understand the role of futures
  - Do Futures really help in risk management?
  - Analyzing their importance in hedging, speculation and arbitrage

## **2. FRAMEWORK OF STUDY**

### **2.1 Literature Review**

Pulses are a very important food source particularly in Middle and South America, the Middle East, China, Africa and Asia. They are grown practically over the whole world. India is the world's largest producer and the largest consumer of pulses. Pakistan, Canada, Burma, China, Brazil Australia and the United States, in that order, are significant exporters and are India's most significant suppliers. These countries account for half of the global output. According to 2010 statistics from the United Nation's Food and Agriculture Organization (FAO), the most important legumes are beans, chickpeas, cowpeas, peas, pigeon peas, and lentils, together accounting for 86% of output. Of these, harvested area worldwide is made up of 39.3% dry beans, 13.9% cowpeas, 15.8% chickpeas, 8.3% peas, 5.5% lentils, and 6.3% pigeon pea.

Bean is the most important pulse crop in terms of area and production. Pea is the second most important pulse crop in terms of production and third in terms of area. Chickpea is the second most important pulse crop in terms of area and third in terms of production.

Peas grow best in a slightly milder climate and are normally dried artificially. Beans and lentils require a warm and dry climate to develop properly and to dry well.

Peas are grown mainly in France, England, Belgium and Germany. Many types are also grown in Holland. Harvesting is normally in July and August.

Beans are grown mostly in Africa, The U.S.A., China, Canada, Argentine, Chilli, Bulgaria, Hungary and Italy. White beans are also grown in Holland and are also harvested in July and August

Lentils are mainly grown in China, the U.S.A., Canada, Chilli and Argentine. A less common, specialized type of grey lentils, are also grown in Puy, in France (known as Puy lentils).

### **2.2 The Production and Consumption of Pulses – Global Scenario**

Pulses are economically important crops for farmers, in both developing and developed countries. Pulses are traditionally mostly grown in developing countries, which contribute 70% of pulse production globally (except for dry peas). For instance, India produces about a quarter of the world's pulses, which in 2011 amounted to 17 million tones. In developing countries,

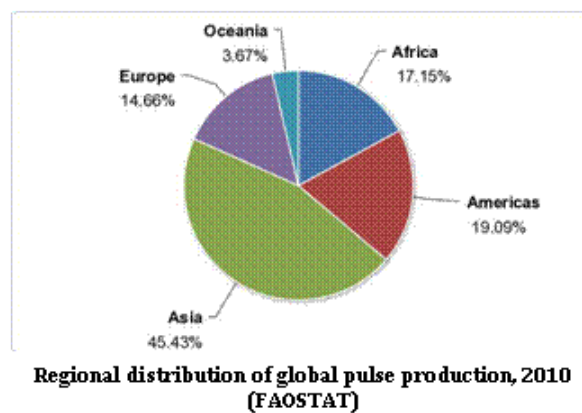
smallholder farmers play an important role in growing pulses, often mostly for their own consumption but also to sell locally.

The global production of pulses has remained stagnant over the last decade, at around 56 million tons (2007 figure), primarily due to the flat growth in India's production. Across the globe, five countries account for 50 per cent of global pulse production. India is the world leader, with a 25 per cent share of world production; the other major pulse-producing countries are China, Canada, Brazil and Myanmar.

Developed countries, such as Canada and the USA, are also significant growers and pulses represent an important crop for farmers in those countries as well. For example, in 2010, Canada accounted for 32% of world pea production and 38.5% of world lentil production. In developed countries, where pulses have represented a less important part of traditional diets, a fair share of the production is destined for export. Canada accounts for approximately 35% of global pulse trade each year, reaching a value of nearly \$2.7 billion in 2011. Nearly 27 per cent of Canada's exports are to India.

Low productivity can represent an important impediment in making pulses a valuable source of additional income, but with the introduction of improved varieties and better management techniques, important increases yields can be achieved, making pulses a valuable source of income. A study in West Africa showed that pulses often have higher markets prices than cereal crops.

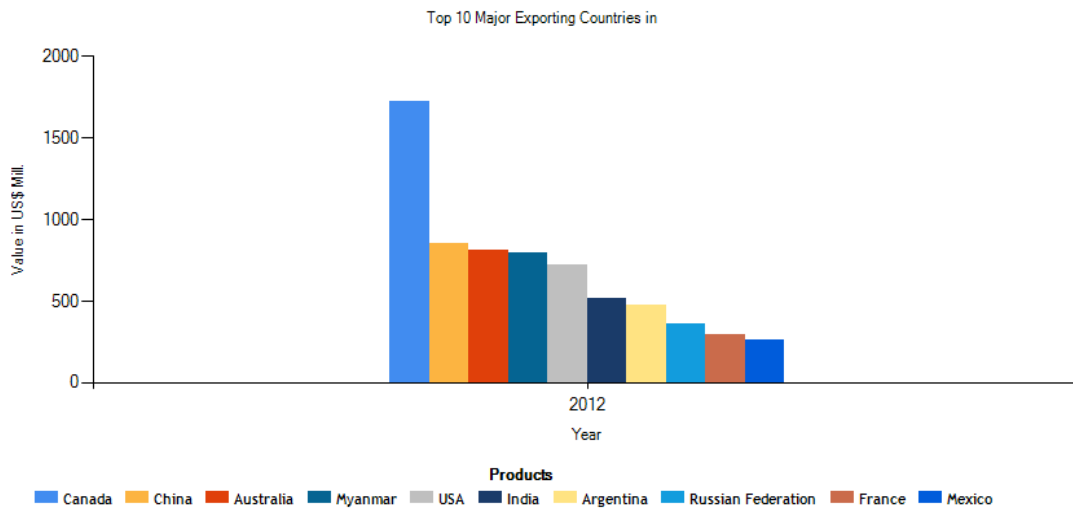
Recognizing the role that pulses can play in providing incomes for farmers is important. Investments are needed to ensure productivity and quality is improved, so that pulses can be marketed, at local, regional and international level, creating a valuable addition to farmer's livelihoods.





Subsistence farming in developing countries versus a market-driven approach in developed countries, as well as climatic conditions and the level of infrastructure development has resulted in wide variation in yields across countries. Some of the major factors affecting yield are:

- Climate / soil
- Timely availability / usage of high-yielding-variety (HYV) seeds
- Investment in mechanization, irrigation, pest management & other methods
- Crop-specific effects
- Changes in cropping patterns, e.g. double cropping, short duration pulses
- Level of development / infrastructure, including efficient supply-chain and market mechanisms



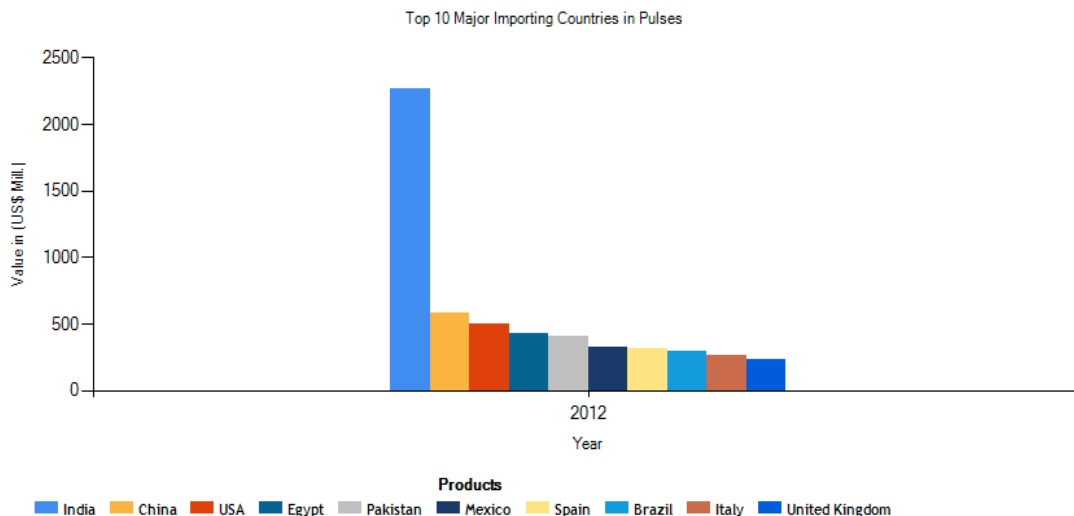
Major Exporting Countries of Pulses

Quantity in MT  
Value in US\$ Mill.

Sr No.	Country	2012	
		Qty	Value
1	<a href="#">Canada</a>	28,96,596.00	1,722.00
2	<a href="#">China</a>	7,97,449.00	854.00
3	<a href="#">Australia</a>	11,42,584.00	808.00
4	<a href="#">Myanmar</a>	11,29,341.00	795.00
5	<a href="#">Usa</a>	6,93,475.00	719.00
6	<a href="#">India</a>	1,62,940.00	513.00
7	<a href="#">Argentina</a>	5,16,898.00	476.00
8	<a href="#">Russian Federation</a>	7,51,348.00	355.00
9	<a href="#">France</a>	4,65,348.00	291.00
10	<a href="#">Mexico</a>	1,77,152.00	262.00
Page Total		87,33,131.00	6,795.00

◀ Page 1 of 18 ▶
Record 1 to 10 of 171
- Page Size - ▼

Source : COMTRADE, United Nations



## Major Importing Countries

Major Importing Countries of Pulses

Sr No.	Country	2012	
		Qty	Value
1	<a href="#">India</a>	38,15,735.00	2,272.00
2	<a href="#">China</a>	7,42,291.00	582.00
3	<a href="#">USA</a>	3,32,466.00	496.00
4	<a href="#">Egypt</a>	4,08,499.00	427.00
5	<a href="#">Pakistan</a>	5,91,992.00	407.00
6	<a href="#">Mexico</a>	2,94,188.00	329.00
7	<a href="#">Spain</a>	4,06,092.00	316.00
8	<a href="#">Brazil</a>	3,70,036.00	294.00
9	<a href="#">Italy</a>	2,77,218.00	262.00
10	<a href="#">United Kingdom</a>	2,25,208.00	229.00
Page Total		74,63,725.00	5,614.00

Quantity in MT  
Value in US\$ Mill.

◀ Page 1 of 13 ▶ Record 1 to 10 of 123 - Page Size -

Source : COMTRADE, United Nations

### 2.3 The Production and Consumption of Pulses – Domestic Scenario

India is the world's largest producer, consumer and importer of pulses. India's MY 2014/15 (April/March) pulse production is forecast at 18.0 MMT, marginally lower than MY 2013/14 record production of 18.5 MMT.

