

# Simplifying Agri Supply Chain





Established in 1988, Navjyoti Commodity Management Services Ltd. works across the agricultural value chain, at a national level. It provides supply chain solutions for agri commodities such as grains, cereals, pulses, beans, oil seeds and other commercial crops.

Led by a team of quality professionals with a pan India presence, Navjyoti provides its stakeholders a range of post-harvest services. The company's strategically planned and technologically connected locations, experienced staff, innovative practices and commitment to stakeholders enables it to handle business of any size and scale across the country, with quality service at competitive prices. Navjyoti continuously innovates to create value and provide simplified solutions in its area of expertise.

Navjyoti's biggest recognition is that its customers and partners rate it amongst the best in the industry.

#### Key Facts:

- Operates in more than 300 locations and handles over 5 million metric tonnes.
- WDRA (Warehousing Development and Regulatory Authority) and FSSAI (Food Safety and Standards Authority of India) accredited storage locations.
- Company owned, state of the art, large-scale scientific storage facilities and agri logistics parks.
- Equipped and enabled with advanced infrastructure and technologies.

#### SERVICES



#### Procurement & Supply Chain

Effective sourcing mechanisms with efficient handling of high quality agri produce.



#### Collateral Management

Ensuring safe and secure custody through reliable pledge of agri produce.



#### Storage & Preservation

Evolved and advanced preservation mechanisms, storage solutions and licensed fumigation teams.



## Trade & Commerce

Enabling trade links and relevant analysis of global and local market environment.



#### Intelligence Services

Exact weather updates, crop-intelligence and market price trends to enable decision making.



#### Value Added Services

Equipping stakeholders with a modern agricultural market like environment at Agri Logistics Parks.



#### Testing & Certification

Examining and certifying based on leading practices and guidelines of Bureau of Indian Standards.



LN Bangur Group is one of India's leading diversified business conglomerates. The Group was founded by Mr. Ramcoowar and Mr. Mugneeram Bangur in 1918. For 70 years, it has consistently ranked amongst the top 5 business houses in India.

The Group's expertise spread across Textile, Tea, Dairy, Corporate Farming, Agriculture Supply Chain Management Solutions, Financial Services, Energy Exchange & Renewable Energy, Health and Wellness and e-commerce. LN Bangur Group believes in exploring businesses of the future, that are aligned with its anchoring beliefs, mission, vision and values.

Our group companies are:













### **VISION & MISSION**

Vision: To be a globally respected business group working towards providing sustainable living solutions.

Mission: Constantly strive to operate businesses that are globally competitive and sustainable thereby enhancing the lives of the communities we work with.

#### **VALUES**

Mother Earth: We consider Mother Earth as our preferred stakeholder. From our choice of business to the way we conduct them, we shall do everything possible to care for her.

Challenge conventional thinking and foster innovative solutions: We shall encourage all our associates to utilize our resources innovatively so as to provide superior solutions for the benefit of all.

Value human life and dignity: We shall show compassion and care towards our colleagues, clients, vendors and other associates we work towards a better tomorrow.

**Fairness in dealing:** We believe that sustained success can be achieved by building Win - Win partnerships. We shall forge the same and be transparent and honest in our dealings with all our stakeholders. Ethics are non-negotiable.



Wheat is a cereal grain that belongs to the grass family of the genus 'Triticum'. Wheat is one of the world's three most important cereal crops along with maize and rice. Different varieties of wheat are grown across the world. The three principal types of wheat used in modern food production are: Triticum vulgare (soft wheat), Triticum durum (hard wheat) and Triticum compactum. Wheat is covered under the Essential Commodities Act, 1955. The main element of the Government's food management policy are procurement, storage and movement of food grains; public distribution and maintenance of buffer stocks.



#### Importance & Uses

- Food Products- Atta (Whole Meal), Maida (White Flour), Chapatis, Suji (Coarse Semolina), Rawa (Fine Semolina), Pasta, Bread, Cookies, Cracks, Noodles, Dalia, Vermicelli, etc.
- Industrial Uses- Milling, Bread & Bakery, Adhesives, Coatings, Polymers & Resins, Cosmetic, Paper & Pharmaceuticals, etc.
- Other Uses- Straw & Bran as cattle feed, etc.