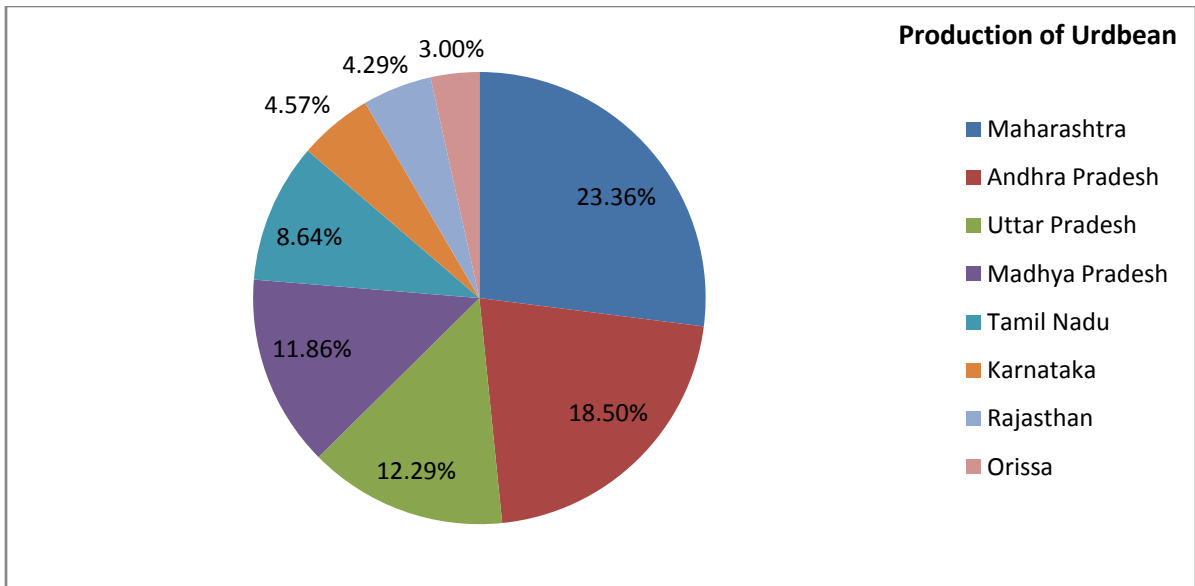
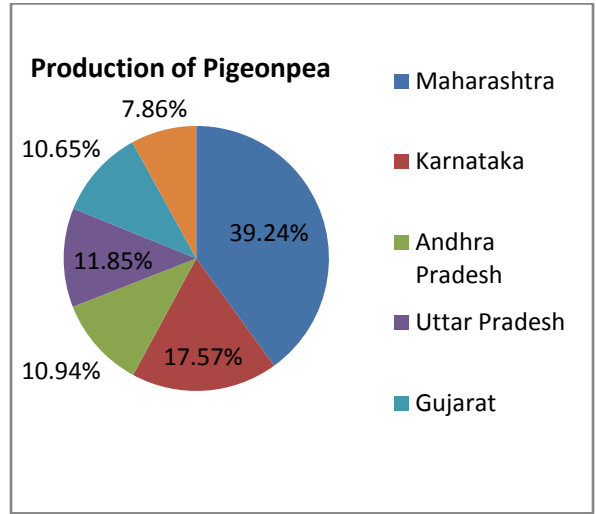
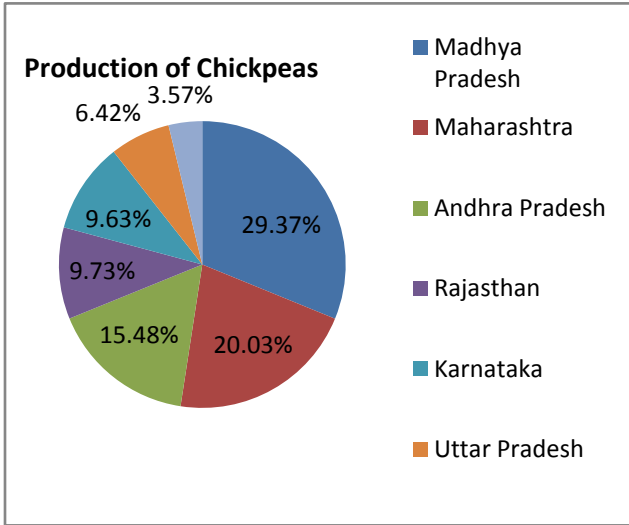
Most states received relatively higher monsoon rains during September - October coinciding with the harvest of kharif pulses. Consequently, production of kharif pulses is estimated lower at

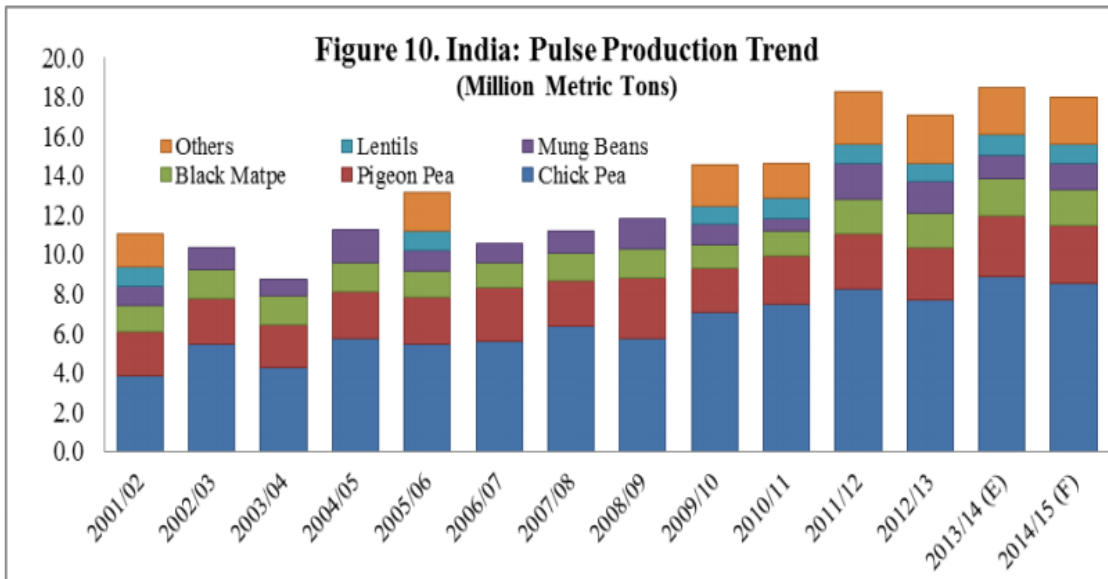
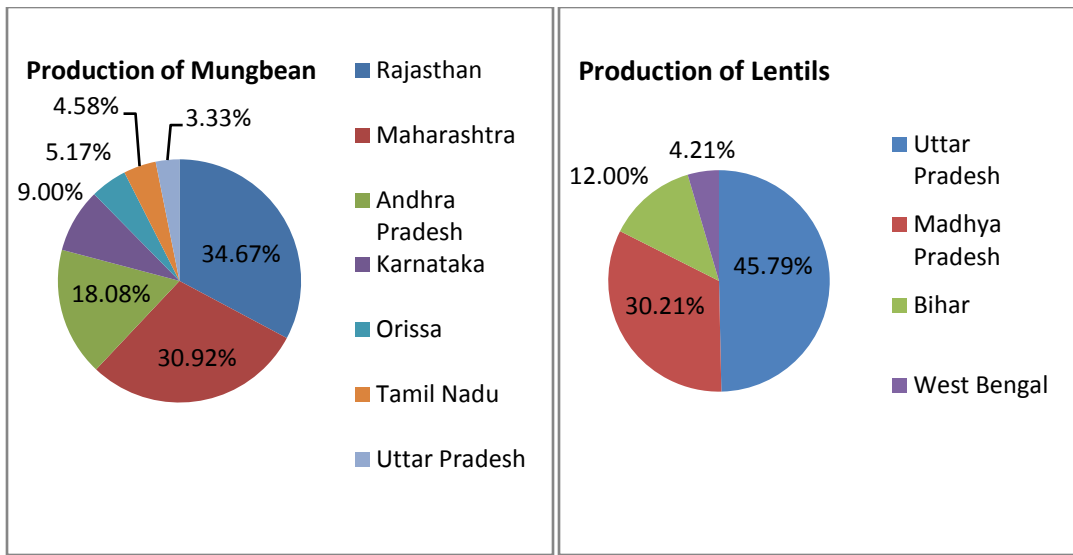
5.8 MMT compared to last year's 5.9 MMT on harvest losses due to untimely rains. According to the preliminary planting figures from the Ministry of Agriculture, area under rabi pulses (mainly chickpeas, lentils, and peas) through January 2014 is estimated higher at 15.6 million hectares compared to 14.9 million hectares last year.

Soil moisture and weather conditions have been generally favorable in most growing areas for planting of pulses. However, market sources reports shift of traditional chickpea growing areas with some irrigation facilities to wheat due to relatively weak chickpea prices. Nevertheless, good monsoon rains during September-October has supported overall planting of rabi pulses, including chickpeas, as additional traditionally fallow land has been brought under cultivation on sufficient soil moisture at the time of planting. The area shift in chickpea acreage is likely to result in overall lower yield than last year's record. Consequently, rabi pulse production is estimated lower at 12.2 MMT compared to last year's record 12.5 MMT.

Limited varietal improvements, low resilience to soil moisture stress, poor pest resistance, and low input use have contributed to poor yields. Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh, and Karnataka together account for about 70 percent of the country's pulse production, with Madhya Pradesh contributing more than 25 percent. The government has raised the minimum support prices (MSPs) for pulses relatively higher than for rice and wheat in the last two years to encourage a production shift away from rice and wheat. However, pulse production has failed to respond to the relatively higher MSPs and open market prices due to competition from less risky crops like wheat and rice. Pulse production has not been attractive to farmers due to low government support of improved production technology and a largely ineffective procurement policy vis-à-vis wheat and rice.

**State wise break up of different pulses**





Source: Ministry of Agriculture, GOI; and FAS/New Delhi estimates for MY 2014/15

## 2.4 Government Policies

### *Production:*

Traditionally, the GOI's food grain production programs have focused on rice and wheat, with limited investment in pulses. Stagnating domestic production, rising imports and escalating domestic prices have forced the government to assess strategies for enhancing domestic production of pulses. In 2010, the government launched the Accelerated Pulse Development Program as part of the National Food Security Mission. Pulses were included in the

government's National Food Security Mission. The government also launched under the National Agriculture Development Program (Rashtriya Krishi Vikas Yojna or RKVY) a focus program in targeted 60,000 villages in unirrigated areas for increasing pulse crop productivity and strengthening market linkages.

*Market Support/Intervention:*

Over the last five years, the government raised the MSP of various pulse crops by 70 to 115 percent over MY 2008/09 levels to promote pulse cultivation over rice and wheat. The Indian government has also disallowed futures trading in pigeon pea and mung beans until further notice under the erroneous assumption that futures contract trading is responsible for the high prices of pulses. Several state governments periodically impose stocks limits on pulses held by the private trade in an effort to control prices.

The GOI has authorized government agencies/trading companies such as National Agriculture Marketing Federation (NAFED), State Trading Corporation (STC), Project and Equipment Corporation (PEC) Ltd., and Minerals and Metals Trading Corporation (MMTC) to import pulses for sale in the domestic market at subsidized prices. In October 2012, the government approved distribution of imported pulses through the PDS with a subsidy of INR 20 per kilogram (\$320 per ton) to the designated importing agencies. However, market sources report negligible imports under the program to date.