#### Global Crop Calendar

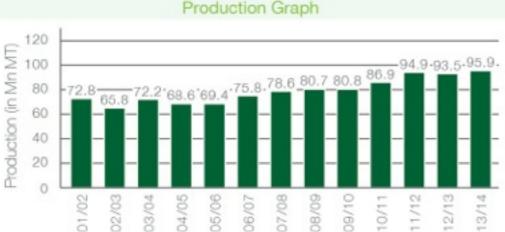
India	— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec —	 _	_
China	—— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec —		Sowing
USA	—— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec —		Harvesting
Australia	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		ria roomig

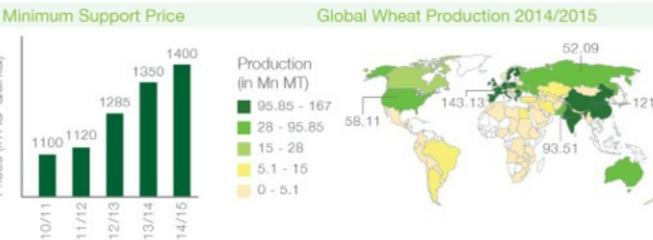


#### Cultivation

#### Indian Scenario -

- India has the largest area in the world under wheat cultivation. However, due to low productivity it is only the third largest producer after EU-27 and China.
- India's annual production of wheat has been around 75-96 million tonnes from 2006 to 2014. Wheat accounts for around 30-35% of India's total food grain product. India's annual wheat consumption is estimated to be around 72 million tonnes currently.
- Green revolution and increased focus by Government on wheat has helped wheat production to surge sharply from around 6 million tonnes at time of independence to current levels. Close to 90% of the area under wheat is irrigated, which too has supported the rise in output over the years.
- Uttar Pradesh (34%), Punjab (20%), Haryana (13%), Rajasthan (10%) and Madhya Pradesh (10%) are the main wheat producing states of India.
- Wheat is cultivated as a rabi crop in India, with sowing being undertaken from October to December and harvesting from March to May. The official marketing season of wheat in India is assumed to commence from April.
- Government plays a major role in the wheat value chain in India as the cereal is very important for the country's food security. The Central Govt. sets the Minimum Support Price (MSP) every year, which sets the mood for the upcoming season. As govt. agencies have been recently procuring close to 25-30% of annual production, open market prices too do not generally fall below this price. Historically, the procurement has been around 15-20%.
- The procured wheat is used to maintain a minimum buffer stock for meeting unforeseen exigencies, for providing food grains required for Public Distribution System (PDS) and the other food grain based welfare programmes of the Government. In addition, the grain is also sold at pre-determined prices to the open market.







#### Factors Influencing Price

- Seasonal fluctuations in area sown, production and productivity.
- Domestic and export demand.
- Arrivals in the market and supply situation in different consuming and producing centres.
- Global production, stocks and supply.
- Other grains supply and prices.

- International price parity.
- Restrictions in major exporting and producing countries and relaxation for imports.
- Growing usage (or decline) of the cereal in different food products, value added products and a number of industries.
- Government Intervention.



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Soyabean (Glycine max) is called as Golden Bean. Soyabean is an important global crop and processed soyabean is the largest source of protein feed and second largest source of vegetable oil in the world. The major portion of the global and domestic crop is solvent-extracted with hexane to yield soya oil (18%) and obtain soyameal (82%), which is widely used in the animal feed industry. It is estimated that above 85% of the output is crushed worldwide. Though, a very small proportion of the crop is consumed directly by humans, soyabean products appear in a large variety of processed foods. The cultivation of soyabean is successful in climates with hot summers, with temperatures between 20°C to 30°C being optimum. Temperatures below 20°C and over 40°C are found to retard growth significantly.

## Importance & Uses

- Food Products- Soy Milk, Soy Sauce, Oil, Margarine, Ingredient commercial food products, etc.
- ✔ Industrial Uses- Printing Ink, Biodiesel, Waxes, Solvents, Lubricants, Hydraulic fluid, Plastics, Fibres & Textiles, Adhesives, etc.
- Other Uses- Soyabean Meal and Roasted Soyabeans as cattle feed, etc.

#### Global Crop Calendar

USA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Brazil	— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sowing
Argentina	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec -	
China	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Harvesting
India	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	

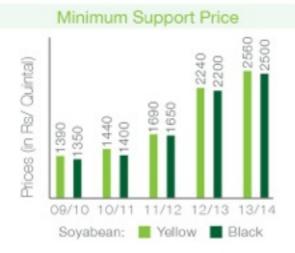


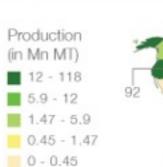
#### Cultivation

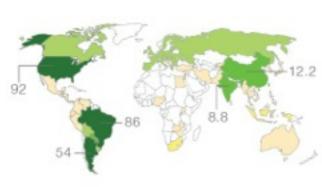
#### Indian Scenario -

- India's annual production of soybean has been around 9-11 million tonnes in the recent years. In 2013-14 Soyabean production in India was 8.8 million tonnes due to crop damage.
- The acreage under this crop has more than doubled in the past two decades to around 11 million hectares currently being sown under this crop, with better returns encouraging more farmers to adopt this new crop.
- Madhya Pradesh, Maharashtra, Rajasthan and Andhra Pradesh are the major cultivators of this important oilseed, with their respective contributions usually around 60%, 27%, 8% and 2%.
- Soybean is exclusively grown in the kharif season in India, with sowing taking place after the first monsoon showers in late June or early July. Sowing can extend upto end of July in different parts of the country.
- The harvesting commences from September, with Maharashtra reporting the earliest arrivals. October and November are the peak arrival months, with all-India arrivals crossing 10 lakh bags of approximately 90 kg on the peak arrival days.
- India is highly dependent on imports to meet domestic edible oil requirement. Government policies are in favour of developing the domestic crushing industry and supporting Indian farmers and do not promote import or export of soybean. Thus, there is virtually no import or export of soybeans.
- However, India out of its total soymeal production of around 5.1-7.1 million tonnes. Consumption has been fluctuating in the range of 1-2.7 million tonnes over the last few years. Exports has been fluctuating in the range of 3.1 to 5.2 million tonnes with Vietnam, Japan, Thailand, Indonesia, UAE, Greece being the major importers.

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Global Oilseed, Soyabean Production 2014/2015

## (SE)

#### Factors Influencing Price

- Weather at all the producing centers, domestic and international.
- The area planted, determined by the price of soyabean against that of competitive crops used for animal feed, i.e. Maize, Jowar, Bajra.
- Government policies such as Minimum Support Price (MSP) fixed for the crop, import duty & export of its derivatives and stock limits.
- Pests and diseases.

Demand for Soyabean from oil extractors and farmers.

- The crush margin between meal, oil and seed.
- The supply demand and price scenario of competitive oils i.e. palm oil.
- International soy price movement at CBOT, being the major international reference market.
- International market price for sov meal export.



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Maize (Corn), is of American origin, and after wheat and rice, it is the most important cereal grain in the world. Maize belongs to the grains family Graminae and is known as Queen of Cereals due to its diverse uses. Also called corn, maize requires moderate climate for growth, excess or deficient rains adversely affect yields as well quality. It grows well in loamy soils. Maize in India is grown in both kharif (80%) and rabi (20%) seasons. In kharif, it is sown in June-July till mid-August and harvested from mid-September. The arrivals extend from late September to February. The major states are Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh and Uttar Pradesh. In rabi, maize is grown in Bihar and coastal region of Andhra Pradesh. The arrivals start from late March and extend upto June.



- Maize provides nutrition to both humans (33.3%) and animals (66.6%).
- Serves as basic raw material for the production of starch, oil and protein, alcoholic beverages, food sweeteners and more recently fuel.
- Special crops grown primarily for food include sweet corn and popcom, although dent, starchy or floury and flint maize are also widely used as food. Flint maize is also used as feed. Immature ordinary com on the cob either boiled or roasted is widely consumed.

## Global Crop Calendar

US	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	_	
China	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Sowing
India (Kharif) — .	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Harvesting
India (Rabi)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		riai vooting



#### Indian Scenario -

- India's maize production fluctuates between 19-24 million tonnes in last 4-5 years, with 80-90% of the production being in the Kharif season.
- Major states that contribute in Maize productions are Karnataka, Andhra Pradesh, Bihar, Punjab, Uttar Pradesh and Madhya Pradesh.
- Around 9.5 million tonnes (roughly 50% of total consumption) goes for feed use, primarily for poultry feed. Another 1 million tonnes of corn is used by the starch industry.
- India exported around 3.9 million metric tonnes of maize in year 2013-2014.
- Rising household incomes have shifted human consumption from maize to other cereals like rice and wheat. The rising incomes have also led to an increased consumption of meat, particularly of poultry, which has increased the demand for maize as feed.