*Trade:*

In June 2006, the GOI exempted pulses from the applicable 10-percent import duty through March 31, 2009, to control prices in the domestic market. This exemption has been periodically extended and is currently applicable till March 31, 2014. At the same time, the GOI also imposed a ban on the export of pulses, with the exception of large chickpeas or garbanzos, called Kabuli chana in Hindi, which has been periodically extended and is currently applicable till March 31, 2014. The government is likely to extend the current export bans and import tariff at zero duty for another year, i.e., until March 31, 2015.

Effective January 1, 2004, pulse (including chickpeas, peas and lentils) imports from all origins to India were subject to fumigation by methyl bromide at the port of loading, apparently to protect domestic production from stem and bulb nematode, pea cyst nematode, and bruchids, per

the Plant Quarantine Regulation of Import into India Order, 2003. As methyl bromide is being phased out due to environmental concerns in most countries, it is increasingly difficult and costly to fumigate pulses with methyl bromide at the port of origin in many countries. However, the GOI has allowed fumigation by methyl bromide at the port of arrival in India on an ad hoc basis, granting periodic extensions. The GOI has granted the methyl bromide fumigation on arrival arrangement for pulses coming from the United States up to March 31, 2014, which is likely to be extended further.

**Table 17. India: Production of Pulses by Type (Quantity in Thousand Metric Tons)**

Pulse\Year	2001/02	2005/06	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Chick Pea	3.85	5.47	7.06	7.48	8.22	7.70	8.88	8.50
Pigeon Pea	2.25	2.35	2.27	2.46	2.86	2.65	3.07	3.00
Black Matpe	1.29	1.33	1.17	1.23	1.76	1.77	1.90	1.80
Mung Beans	1.03	1.06	1.04	0.69	1.80	1.63	1.20	1.30
Lentils	0.92	0.99	0.95	1.03	0.94	0.90	1.02	1.00
Others	1.73	1.93	2.08	1.77	2.66	2.44	2.38	2.40
Total	11.07	13.13	14.57	14.66	18.24	17.09	18.45	17.00

Source: Ministry of Agriculture, GOI; and FAS/New Delhi estimates for MY 2014/15

**Table 18. India: Minimum Support Prices for Major Food Grains (INR/Metric ton)**

Crop	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Rice, paddy (common)	9,000	10,000	10,000	10,800	12,500	13,100
Rice, paddy (Grade A)	9,300	10,300	10,300	11,100	12,800	13,450
Wheat	10,000	10,800	11,000	11,200	12,850	13,500
Corn	8,400	8,400	8,800	9,800	11,750	13,100
Sorghum (hybrid)	8,400	8,400	8,800	9,800	15,000	15,000
Pearl millet	8,400	8,400	8,800	9,800	11,750	13,100
Spiked millet	9,150	9,150	9,650	10,500	15,000	15,000
Barley	6,500	6,800	7,500	7,800	9,800	9,800
Chickpeas	16,000	17,300	17,600	21,000	28,000	30,000
Lentils	17,000	18,700	18,700	22,500	28,000	29,000
Pigeon peas	20,000	23,000	30,000	32,000	38,500	43,000
Mung beans	25,200	27,600	31,700	35,000	44,000	45,000
Black matpe	25,200	25,200	29,000	33,000	43,000	43,000
Exchange Rate – INR /USD	45.99	47.42	45.58	51.00	53.0	62.0

Source: Department of Agriculture and Cooperation, Ministry of Agriculture, GOI

## 2.5. Role of futures

‘Futures’ are standardized financial contracts traded in a futures exchange. A futures contract is an agreement to buy or sell a certain quantity of an underlying asset at a certain time in the future at a predetermined price.

When futures contracts are traded, there isn't necessarily an actual delivery of goods. The trader only speculates on the future direction of the price of the underlying asset, which may be a commodity, foreign exchange, bonds, money market instruments, equity or any other item. The terms "buy" and "sell" only indicate the direction the trader expects future prices to take, i.e. he would buy it if he expects the price of the underlying asset to rise in the future and sell if he expects it to fall. Futures contracts are usually closed by making an opposite transaction, i.e. the buyer of the contract sells it before the expiration date. The price at which the contract is traded in the futures market is called the futures price.

There are three categories of participants in the futures market – speculators, who bet on the future movement of the price of an asset; hedgers, who try to eliminate the risks involved in the price fluctuations of an asset by entering futures contracts; and arbitrageurs, who try to take advantage of the discrepancy between prices in different markets.

While hedgers participate in the market to offset risk, speculators make it possible for hedgers to do so by assuming the risk. Arbitrageurs ensure that the futures and cash markets move in the same direction.

## **2.6 Importance of futures trading**

Over the past two decades, food prices have been more volatile than the prices of manufactured goods. The uncertainty of commodity prices leaves a farmer open to the risk of receiving a price lower than the expected price for his yield. At times, the crop prices fall so low that the farmer is unable to repay the loan. Inadequate price risk management is one of the most important reasons for poor farmers remaining poor.

*Price risk management* refers to minimizing the risk involved in commodities trading. Through futures contracts, the risk may be shifted to speculators or traders who are willing to assume the risk. A hedger would try to minimize risk by taking opposite positions in the futures and cash markets. Since the two markets usually move in the same direction, the profits of one market will cover the losses in the other. In the case of a commodity seller, like a farmer or a merchant, futures contracts offer protection from declining prices.

*Price discovery* refers to the process of determining the price level of a commodity based on demand and supply factors. Every trader in the trading pit of a commodities exchange has



specific market information like demand, supply and inflation rates. When trades between buyers and sellers are executed, the market price of a commodity is discovered.

Apart from the basic functions of price discovery and price risk management, futures contracts have a number of other benefits like providing liquidity, bringing transparency and controlling black marketing. Futures contracts can easily be converted into cash, i.e. they are liquid. By buying or selling the contract in order to make profits, speculators provide the capital required for ensuring liquidity in the market. They provide certainty of future revenues or expenditures, hence ensuring concrete cash flows for the user.

Futures markets allow speculative trade in a more controlled environment where monitoring and surveillance of the participants is possible. Hence, futures ensure transparency. The transparency benefits the farmers as well by spreading awareness about prices in the open market.

Futures also help in standardization of quality, quantity and time of delivery, since these variables are agreed upon by the participants and specified in the futures contract.

## **2.7 Trading, Clearing and Settlement Procedure**

### *Trading*

The trading system on the NCDEX provides a fully automated screen based trading for futures on commodities on a nationwide basis as well as online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations. Order matching is essential on the basis of commodity, its price, time and quantity. All quantity fields are in units and price in rupees. The exchange specifies the unit of trading and the delivery unit for futures contracts on various commodities. The exchange notifies the regular lot size and tick size for each of the contracts traded from time to time. When any order enters the trading system, it is an active order. It tries to find a match on the other side of the book. If it finds a match, a trade is generated. If it does not find a match, the order becomes passive and gets queued in the respective outstanding order book in the system. Time stamping is done for each trade and provides the possibility for a complete audit trail if required. NCDEX trades commodity futures contracts having one month, two month and three month expiry cycles.

All contracts expire on the 20th of the expiry month. Thus a January expiration contract would expire on the 20th of January and a February expiry contract would cease trading on the 20th of February. If the 20th of the expiry month is a trading holiday, the contracts shall expire on the

previous trading day. New contracts will be introduced on the trading day following the expiry of the near month contract.

### *Clearing*

National Securities Clearing Corporation Limited (NSCCL) undertakes clearing of trades executed on the NCDEX. The settlement guarantee fund is maintained and managed by NCDEX. Only clearing members including professional clearing members (PCMs) only are entitled to clear and settle contracts through the clearing house. At NCDEX, after the trading hours on the expiry date, based on the available information, the matching for deliveries takes place firstly, on the basis of locations and then randomly, keeping in view the factors such as available capacity of the vault/warehouse, commodities already deposited and dematerialized and offered for delivery etc. Matching done by this process is binding on the clearing members. After completion of the matching process, clearing members are informed of the deliverable/receivable positions and the unmatched positions. Unmatched positions have to be settled in cash.

The cash settlement is only for the incremental gain/loss as determined on the basis of final settlement price.

### *Settlement*

Futures contracts have two types of settlements, the MTM settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract. On the NCDEX, daily MTM settlement and the final MTM settlement in respect of admitted deals in futures contracts are cash settled by debiting/crediting the clearing accounts of CMs with the respective clearing bank. All positions of a CM, brought forward, created during the day or closed out during the day, are market to market at the daily settlement price or the final settlement price at the close of trading hours on a day.

On the date of expiry, the final settlement price is the spot price on the expiry day. The responsibility of settlement is on a trading cum clearing member for all trades done on his own account and his client's trades. A professional clearing member is responsible for settling all the participants' trades, which he has confirmed to the exchange. On the expiry date of a futures contract, members submit delivery information through delivery request window on the trader

workstations provided by NCDEX for all open positions for a commodity for all constituents individually. NCDEX on receipt of such information matches the information and arrives at delivery position for a member for a commodity. The seller intending to make delivery takes the commodities to the designated warehouse.

These commodities have to be assayed by the exchange specified assayer. The commodities have to meet the contract specifications with allowed variances. If the commodities meet the specifications, the warehouse accepts them. Warehouse then ensures that the receipts get updated in the depository system giving a credit in the depositor's electronic account. The seller then gives the invoice to his clearing member, who would courier the same to the buyer's clearing member. On an appointed date, the buyer goes to the warehouse and takes physical possession of the commodities.

## **2.8 Futures Trading in India**

Today, futures trading are permissible in 95 commodities in India. There are 25 recognized futures exchanges with more than 3000 registered members. Trading platforms can be accessed through 20,000 terminals spread over 800 towns/cities. In terms of value of trade, agricultural commodities constituted the largest commodity group in the futures market till 2005-06. Since 2006-07, bullion and metals has taken this place. Between April 2007 and January 2008, agriculture futures amounted to Rs.7.34 lakh crore, 23.22 per cent of all commodity futures. The total value of trade of the Indian Commodity Futures Market during the year 2010-11 stood at Rs. 119.49 lakh crore. The Market registered a growth of 54% during the year, as compared to the value of trade of Rs. 77.65 lakh crore during 2009-10. The value of agriculture commodities traded in the Commodity Exchanges stood at Rs. 14.56 lakh crore growing at a rate of 20% over the previous year. The top five commodities traded in the Futures Market during 2010-11 were Silver, Gold, Crude oil, Copper & Nickel. The top five agri commodities traded in the futures market were Soya oil, Guar seed, Chana, Rape/Mustard seed and Soya bean seed.