## Production Graph 30 Production (in Mn MT) 15 10 12/13 10/11





#### Factors Influencing Price

- Role of weather in crop production is immense. Temperature, rainfall and soil moisture are the important parameters that determine the crop condition. Further, natural calamities like typhoon, floods, droughts and earthquake can also affect crops. Markets keep watch of these developments.
- Domestic and export demand.
- Arrivals in the market and supply situation in different consuming and producing centres.
- Global production, stocks and supply.
- Changes in the Minimum Support Prices (MSP) by the government also have immense impact on the prices of the commodity.
- Availability of substitute products at cheaper rate may lead to weakness in demand. This situation happens especially when the main products price
- tends to become higher. For e.g., jowar/ bajra may be preferred by poultry feed manufacturers instead of maize, if its prices are high.
- Seasonal cycles are present in agriculture crops, particularly in short duration annual crops. Price tends to be lower as harvesting progresses and produce starts coming into the market. At the time of sowing and before harvesting price tends to rise in view of tight supply situation.
- International price parity.
- Restrictions in major exporting and producing countries and relaxation for imports.
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Mustard seeds are yellowish colored, small seeds mainly used as a spice in many countries. The seeds can come from three different plants: black mustard, brown Indian mustard, and white mustard. Rapeseed belongs to the plant of the same genus and also known as canola in many countries. Mustard seed is the third leading source of vegetable oil in the world after Soya bean oil and palm oil. It is world's second leading sources of protein meal after soybean meal. Mustard seeds oil content varies from 35% to 46%. It is the source of rapeseed/mustard seed oil and oilcake. Yellow colored oil is obtained by extraction process of the crushed rape/mustard seeds. The pressed cakes of the seeds, left over after the production of oil are distilled to make De-Oil Cake, which serves as an animal feed. It is basically a winter crop, requiring a temperate climate to prosper. The planting season or the sowing period in India is during the Rabi season i.e. October to November. The crop starts flowering in the months of November, December, January and February. The harvesting period is from February to March.



#### Importance & Uses

- Mustard seed contains 30-46% oil and this oil which is one of the most important and popular oils in India, is of two types- Kacchi Ghani and refined mustard oil.
- Mustard oil is widely used as medium of preservation for preparation of pickles, chutney and other preparations.
- PM Meal being rich in protein and low in glucosinolate content, is used as an ingredient for cattle feed and poultry feed in India.
- It has high demand from the feed millers and is exported to various foreign and Mediterranean Countries.
- Mustard oil has antifungal properties, hence beneficial for body massage for control of skin diseases.
- Mustard seeds are also used in India as well as in European countries like France, Italy as versatile spice for culinary preparations of fish, meat, vegetables etc.
- Mustard seed contains "erucic acid" which has immense industrial applications. 'High Erucic Acid Rapeseed' (HEAR) oil is the non edible variety of oil, which is used for industrial purposes. The global market for low erucic acid rapeseed oil is ever increasing.



#### Global Crop Calendar

India	—— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	_	
China	—— Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Sowing
EU	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Harveeting
Canada	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		riarvesting



#### Cultivation

#### Indian Scenario -

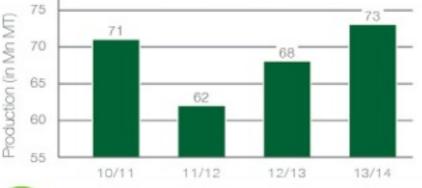
- Mustard seed is one of the major sources of oil and meal to India.
- Mustard is traditionally the most important oil for the Northern, Central and Eastern parts of the country.
- The pungency of the oil is considered as the major 'quality determining' factor.
- Rajasthan is the largest producer of mustard seed in the country with a contribution of 54% to the country's total mustard seed production followed by Punjab and Haryana together contributing 14%.

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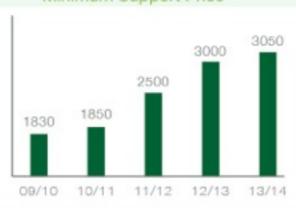
Other major domestic producers of mustard seed are Madhya Pradesh/ Chhattisgarh (13%) and Gujarat (7%).

 Mustard seed is primarily used as a source of edible oil and protein meal, while also being used as a condiment. The oil recovery from mustard seed ranges between 38-44% depending upon the variety and crushing processes. The remnant after oil extraction is used as meal for livestock feed. The consumption of Mustard seed as a condiment is higher in India compared to that in the world. In India, mustard oil is consumed largely in Northern States, as cooking oil and in Southern India, it is used for preservation of food products.

#### Production Graph



#### Minimum Support Price



#### Global Mustard Production 2014/2015





#### Factors Influencing Price

- Various supply-demand factors revolving around the global edible oil scenario.
- The seasonal nature of the production.
- Its high susceptibility to natural fallacies.
- Wide consumption of its derivatives (oil and meal).
- The nature of the existing supply.
- Value chain participants activities.

- The present dependence on the other edible oils.
- The ups and downs in production estimates declared by Govt., SEA, MOPA.
- International prices of other oilseeds and oils.
- The presence of a large unorganized crushing sector.

Production

30 - 40 20 - 30

10 - 20

5 - 10 0 - 5

- Stocks available at Exchange Warehouse.
- Final Expiry date (FED) of the Stocks available at Exchange Warehouse.



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Sugar is a carbohydrate (called sucrose) that occurs in fruits and vegetables. Globally, sugarcane and sugar beet are major sources of sugar. About 76% of the world sugar produced using sugarcane and 24% using sugar beet. Sugar is produced in 115 countries. Sugar is used as sweetening agent in various domestic as well as industrial preparations. Of late, a breakthrough in the technological front coupled with an increasing awareness of biofuel and alternative fuels has added strength to the sugar industry. Sugar is converted into ethanol through a biological method and then it is used as fuel. In Brazil about 45% of the total sugar production is used in producing ethanol, which is used as a fuel in its automobile industry. Sugar comes in three forms: Large crystals (L-grade), Medium crystals (M-grade), and Small crystals (S-grade). M and S grades form about 80% of the world total sugar production. The quality of sugar is gauged using a parameter known as the ICUMSA number, which assesses the chemical properties of sugar for grading. The lower the ICUMSA number, better the quality.



#### Importance & Uses

- Sugarcane- Juice, Bagasse, Press Mud.
- Juice- Sugar, Molasses.
- Molasses-Spirit, Biogas.

- Sprit- Fuel Ethanol, Industrial Alcohol, Potable Alcohol.
- Bagasse- Exportable Power.
- Press Mud- Bio Fertilizer.



#### Global Crop Calendar

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	U.P. India		- Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec -		riarvosting

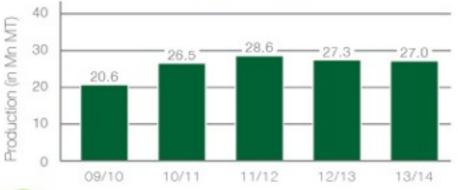


#### Cultivation

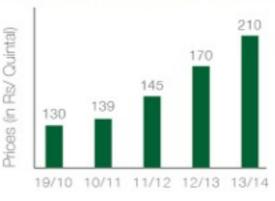
#### Indian Scenario -

- The sugar industry is the largest agro-based industry located in rural India. About 50 million sugarcane farmers, their dependents, and a large mass of agricultural labourers are involved in sugarcane cultivation, harvesting, and ancillary activities. They constitute about 7.8% of the rural population.
- India is one of the largest sugar producing countries in the world, having a share of over 15% of the world's sugar production. India is also among the largest consumers of sugar in the world.
- There are over 480 installed sugar mills in India with a production capacity of over 20 million MT of sugar. These mills are located in 19 states of the country. About 60% of these mills are in the cooperative sector, 35% in the private sector, and rest in the public sector.
- India's sugar production in the year 2013-14 was around 27 million MT while domestic demand was 26 million MT.
- The average per capita consumption of sugar in India is estimated to be 20 kg/ year. In the last few years the per capita consumption has been increasing at a steady 3.7% annually.