## **2.9 Ban on futures trading in agricultural commodities**

On 5 May, 2008, at the Asian Development Bank's annual meeting in Madrid, Finance Minister Palaniappan Chidambaram said, "If rightly or wrongly, people perceive that commodity futures trading is contributing to speculation-driven rise in prices, then in a democracy you will have to

heed that voice”, suggesting the imposition of a blanket ban on trading in food futures in India. According to Bloomberg reports, Chidambaram said that the Government may suspend some contracts because of political pressure.

Wholesale prices rose 7.57 per cent in the week ended 19 April, 2008 from a year earlier, the Government said on 2 May, 2008. According to a survey of 15 economists by Bloomberg, inflation for the week ended 26 April, 2008 was 7.66 per cent. On 7 May, 2008, the Government announced a ban on futures trading in four commodities – chickpea, potato, rubber and soy oil.

India’s agriculture minister, Sharad Pawar, said on 12 May, 2008 that the decision was taken by the regulator of futures trading, the Forward Markets Commission. However, Forward Markets Commission chairman B.C. Khatua publicly opposed the ban.

### **2.10 Stated purpose of the ban**

The report submitted on 27 April, 2008 by the Abhijit Sen Committee, a four-member committee constituted to examine whether futures trading contributed to the unexpected spurt in prices of agricultural commodities, provided no conclusive answer. The committee members felt that the futures market in India is relatively nascent in existence and hence, there is no significant statistical evidence to infer one way or another.

According to Sen, member of the Planning Commission and chairman of the committee, “No causal relationship has been established between futures trading and prevailing prices of essential commodities.” However, a note that he included in the annexure of the report submitted to the Government is said to have argued for continuation of the ban on futures trading in rice and wheat because the Government is a large-scale buyer of such commodities. According to the note, spot market prices are “obviously affected by futures markets”, which is a reasonably sound conclusion given the fact that price discovery is one of the primary functions of futures exchanges. The note also said, “It is clearly illogical to claim that futures trading will generally tend to improve prices received by farmers and yet maintain that futures trading can never contribute to inflation of spot prices.” The minister of state for industry, Ashwani Kumar, said that the fresh ban was intended to rein in inflation expectations. “We want to see if futures trading are really affecting the prices (trading), and so we will have it (the ban) on an experimental basis,” he said.

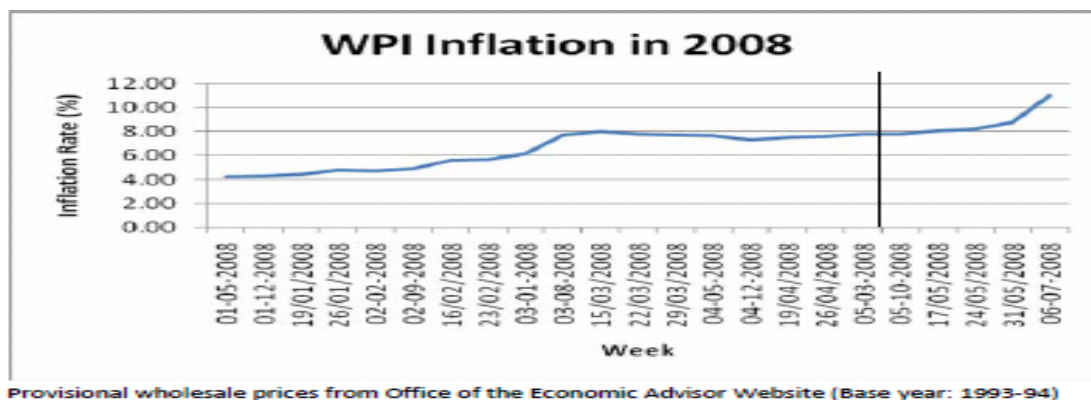
The Left parties have been advocating a ban in 25 commodities, and insist that futures trading clearly contributes to price rises. On 12 May, 2008, the Government said it has no plans to ban more farm commodities from futures market and hoped suspension of trading in soy oil, chickpea, potato and rubber would not be extended beyond four months.

### 2.11 Effect of the ban

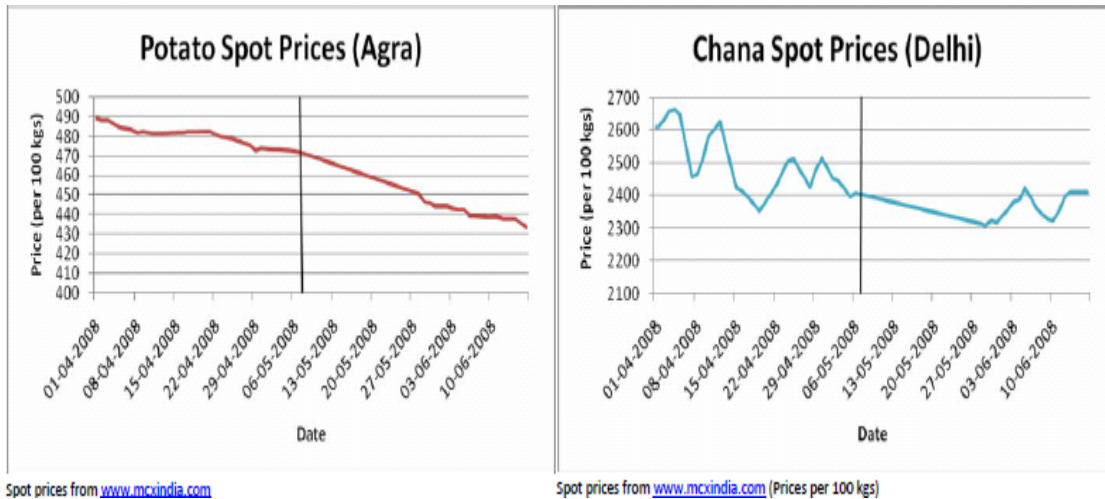
The first and most obvious effect, and the one that led to so much opposition to the ban, was the reduction in trading volumes for commodity exchanges. Analysts suggested that about Rs.300-400crores of business would be affected on a daily basis on NCDEX and NMCE alone, the two largest exchanges for trading in agricultural commodities. They added that the ban would dampen investors' sentiments apart from affecting the turnover and volumes. The total trading volume for four commodities in the three national exchanges was valued at Rs.15000 crores a month, almost 10 per cent of the total traded volume (estimated at Rs.164080 crores a month).

Soy oil, chickpea and potato futures had been showing a declining trend, while rubber futures had been rising for a couple of weeks before the ban due to the rise in crude oil prices. Spot rubber prices hit a record Rs.120 on 7 May, 2008, but the ban immediately brought prices down by Rs.4. However, the prices rose again in June, despite the ban.

Inflation, measured by weekly WPI (Wholesale Price Index) data, has been rising despite all the measures taken by the Government. Minister for Commerce and Industry, Mr. Ashwani Kumar told the media on 8 May, 2008 that the measures against inflation will yield results in 6-8 weeks. Five weeks hence, inflation rates suggest otherwise, with wholesale prices rising by 11.05 per cent from last year in the first week of June. The following graph shows weekly inflation data for 2008, with the black line indicating the date on which the ban on futures trading was brought into effect.

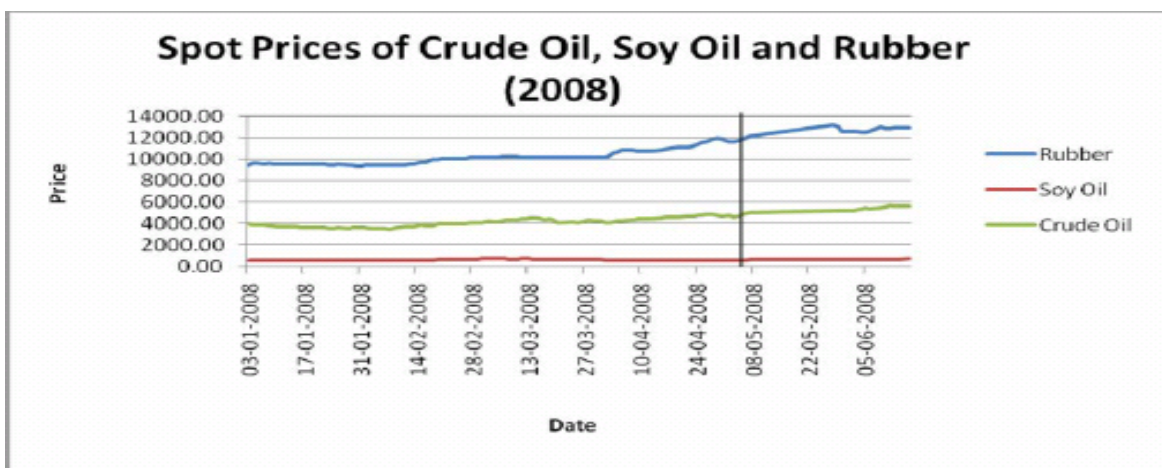


The following graphs show the spot prices for rubber (Kochi), chickpea (Bikaner), potato (Agra) and soy oil (Indore) from 1 April, 2008 to 10 June, 2008.



Of the four banned commodities, only the prices of potatoes have decreased steadily since the ban. However, since prices were declining even before the ban, experts have argued that the decrease in prices is due to the bumper crop, and not the ban on trading.

In the case of chickpeas, the prices haven't moved consistently in a particular direction. They declined immediately after the ban but began rising again in June. They are now higher than they were in January 2008 and lower than they were in April 2008. Chickpea output has increased over the past month.



Spot prices in May 2008 for rubber (per 100 kgs, Kochi), refined soy oil (per 10 kgs, Indore) and crude oil (Mumbai, per barrel) from [www.ncdex.com](http://www.ncdex.com)

Rubber and refined soy oil have shown approximately 31 per cent and 11 per cent increases in price respectively since the ban was imposed. The two commodities show a high degree of

positive correlation with crude oil prices: a rise in crude oil prices leads to a shift from synthetic rubber (a petroleum product) to natural rubber, hence pushing rubber prices up; and there is a shift in demand from crude oil to bio-fuel, which is produced using edible oils.

One viewpoint is that the ban is anti-farmer and not anti-inflation. It is believed that the move was purely political, and that futures prices don't contribute to inflation. Proponents of this view argue that the futures market provides farmers an opportunity to hedge risks and receive signals about the future movements of prices. Futures contracts also help farmers avoid storage costs and the interest charges for storing the product till the sale is made

Some people also argued that the ban will lead to a shift in business to overseas markets and an increase in dabba (illegal) trading. However, FMC Chairman B.C. Khatua said that there won't be a large-scale movement to overseas exchanges because most of the participants in the futures markets are retail investors, but the ban may cause the market to collapse like it did in the case of jute. He also said that it was not realistic to expect large-scale participation of farmers in India futures markets when even USA and Canada haven't achieved it. He argued that the suspension of commodity trading prevents regulation from improving.

The other point of view is that futures trading merely leads to unnecessary speculation, and pushes the prices up. Suneet Chopra, Joint Secretary of AIAWU (CPI-M's All India Agricultural Workers Union) asserted that traders and hoarders buy out the products cheaply through future contracts and raise the prices artificially by creating false scarcity. He cites the example of global crude oil prices, where a US Senate Panel inquiry concluded that hedge funds had contributed to the spurt in crude prices. However, in the absence of speculators, price-risk would not be transferable and price discovery would not be possible, hence defeating the purpose of futures markets.

## **2.12 Inflation**

Inflation is a significant and sustained increase in the price level of an economy. Generally, an inflation rate of 3-5 per cent is considered healthy for a developing economy. In India, inflation is calculated according to the wholesale price index on a weekly basis. Provisional WPI data is announced every Friday with a two-week lag. Final data is announced after an eight-week lag. Weights of the commodities are derived on the basis of the volume of the commodity traded in the domestic market.



Wholesale price index from Office of the Economic Advisor Website (Base year: 1993-94)

In November 2007, headline inflation increased in the US, the EU, Japan and China. High food prices have pushed up inflation in many emerging market economies (EMEs), while high oil prices are aggravating inflation directly as well as indirectly by causing an increase in the demand for oil substitutes, which leads to an increase in food prices. In India, year-on-year weekly inflation breached the 6 per cent mark on 6 January, 2007, and remained above 6 per cent until April 2007. It was well below 5 per cent from 6 September, 2007 to 9 February, 2008. With threats of a recession in the US, rising crude prices and a global food crisis, inflation crossed 7 per cent in the second week of March 2008, was over 8 per cent in the latter half of May 2008 before hitting 11.05 per cent in the first week of June.

In March, the rupee hit 42.66 against the dollar due to inflation worries. The Indian rupee fell by 7 per cent against the US dollar between January and May 2008.<sup>34</sup> Rising inflation has also had an adverse impact on the stock markets, with the Sensex (The Bombay Stock Exchange's Sensitive Index) falling below the 14000 level on 24 June, 2008. The increasing rate of inflation has also aggravated the impact of the food crisis.

Despite the glum picture painted by these figures, a report by the Organization for Economic Development and Cooperation (OECD) said that India had managed food inflation better than fourteen other developing nations, though food inflation in India is higher than that of developed nations. Prices of food articles rose 5.8 per cent in India for the period February 2007-08. Experts said that record food grain production estimates of 227.32 million tons during 2007-08, an increase of 10.04 million tons from the previous year, helped keep inflation under control. According to the report, recent yield shocks in pulses and oilseeds have contributed to the increase in food prices.



The reasons cited for rising food prices include the diversion of land to bio-fuel production; the drought in Australia and Ukraine; and the rapid economic expansion in India and China, which strains global food markets through increased imports and export bans. In an article in the New York Times, Dr. Amartya Sen suggested that the global food problem is not being caused by a decrease in world production or by lower food output per person, but by accelerating demand. Hoarding by farmers and middlemen has also led to the escalation of prices.

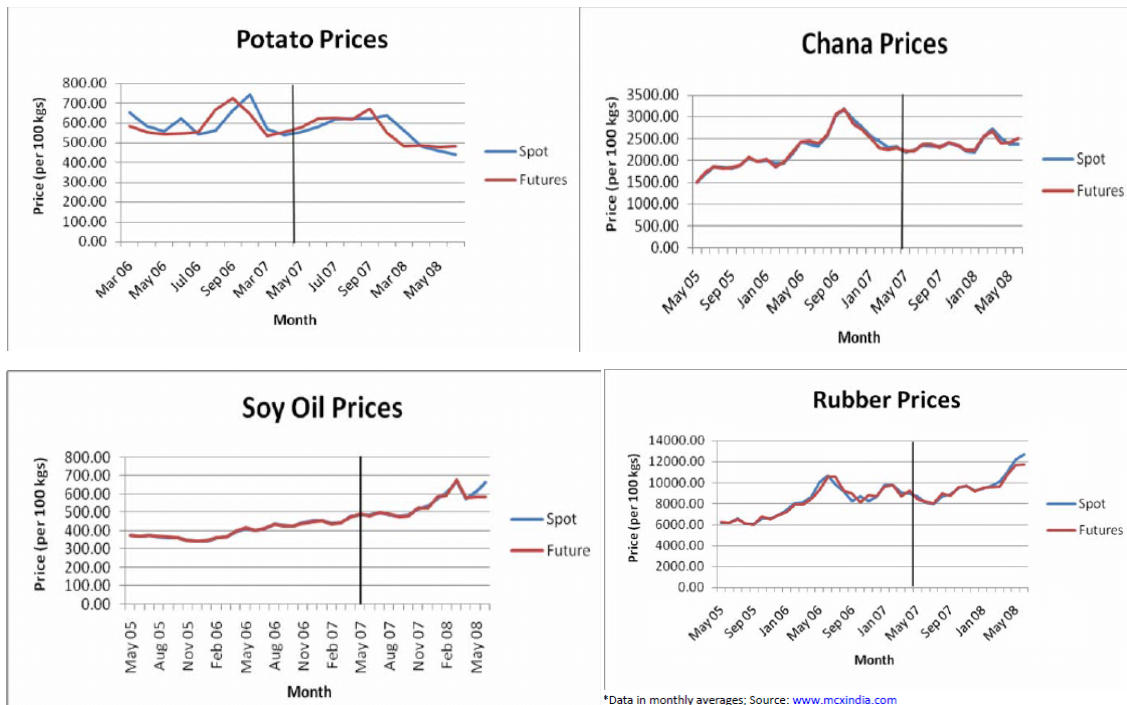
The hugely subsidized US and EU policy of replacing petroleum with bio-fuel to cut pollution has been widely criticized, since bio-fuel is more expensive than petroleum in real terms, and bioethanol only yields about 10 per cent more energy than the amount required to produce it, according to British Government figures. The prevailing food crisis may be a consequence of this policy, since the production of bio-fuel involves the use of agricultural crops like corn and soy bean.

The increase in crude oil prices has also pushed fertilizer prices up, especially nitrogen fertilizers, because natural gas is a key component in their production. This has further aggravated the food crisis.

### **2.13 Need for the Ban**

An analysis of spot and futures prices of the four banned commodities shows a high degree of positive correlation between the prices. A cause and effect relationship, however, is difficult to establish. The black line indicates the date on which the ban was brought into effect. The charts show that the ban hasn't been effective in reining in the prices of the four commodities. Analysis of pre and post futures data by the Abhijit Sen Committee did not indicate a clear increase or decrease in the volatility of spot prices due to futures trading. The report categorically stated that futures trading can't be held responsible for the increase in spot prices because the evidence was, at best, ambiguous.

The high level of correlation between the spot and futures markets is due to the presence of arbitrageurs, who ensure that the two markets move in the same direction by exploiting any discrepancy in the prices of the two markets to their advantage. However, it isn't possible to find out the number of hedgers, speculators and arbitrageurs participating in the market.



Most attempts to establish cause-effect relationships between the futures and spot prices have been inconclusive because participation in the futures markets isn't total. Price determination in the spot market is based demand and supply, and the awareness about future markets is low. Field trips to sabzi mandi's (vegetable markets) showed a severe lack of basic facilities like storage, which forces them to sell leftover goods at a loss. Often, their produce gets wasted. The freezer next to Azadpur mandi, which is Asia's largest vegetable market, is only used for storing ice-cream and imported goods because the vendors can't afford to store their produce there. A part of the goods get spoilt when they are transported from the farm to the mandi. Most farmers don't have access warehousing facilities either. While the futures markets have developed steadily, the spot markets are still largely unorganized.

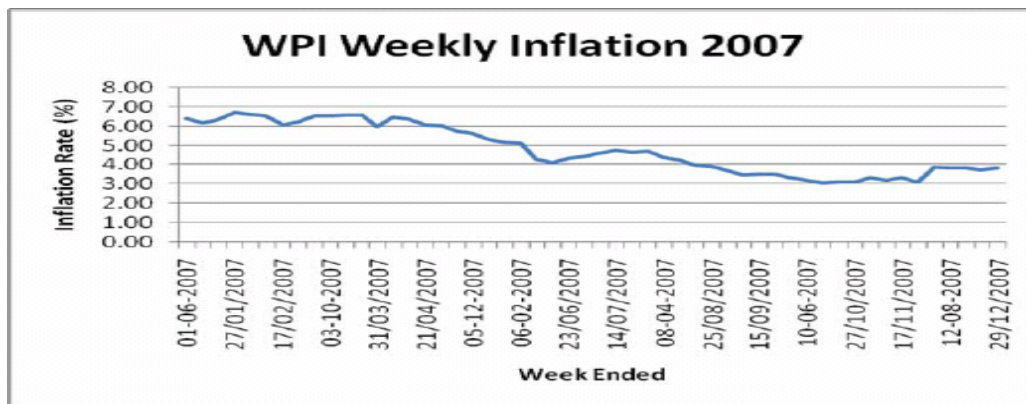
Since futures markets perform the function of price discovery, it would be inappropriate to say that futures prices have no bearing whatsoever on the spot prices. However, establishing to what extent one market is dependent on the other is far more important. Futures prices are not independent variables. Speculation has a basis. If a speculator believes that the price of a certain commodity will rise in the future, it is due to certain conditions prevailing in the economy. Speculation may magnify the rate of increase in prices, but it isn't possible for speculation alone to push prices up. Unhealthy speculation is said to be driving prices up, but when farmer

participation in the future markets is low, there is essentially a disconnect between the two markets.

The total contribution of the four banned commodities to the WPI is approximately 0.8 per cent (potato: 0.256470 per cent, soy oil: 0.178380 per cent, rubber: 0.150800 per cent, chickpea: 0.223650 per cent). In fact, share of food articles in the WPI has steadily decreased over the last few decades. Even if futures trading had been contributing towards inflation, the impact on the WPI wouldn't have been very significant. In fact, primary articles constitute only 22.03 per cent of the WPI (1993-94), and the weight assigned to food articles has declined considerably. So why did the Government impose the ban?

The motive behind the ban may have been purely political: an attempt to appease the voters, perhaps, in the run up to the elections. It may also have been an attempt to affect the market sentiment in order to curb inflationary expectations. Either way, food prices continue to stay high in India despite the ban.

The following chart shows that inflation rose despite the ban, and decreased later in the year when the RBI hiked interest rates. However, Dr. Sen felt the ban should not be revoked for commodities like wheat and rice due to the significant role that the Government plays in the market for these commodities. He felt futures markets can't work for commodities "where even the spot market is highly controlled."



Wholesale price index from Office of the Economic Advisor Website (Base year: 1993-94)

The fundamental problem with futures trading in food grains is that the huge difference between global prices and Indian prices will always reflect on and contribute to the instability in local prices.

#### **2.14 Significance of study**

The significance of this study is “To Analyze the Role and Impact of Futures on Major Value Chain Participants.”

#### **2.15 Limitations**

The awareness amongst the farmers related to futures and the language barrier were the main limitations for this study as it made data collection difficult.