## Production Graph



#### Minimum Support Price



#### Global Sugarcane Production 2014/2015





## Factors Influencing Price

- Role of weather in crop production is immense. Temperature, rainfall and soil moisture are the important parameters that determine the crop condition. Further, natural calamities like typhoon, floods, droughts and earthquake can also affect crops. Markets keep watch of these developments.
- Domestic and export demand.
- Arrivals in the market and supply situation in different consuming and producing centres.
- Global production, stocks and supply.
- Changes in the Minimum Support Prices (MSP) by the government also have immense impact on the prices of the commodity.
- Availability of substitute products at cheaper rate may lead to weakness in demand. This situation happens especially when the main products price tends to become higher.
- Seasonal cycles are present in agriculture crops, particularly in short duration annual crops. Price tends to be lower as harvesting progresses and produce starts coming into the market. At the time of sowing and before harvesting price tends to rise in view of tight supply situation.
- Breakthrough in the technology may increase the productivity and would lead to more supply. This may bring some softness in the price.
- International price parity.
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#### Navjyoti's Services

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Naviyoti operates in more than 300 locations, strategically placed across the country, with state of the art, large-scale scientific storage facilities and agri logistics parks. The company handles over 5 million metric tonnes per annum and it's storage locations are WDRA (Warehousing Development and Regulatory Authority) and FSSAI (Food Safety and Standards Authority of India) accredited.



Procurement & Supply Chain- Effective sourcing mechanisms with efficient handling of high quality agri produce.



Intelligence Services- Exact weather updates, crop-intelligence and market price trends to enable decision making.



Collateral Management- Ensuring safe and secure custody through reliable pledge of agri produce.



Value Added Services- Equipping stakeholders with a modern agricultural market like environment at Agri Logistics Parks.



Storage & Preservation - Evolved and advanced preservation mechanisms, storage solutions and licensed furnigation teams.



Testing & Certification- Examining and certifying based on leading practices and guidelines of Bureau of Indian Standards.



Trade & Commerce- Enabling trade links and relevant analysis of global and local market environment.



Castor (Ricinus communis) is one of the ancient important non-edible oil seed crop which has industrial and medicinal value. Cultivated mainly for trading, since it has no food value. It produces one of nature's finest natural oils. It is cultivated in 30 different countries on a commercial scale of which India, China, Brazil, Russia, Thailand, Ethiopia and Philippines are major Castor seed growing countries which account for about 88% of the world's total production. In India it is a kharif crop, sowing in July-Aug and arrivals from December onwards till March. Gujarat is the chief producing state having a share of 86% of the domestic production, followed by Andhra Pradesh and Rajasthan. A bag packed of castor seed contains 75 kg by weight.



Castor oil (extracted from Castor Seed) and its derivatives have vast and varied applications in the manufacturing of Soaps, Lubricants, Hydraulic and Brake Fluids, Paints, Dyes, Coatings, Inks, Cold Resistant Plastics, Waxes and Polishes, Nylon, Pharmaceuticals and Perfumes.



#### Global Crop Calendar

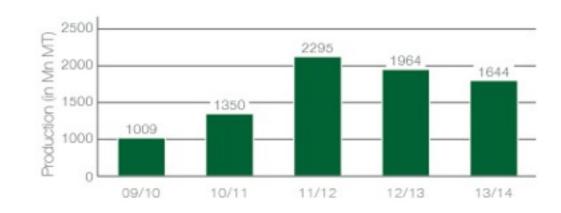
ಹ	Gujarat		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sowing
Indi	Andhra Pradesh	_	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Harvesting



#### Indian Scenario -

- Castor is a non-edible oilseed crop; basically a cash crop, with average 46% oil recovery.
- Castor oil is the largest vegetable oil exported out of India.
- India is the biggest exporter of castor oil holding about 70% share of the international trade in this commodity followed by China & Brazil.

#### Production Graph



#### Global Castor Production 2014/2015



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#### Factors Influencing Price

- Production and acreage variations.
- Monsoon and level of rainfall.
   Mald level in other acceptains.
- Yield level in other countries.
- Prices of other competitive oils like hydrogenated oil, dehydrated oil, sulfated and sulfonated oil etc.
- Demand of the importing countries and domestic demand.
- Seasonal price variations.
- Carry over stocks.
- Developments of new uses of the oil.
- Government policies.



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## Navjyoti Commodity Management Services Ltd.

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