### 3. METHODOLOGY AND ANALYSIS

#### 3.1 Research methodology

Research methodology is a methodology for collecting all sorts of information & data pertaining to the subject in question. The objective is to examine all the issues involved & conduct situational analysis. The methodology includes the overall research design, sampling procedure & fieldwork done & finally the analysis procedure. The methodology used in the study consistent of sample survey using both primary & secondary data. The primary data has been collected with the help of questionnaire as well as personal observation book, magazine; journals have been referred for secondary data. The questionnaire has been drafted & presented by the researcher herself.

#### *Exploratory research*

Exploratory research is research conducted for a problem that has not been clearly defined. It often occurs before we know enough to make conceptual distinctions or posit an explanatory relationship. Exploratory research helps determine the best research design, data collection method and selection of subjects. It should draw definitive conclusions only with extreme caution. Given its fundamental nature, exploratory research often concludes that a perceived problem does not actually exist.

Exploratory research often relies on secondary research such as reviewing available literature and/or data, or qualitative approaches such as informal discussions with consumers, employees, management or competitors, and more formal approaches through in-depth interviews, focus groups, projective methods, case studies or pilot studies. The Internet allows for research methods that are more interactive in nature. For example, RSS feeds efficiently supply researchers with up-to-date information; major search engine search results may be sent by email to researchers by services such as Google Alerts; comprehensive search results are tracked over lengthy periods of time by services such as Google Trends; and websites may be created to attract worldwide feedback on any subject.

When the purpose of research is to gain familiarity with a phenomenon or acquire new insight into it in order to formulate a more precise problem or develop hypothesis, the exploratory studies (also known as formulative research) come in handy. If the theory happens to be too

general or too specific, a hypothesis cannot be formulated. Therefore a need for an exploratory research is felt to gain experience that will be helpful in formulating a relevant hypothesis for more definite investigation.

The results of exploratory research are not usually useful for decision-making by themselves, but they can provide significant insight into a given situation. Although the results of qualitative research can give some indication as to the "why", "how" and "when" something occurs, it cannot tell us "how often" or "how many". Exploratory research is not typically generalizable to the population at large.

#### *Sample Size:*

A sample is a subset of the population being studied. It represents the larger population and is used to draw inferences about that population. It is a research technique widely used in the social sciences as a way to gather information about a population without having to measure the entire population.

Sample of 50 respondents was taken into study, and their data was collected.

#### *Sampling Technique:*

There are several different types and ways of choosing a sample from a population, from simple to complex.

#### *Non-probability Sampling Techniques*

Non-probability sampling is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected. Reliance on Available Subjects. Relying on available subjects, such as stopping people on a street corner as they pass by, is one method of sampling, although it is extremely risky and comes with many cautions. This method, sometimes referred to as a convenience sample, does not allow the researcher to have any control over the representativeness of the sample. It is only justified if the researcher wants to study the characteristics of people passing by the street corner at a certain point in time or if other sampling methods are not possible. The researcher must also take caution to not use results from a convenience sample to generalize to a wider population.

*Purposive or Judgmental Sample.* A purposive, or judgmental, sample is one that is selected based on the knowledge of a population and the purpose of the study. For example, if a researcher is studying the nature of school spirit as exhibited at a school pep rally, he or she might interview people who did not appear to be caught up in the emotions of the crowd or students who did not attend the rally at all. In this case, the researcher is using a purposive sample because those being interviewed fit a specific purpose or description.

*Snowball Sample.* A snowball sample is appropriate to use in research when the members of a population are difficult to locate, such as homeless individuals, migrant workers, or undocumented immigrants. A snowball sample is one in which the researcher collects data on the few members of the target population he or she can locate, then asks those individuals to provide information needed to locate other members of that population whom they know. For example, if a researcher wishes to interview undocumented immigrants from Mexico, he or she might interview a few undocumented individuals that he or she knows or can locate and would then rely on those subjects to help locate more undocumented individuals. This process continues until the researcher has all the interviews he or she needs or until all contacts have been exhausted.

*Quota Sample.* A quota sample is one in which units are selected into a sample on the basis of pre-specified characteristics so that the total sample has the same distribution of characteristics assumed to exist in the population being studied. For example, if you a researcher conducting a national quota sample, you might need to know what proportion of the population is male and what proportion is female as well as what proportions of each gender fall into different age categories, race or ethnic categories, educational categories, etc. The researcher would then collect a sample with the same proportions as the national population.

### *Probability Sampling Techniques*

Probability sampling is a sampling technique where the samples are gathered in a process that gives all the individuals in the population equal chances of being selected.

*Simple Random Sample.* The simple random sample is the basic sampling method assumed in statistical methods and computations. To collect a simple random sample, each unit of the target population is assigned a number. A set of random numbers is then generated and the units having those numbers are included in the sample. For example, let's say you have a population of 1,000 people and you wish to choose a simple random sample of 50 people. First, each person is numbered 1 through 1,000. Then, you generate a list of 50 random numbers (typically with a computer program) and those individuals assigned those numbers are the ones you include in the sample.

*Systematic Sample.* In a systematic sample, the elements of the population are put into a list and then every  $k$ th element in the list is chosen (systematically) for inclusion in the sample. For example, if the population of study contained 2,000 students at a high school and the researcher wanted a sample of 100 students, the students would be put into list form and then every 20th student would be selected for inclusion in the sample. To ensure against any possible human bias in this method, the researcher should select the first individual at random. This is technically called a systematic sample with a random start.

*Stratified Sample.* A stratified sample is a sampling technique in which the researcher divided the entire target population into different subgroups, or strata, and then randomly selects the final subjects proportionally from the different strata. This type of sampling is used when the researcher wants to highlight specific subgroups within the population. For example, to obtain a stratified sample of university students, the researcher would first organize the population by college class and then select appropriate numbers of freshmen, sophomores, juniors, and seniors. This ensures that the researcher has adequate amounts of subjects from each class in the final sample.

*Cluster Sample.* Cluster sampling may be used when it is either impossible or impractical to compile an exhaustive list of the elements that make up the target population. Usually, however, the population elements are already grouped into subpopulations and lists of those subpopulations already exist or can be created. For example, let's say the target population in a study was church members in the United States. There is no list of all church members in the



country. The researcher could, however, create a list of churches in the United States, choose a sample of churches, and then obtain lists of members from those churches.

To study the Project, Convenience Sampling technique is used.

#### *Data Collection:*

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. The data collection component of research is common to all fields of study including physical and social sciences, humanities, business, etc. While methods vary by discipline, the emphasis on ensuring accurate and honest collection remains the same. Collection of data is done by Secondary Data & through Questionnaire i.e., Primary data was collected through Questionnaire posted online.

#### *Data Analysis:*

After data collection, researcher is able to analyze customer's views, ideas and opinions towards online shopping in India.

#### *Data Interpretation:*

Interpretation of data is done by using statistical tools like Pie diagrams, Bar graphs, and also using quantitative techniques (by using these techniques) accurate information is obtained.

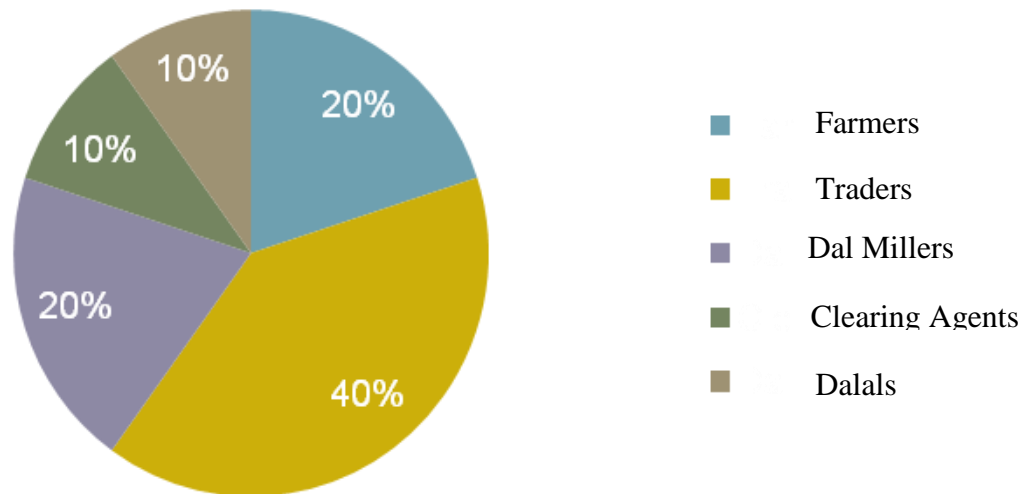
#### *Classification & tabulation of data:*

The data thus collected was classified according to the categories, counting sheets & the summary tables were prepared. The resultant tables were one dimensional, two dimensional.

### **3.2 Research Design**

The methodology which will be used for analysis is based on:-

*Primary data* has been collected by interacting with different value chain participants through an open ended questionnaire. Nya bazaar (ChandniChowk) and Lawrence Road are the two main markets visited. In total, 50 people were interviewed



*Secondary data* has been collected through various research papers, market reports and ministry of agriculture’s official websites

### 3.3 Analysis of the value chain

A ‘value chain’ in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product.

Following are the major participants in the value chain of pulses:



#### 3.3.1 Farmer

Farmer is a person engaged in agriculture, raising living organisms for food or raw materials. He lies at the basis of the value chain. For centuries now, Indian farmers have adopted pulse cultivation as a traditional way of mitigating the risk.

About 65 per cent of India’s agriculture is under dry land farming. Even pulses are grown in dry land areas of about 23 million hectares in the country at present. In India, pulses have

traditionally been grown on non-irrigated, rained land. Only 15 per cent of pulses are grown under irrigation (as compared to 46 per cent of other food grains). Farmers sow pulse seeds in the monsoon months and leave the rest to nature. The crop is negatively affected by heavy rains, as the seeds undergo moisture stress, and cold weather causes the flowers and pods to drop.

The domestic production of pulses has increased slowly and has been outstripped by the growing demand for pulses because of which we have to import approximately three million tones of pulses annually.

The farmer takes the majority of risk and is exposed to the following different risks:

*Production or Yield Risk:* Production or yield risk occurs because agriculture is affected by many uncontrollable events that are often related to weather, including excessive or insufficient rainfall, extreme temperatures, hail, insects, and diseases.

*Technological Risk:* Technology plays a key role in farming. The rapid introduction of new crop varieties and production techniques often offers the potential for improved efficiency, but may at times yield poor results, particularly in the short term. In contrast, the threat of obsolescence exists with certain practices (for example, using machinery for which parts are no longer available), which creates another, and different, kind of risk.

*Price or market risk:* It reflects risks associated with changes in the price of output or of inputs that may occur after the commitment to production has begun. In the aggregate, low levels of grain production are generally associated with higher grain prices, resulting in a natural hedge and vice versa. Because markets are generally complex and involve both domestic and international considerations, producer returns may be dramatically affected by events in far-removed regions of the world.

*Financial risk:* A farmer may be subject to fluctuations in interest rates on borrowed capital, or face cash flow difficulties if there are insufficient funds to repay creditors. The use of borrowed funds means that a share of the returns from the business must be allocated to meeting debt payments. Even when a farm is 100-percent owner financed, the operator's capital is still exposed to the probability of losing equity or net worth.

*Institutional risk:* It results from changes in policies and regulations that affect agriculture. This type of risk is generally manifested as unanticipated production constraints or price changes for inputs or for output. For ex: the government of India changes its policies from time to time regarding export and import of agriculture products which certainly have a direct impact on farmers.

### **3.3.2 Agent/Stockist**

Agent stockist is a person who buys in bulk quantity from farmers and stocks the agriculture produce in his warehouses to further sell it to millers. Some of the important functions of a stockist are as follows:-

- Bridging the gap between producers (farmers) and consumers (millers) because the producers can't reach all the consumers
- Multiply reach and provide efficiency to the marketing process
- Facilitate smooth flow and create time, place and possession facilities
- Provide benefits of their core competencies
- Provide contact, experience, specialization and scales of operation

In comparison to farmers they have less risk and have been accused of creating unnecessary shortage of pulses in the market by blocking the produce in their warehouses and driving up prices. Recently, in May 2013 there was a sharp rise in prices of different pulses because of unfair practices by the stockiest in Indore. With decline in domestic output and majority of stock in domestic masoor going into the hands of stockiest, supply of domestic masoor in local mandis declined sharply as compared to demand, leading to sharp rise of Rs.200 a quintal within a week. Similarly, prices of moong dal and Urad also rose on an average by Rs. 300 per quintal.

### **3.3.3 Miller**

Dal Miller is the next person in the value chain. He is the person involved in the process of converting the raw product into processed form. Since pulses are consumed in dehusked and split form, the processing of pulses assumes a lot of importance. The processing units help in transforming the raw grains legumes into edible form. With respect to pulses for example a miller does the task of processing chana into different products such as chana dal, besan, papad

etc. It is the stage in the value chain where actual value addition takes place. These products are consumed by household on day to day basis and have higher price elasticity of demand. Therefore, miller has a great amount of risk because it is very difficult for him to pass on the burden of increase in price of inputs.

Moreover, a miller has to invest heavy funds in constructing and maintaining Dal mill unit. As per a research conducted by Department of Economic Analysis and Research the average investment cost of a dal processing unit is Rs 28.05 lakhs. The processing capacity is 1.60 MT/day or approximately 336 MT/annum. The unit operates for approximately 210 days / 7 months in a year as the processing activity is seasonal in nature. 60-65 per cent of the installed capacity is utilized during the first and second year and 70 per cent from third year onwards. The total processing cost and sales proceeds for milling one MT of pulses has been arrived at Rs 24,698 and Rs 26,400 respectively. The net value addition per one MT of raw pulses has been worked at Rs 1,702, which was around 7 per cent of the operating cost. The input output ratio has been calculated at 1:1.06. Thus, a dal processing unit could break even by processing on an average 1648 MT of raw pulses in 1030 days. Since the unit operates on an average for 210 days in a year, the unit can break only in the Fourth Year.

The miller then sells the finished products to wholesalers for further distribution at a price determined by taking into account a suitable margin and all direct and indirect costs.

### **3.3.4 Wholesaler**

Wholesaler is a person or a firm, who buys in bulk from the manufacture, breaks it into smaller quantities and supplies it to small retailers, to industrial, commercial, institutional, or other professional business users, or to other wholesalers and related subordinated services.

Some of the benefits of having wholesalers in the value chain are as follows:

- Goods are protected from the elements (rain, wind and sun) and stored under more hygienic conditions, thus reducing spoilage
- Reduce contact cost of producer and customer
- Maintain Demand Supply Stability
- Improved Information about Market (Price, Distribution, Demand, etc.)
- Manages all services and counsels to consumers

- Provides market information (Market Demand, Supply required, consumer preferences etc.) to the manufacturer
- The physical concentration of a large group of operators at the same place makes it easier to introduce innovation and to develop improved storage, handling and management technology and methods.
- Enhanced competition leading to improved efficiency in the exchange process
- Improved inspection, quality control, sorting and grading according to quality encourage the use of standard weights and measures and improved standards of hygiene in the sale of produce

### **3.3.5 Retailer**

Retailer is the person who undertakes sale of goods to the end users, not for resale, but for the use and consumption of the purchaser or the ultimate consumer. Retail Industry in India is the second largest employer after Agriculture. It contributes to 10 % of GDP and 6-7 % of the employment. Retailing of pulses is still in its infancy in India in the name of retailing, the unorganized retailing has dominated the Indian landscape so far. According to an estimate the unorganized retail sector has 97% presence whereas the organized accounts for merely 3%.. At 6-7%, the share of employment of retail in India is low, even when compared to Brazil (14%), and Poland (12%).Traditionally, it was a family's livelihood, with their shop in the front and house at the back, while they run the retail business. More than 99% retailer's function in less than 500 square feet of shopping space. Global retail consultants KSA Technopak have estimated that organized retailing in India is expected to touch Rs 65,000 crore in the year 2011-12. The Indian retail sector is estimated at around Rs 9,00,000 crore, of which the organized sector accounts for a mere 2 % indicating a huge potential market opportunity that is lying in the waiting for the consumer-savvy organized retailer.

### **3.4 Retailing in pulses**

Pulse consumption in India differs by region; pulses such as lentils are popular in northern India but are not the pulse of preference in southern India. Pulses which are popular in all parts of the country include: Desi chickpeas, green peas, yellow peas, and black eye beans. . Demand for pulses is on the pulses which are popular in northern India including: Kabuli chickpeas, rise due

to economic growth lentils, and kidney beans in India. Pulses which are more popular in southern India include: pigeon peas and urad. Canadian yellow peas, and other pulses, are often used as substitutes for the higher priced Indian-produced pulses. Canadian yellow peas, in leading pulse export to particular, are much cheaper than Indian produced desi and pigeon peas.

*Sales Mix of pulses in India*

<b>Types of Pulses</b>	<b>Volumes %</b>
Toor Dal	24
Chana Dal	23
Mung Dal	16
Urad Dal	10
Peanuts	5
Other Dal	22

(Source: Data collected Agriwatch MP Summit -2010)

*Retail Sales of Pulses in the Indian Retail Market ('000 tonnes)*

<b>Item/year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Fresh food	171460.3	187854.8	205065.5	222562.9	240962.5
Meat	3340.5	3697.8	4110.2	4578.8	5089.5
Fish & Seafood	4585.4	4904.4	5293.2	5740.8	6173
Pulses	5064.2	17422.3	18120.4	19670.4	21130.1

(Source: Fresh foods: Euro monitor)

Modern retailing of the pulses is all about directly having “firsthand experience” with customers, giving them such a satiable experience that they would like to enjoy again and again. Providing great experience to customers can easily be said than done. Thus challenges like retail

differentiation, merchandising mix, supply chain management and competition from supplier's brands are the talk of the day. Some of the key challenges in Pulse retailing are as follows:-

- Getting low income groups to shop at our stores i.e. Drivers, maid & laborer.
- High cost of real estate.
- Lack of adequate infrastructure, poor roads & cold chain
- Lack of availability of skilled manpower
- Unavailability of uniform quality raw material round the year.
- Government Regulations, PFA, Package Commodity Act, Weights& Measures, Factory Act. Etc.
- Price war among retailers

Pulses in India go through a large supply chain which drives up the price for consumers. This is generally due to the large number of intermediaries who take their “cut” of the value of the pulses. It is estimated that each middle-man in the pulse supply chain takes at least 1% commission on their sales. The primary means of distribution is either through wholesalers or retail stores. In their preparation to face fierce competitive sales pressure, Indian pulse processor must enter into retailing, must come to recognize the value of building their own brands & stores to reinforce their marketing Positioning, to communicate quality as well as value for money. Sustainable competitive advantage will be dependent on translating core values combining products, image and reputation into a coherent retail. Government regulations like package commodity act weight & measure act factory act should also support the pulse processor to enter into retails thus this definitely help pulse processor to assure and give pulses at a reasonable price with good quality to the consumers.

### **3.5 Findings - Impact of futures on different stakeholders**

#### **3.5.1 Farmers:**

In any agriculture-dominated economy, like India, the farmers face not only yield risk but price risk as well. Fluctuations in prices of agricultural commodities adversely impact the incomes and livelihoods of farmers, particularly the small and marginal farmers. Commodity futures have a crucial role to play in the price risk management process, especially in agriculture. It refers to the



process of determining the price level of a commodity based on demand and supply factors. Every trader in the trading pit of a commodities exchange has specific market information like demand, supply and inflation rates. When trades between buyers and sellers are executed, the market price of a commodity is discovered.

Commodity futures are used mostly by merchants and manufacturers and therefore, it is tacitly believed that its working must be harmful to the farmers. This belief is strengthened by the fact that, besides speculators, the futures market operators in most parts of the world consist of merchants, processors and manufacturers. Farmers are almost conspicuous by their absence. Hence, it is inferred that commodity futures leave farmers and consumers high and dry.

Unfortunately, it is scarcely recognized by those who represent the farmer's interests that an economic activity benefits not only those who engage in it directly but also others indirectly or through multiplier induced effect. World over, farmers do not directly participate in the futures market. They take advantage of the price signals emanating from a futures market. Price-signals given by long-duration new-season futures contract can help farmers to take decision about cropping pattern and the investment intensity of cultivation. Direct participation of farmers in futures market to manage price risk –either as members of an Exchange or as non-member clients of some member - can be cumbersome as it involves meeting various membership criteria and payment of daily margins etc.

Paradoxical as it may seem, hedging by merchants in pulses futures benefits the pulses growers as well. As Pulses are grown only in specific seasons, while its consumption by mills is spread all the year round, merchants need to store pulses for long. Such storage involves considerable price risk. The presence of futures market provides necessary facility to cover the price risk through hedging. With adequate and efficient hedging facility, merchants actually rush to buy pulses as it arrives in the market. In the resultant scramble, pulse prices rise and the obvious beneficiary of the rise is the pulse grower. In the absence of a futures market, the farmer would have received a lesser price than what he actually received as a result of hedging by the merchant. Thus, even if farmers do not make use of the futures market in pulse, they can benefit from it indirectly when merchants hedge their purchases in it. What is more, there is no reason why large farmers or cooperative marketing societies of small farmers cannot directly make use of the futures market for hedging. After all, farmers too face the risk of price fall, when they decide to grow pulses and invest in its production. The farmers are aware of the likely pulses

output and its cost, especially as the growing season advances. They can therefore, hedge their crop by selling equivalent futures during the growing or harvesting season. The farmers' marketing societies can likewise hedge their members' stock of pulses after the harvest. Apart from hedging in pulses futures, either directly or through options, futures markets serve farmers as a source of price information and therefore, assist them in determining their cropping pattern. Futures prices are more transparent than the ready and inevitably influence the latter. Moreover, since futures prices are fixed through open, competitive bidding, they represent the true equilibrium levels. And insofar as ready prices move in unison with futures prices, even futures markets located far away assist farmers in securing fair prices for their crop, as futures prices serve as reference prices. Some of key benefits of futures are as follows:

- Price stabilization-in times of violent price fluctuations - this mechanism dampens the peaks and lifts up the valleys i.e. the amplitude of price variation is reduced.
- Leads to integrated price structure throughout the country.
- Facilitates lengthy and complex, production and manufacturing activities
- Helps balance in supply and demand position throughout the year.
- Encourages competition and acts as a price barometer to farmers and other trade functionaries.
- Fixing returns in advance
- Assured Buyers

However, a farmer may be faced with the following problems:

- Selection of futures contract – Different types of contracts traded on different exchanges
- Delivery on the futures – Either to deliver or liquidate by offsetting position
- Margin amount – Original and Variation Margin

*Farmers Awareness and Decision Making:* In a survey conducted in Uttar Pradesh only 2 farmers out of 241 total samples have heard about commodity futures. They do not know further about the commodity futures and its direct or indirect benefits they can derive. While deciding on the area to be put to cultivation of different crops (crop selection and area allocation decision), all category of farmers consider previous years price of the crop in mind along with the factors like price of related crop and resource availability with them. One-fourth of the total farmers store their produce of pulses for taking benefit of higher prices.

*Farmers' inability to manage risk through Commodity Futures:* The major factors that hinder the farmers to take active part in commodity futures and benefit directly through hedging were:-

- most of the farmers were unaware on commodity futures concept and thus unable to benefit from this market instrument
- the average total production of pulses per farmers is well below the lot size on commodity futures and leaving home requirement aside, the marketable surplus with them did not qualify the lot size, hindering them to take part in commodity futures; the cash requirement to fulfill the margin requirement is about Rs 10,000 to 20,000 they have to deposit at the time of entry in the market, maintain mark-to-market margin and tender period & Delivery period margin which are 2-3 times higher than normal margin requirement is so high that they need finance
- The delivery centers were also limited to few locations and that too faraway from their locations leading increased cost of delivering commodities in physical to exchanges. The fear of non-compliance of commodity quality to the contract specifications at the time of assaying leading to major loss to farmers

At the same time, to encourage farmers and their cooperatives and other agencies to use the futures markets for risk management, the authorities may consider devising suitable incentives and concessions -- financial and otherwise -- to reduce significantly the transaction costs and risks (such as the 'basis' and 'counterparty risks') associated with hedging operations, without adding any undue incidence of expenses on farmers.

### **3.5.2 Agents**

The agents or *dalaals* involved in the value chain are least bothered about hedging. They don't have anything to loose and simply play the role of an intermediary between the person selling pulses in mandi and Dal miller. They get a flat commission of Rs.10 per 100kg of dal sold to millers. But, still all the agents keep a watch at futures prices in order to check how the futures market is behaving with respect to *Hazzir* or Spot Market and accordingly increase or decrease the prices of their products.

Traders are well informed about the functioning of futures and they engage actively in Hedging as well. Almost, all the traders interviewed had knowledge about futures and were aware about

the benefits of futures. The buy Chana from Bikaner (Rajasthan) and Indore (Madhya Pradesh) through brokers. Some of them are Importers themselves and import from Australia, Canada, Ethiopia and Tanzania. The main practice of traders is to operate on a margin of 1%-1.5% after deducting their rent, transportation, storage and other miscellaneous expenses which comes out to be Rs.60 -70 per quintal. They just look for the right opportunity and would offset the contract immediately; else they will keep it rolling in next month. Some of the traders responded that the staggered delivery period should be reduced from 15 days to 7 days because the trading activity on exchange decline after the 5<sup>th</sup> of the month in which the future is about to expire.

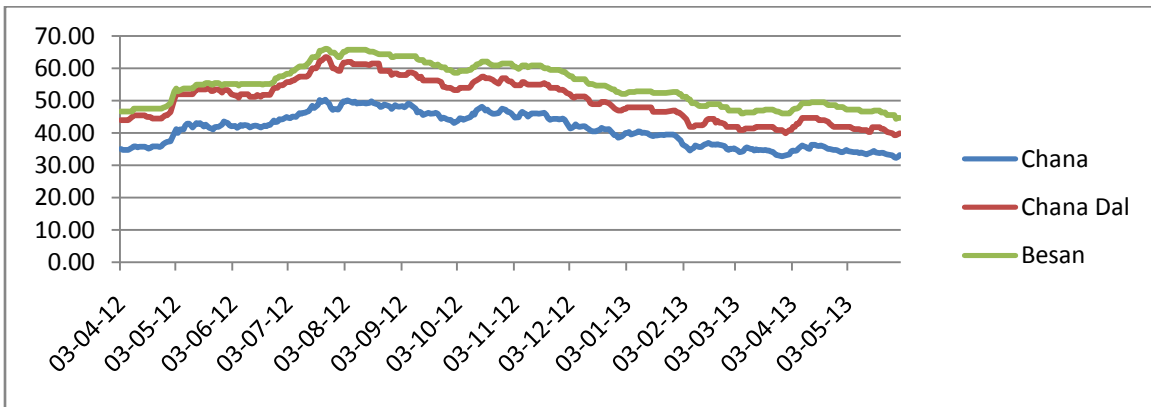
But the traders are apprehensive of losing their chunk of share in the long run in the value chain because these markets are touted to help reduce the long chain of intermediaries so as to reduce the mark-up between producers' price and the consumer price and to ensure a higher share of the consumer price to the producer. The greatest criticism of futures trading has come from these trade interests. They thrive on benefit from the fragmentation of the spot market and information asymmetry between the producers and their well organized traders. Prices which will be discovered on electronic platforms will be determined on the basis of information and views about the demand-supply situation by the participants throughout the country including information from the traders/speculators and arbitrageurs as against a few traders concentrated in a few locations determining prices now. Thus, the integration of information at the national level (even factoring in the international supply-demand information) and transparent trading on an electronic platform accessible to all prospective participants will lead to a more holistic price discovery and thereby, empower the producers and endeavors to maximize their marketing power and minimize their risk. In other words, it will take away the undue advantage enjoyed by a trading cartel in a fragmented market and democratize the trading process.

The mission of the modern market architecture, including the futures trading, is to bring democratization and transparency in price formation. This is aimed at loosening the control of a few dominant groups in price determination of commodities. However, the traders' fear is on account of a myopic approach and is based on a static view of the market. As markets become more integrated and efficient, the volume of trade will grow, new activities relating to commodity trade will grow with the opening up of new avenues and opportunities of trade.

### 3.5.3 Dal Millers

Local Dal millers are currently hardly resorting to hedging; almost 75% of the millers interviewed were upset with the idea of futures and depend entirely on the prices in the physical markets such as Naya bazaar and Lawrence road. They think that futures are too volatile to be trusted upon rather they went to the extent of saying that it is nothing but legal betting which depends on luck. An analysis of past 15 months of prices of Chana, Chana dal and Besan shows that there is a decent amount of correlation between Chana and its products i.e. Chana Dal and Besan.

	Between Chana and Chana Dal	Between Chana and Besan
Correlation coefficient	0.624621371	0.545823564



As, is evident from the above table and diagram that there is a moderate positive correlation between Chana and its products i.e. Chana Dal & Besan. This means that prices of both products move in the same direction with respect to Chana. A percentage increase/decrease in prices of Chana causes a 0.62% movement in the prices of Chana Dal and 0.54% movement in the prices of Besan. Therefore, the millers are able to pass on partial burden of increase in prices of input on to the next level in the form of higher prices for end product. But, still there is a chance of further improving their risk exposure by active hedging.

### **3.5.4 Wholesalers and Retailers**

These people deal in products which are directly consumed by households and are not traded on exchanges, therefore the concept of futures does not apply to them. They operate on a certain margin after covering their expenses incurred. They just pass on any increase and decrease in prices to the end customer.

### **3.6 Conclusion**

- Spot prices and futures prices are interdependent. While the futures market provides indications to the spot markets on the direction in which prices will move in the future, the futures prices are determined on the basis of the conditions in the spot markets. Speculation may drive prices further up, but a speculator expects prices to rise due to the market conditions, and doesn't arbitrarily bet on a price rise.
- Banning futures is not a logical solution to rising prices. It obstructs the development of a mechanism to regulate the markets and discourage unhealthy speculation.
- Futures markets should be developed along with spot markets and integrated effectively to bring about greater participation from the producers and consumers of the underlying assets.
- Farmers are not directly participating in the futures market. Presently farmers are not in a position to take the benefit from the higher price because they have to sell the produce at the harvest time when the prices are low. The necessary infrastructures need to be put in place for encouraging participation of the farmers and take benefit from the futures market. Information on futures market does not reach all parts of the country. Presently there is an information asymmetry between various markets. Most of the farmers are not aware of the futures market. The awareness about the futures market needs to be increased and it should reach the remote areas of the country for the benefit of the primary producers. The major portion of benefit in terms of higher price realizations has been taken away by the intermediaries in the value chain.
- Futures trading can't alter the demand – supply situation of a commodity, rather it only gives early signals of the expected price scenario. The future trading has not contributed to the price rise in commodities traded in the futures market. Futures markets will help in

bringing transparency in the market so that all concerned parties, including the policy makers can act well in time on the basis of early signals emanating in these markets. The strict regulatory measures like margins, position limits and daily price band would ensure the integrity in the futures market.

- The lack of awareness and advocacy is also one reason for the negative perception about these markets.

## 4. ANNEXURE

### 4.1 Questionnaire

1. Name : \_\_\_\_\_
2. Occupation
  - Farmers
  - Traders
  - Millers
  - Agents
  - Retailers
3. What are the various sources of procurement of inputs along with the quantity procured?  

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4. How is the purchase price determined?
5. Factors that influence the prices and quantity purchased?
6. Who all are their major buyers?
7. How is the selling price determined?
8. What are the different types of risks faced?
9. How they currently cover themselves against different types of risks?
10. Who all are the actual intermediaries involved till the product reaches the end customers?
11. What is the frequency and timing of placing orders?

### 4.2 Responses of some of the people

- 90 % of the times I have benefited by buying from futures and selling in spot market – Chetan
- I don't look at futures prices at all; the one who will use futures will suffer heavy losses. The prices are manipulated by two- three large players. 70,000 tonnes of chana is blocked in warehouse at Bikaner to unnecessary create shortage and increase prices. Accredited warehouses are also not working properly. There is no benefit of exchange , it has



become a delivery house one lakh is the trading and one lakh is the delivery – Sunil Baldeva

- I have a short term approach and focus on month to month basis. Staggered delivery period should be reduced from 15 to 7 days to boost up trading activity at the exchange- Pradeep Jindal
- The accredited warehouses have wrong policies, 3000 quintals of chana has not been delivered just because of non payment of one lakh rupees – Sunil Aggarwal
- I only buy in spot and sell in futures and get atleast 18%-24% annual returns –Dheeraj Gupta
- Our purchase price is based on analysis of spot and futures prices but we don't indulge in hedging. Every trade is executed at a margin of at least 3% - Ashok Garg (Dal Miller)

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