

Agriculture in India–Cash Crops

Cash Crops

Cash crops are agricultural crops which are grown primarily for direct sale in the markets. The main cash crops are categorised as

Beverages: Tea and coffee

Fibres: Cotton and jute

Oilseeds: Groundnut and mustard seeds

Others: Sugarcane, tobacco and rubber

Sugarcane

It grows mainly in the tropical regions with a hard thick stem growing up to the height of 3.5 m or more. India has the largest area under sugarcane in the world. It is used for manufacturing sugar, gur and khandsari. India is the second largest producer of sugarcane in the world after Brazil.

Climatic Conditions and Soil

- Sugarcane grows well in regions with temperatures between 20°C and 24°C. Dry winter is ideal for ripening and harvesting.
- Frost can severely damage the crop.
- Sugarcane grows well in tropical regions with rainfall of 100–150 cm distributed throughout the year.
- Dry sunny weather is essential during the ripening stage of the cane.
- Rich alluvial and lava soil are considered best for the growth of sugarcane.

Methods of Cultivation

- **Sowing:** Sugarcane is planted by the following methods:
 - **Sett method:** New canes are taken out from old plants. These cuttings of new plants known as 'setts' are planted and four to five stalks grow from each cutting.
 - **Ratooning method:** Sugarcane is harvested leaving a little stalk with the roots in the soil. Any crop obtained from the roots of the leftover crop is known as ratoon. Advantages of ratooning are that it saves labour as plants need not be planted again and it is a cheaper method as it does not involve any extra inputs.
 - Sugarcane is also planted by seeds, but this method of sowing is hardly used.
- **Harvesting:** It is harvested in northern India before the winters to save it from frost. The crop is cut by hand using a long carved knife. The stalk should be cut close to the ground as the greatest accumulation of sucrose is in the base of the stem.
- **Processing:** After harvesting, the sugarcane has to be taken to the mill at the earliest. It is because the sucrose content starts decreasing after 24 hours of harvesting. In the mills, canes are crushed and boiled with lime to make raw sugar. It is reprocessed to make brown and white sugar. Only one-third of the sugarcane grown in the country is used for making sugar. The remaining two-thirds are used for making gur and khandsari.
- **Distribution:** Three main areas of sugarcane distribution are
 - The Satluj Ganga Plain from Punjab to Bihar, regions of black soil from Maharashtra to Tamil Nadu and coastal Andhra Pradesh and the Krishna Valley.
 - Uttar Pradesh, Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh are leading producers of sugarcane in the world. Tamil Nadu is the largest producer of sugarcane in South India.

- Sugarcane has begun to be grown in South India as it has a favourable maritime climate free from the effects of summer loo and winter frost and has good irrigation facilities.

Oil Seeds

Groundnut, linseed, castor seed, sesame, soya bean, cotton seed, sunflower seed, rapeseed and mustard seed are some oil seeds which are grown in India. Groundnut is the leading oil seed in India.

Groundnut

Groundnut contains about 42% of oil which is extracted from nuts found in the roots of plants. It is mainly used for the manufacturing of hydrogenated oil. It is used for making margarine, medical emulsions and soaps. While the oil of groundnut is used for cooking, its oil cake is used as cattle feed. The nuts are also eaten raw, roasted, salted and sweetened.

Climatic Conditions

- Groundnut grows well in tropical and sub-tropical climate and can be damaged because of frost. While it is a rabi crop in Odisha and southern states, it is a kharif crop in the rest of India.
- It requires a temperature of 20°C to 25°C.
- The groundnut crop requires light to moderate rainfall of 50–100 cm which should be well distributed throughout the year.
- Continuous rains, stagnant water and frost harm the crop adversely.

Soil

Sandy loams and well-drained soils are considered suitable for groundnut cultivation.

Method of Cultivation

- Sowing: After ploughing, seeds are sowed by broadcasting and drilling methods. It is a flowering plant, and the crop takes about 4–5 months for harvesting.
- Harvesting: During harvesting, the entire plant is removed from the soil. Groundnuts are packed in sacks after drying. They are sent to mills or commercial establishments.

Distribution

India is the second largest producer of groundnut after China. It is mainly grown in Peninsular India. Gujarat is the leading producer of groundnut in India. Other groundnut-producing states are Maharashtra, Karnataka, Rajasthan, Madhya Pradesh, Uttar Pradesh and Punjab.

The table below gives details of the other oil seeds produced in India.

Name of Oil Seed	Temperature	Rainfall	Soil	Methods of Cultivation	Distribution
Mustard and Rape seeds	10–20°C	25–40 cm	Loamy soil	They are grown in rows along with wheat, gram and barley. Their growing period is from four to five months. The seeds are separated by trampling them under	Uttar Pradesh, Rajasthan, Punjab, Madhya Pradesh and Haryana are the main producing states. They are also grown in Assam, Bihar, Odisha, Gujarat and Jammu and Kashmir.

				bullocks' feet.	
Soya bean	13–24°C	40–60 cm	Friable loamy acidic soils	It is a rain fed crop which is harvested in the middle of October.	Madhya Pradesh is the leading producer of soya beans, followed by Rajasthan and Maharashtra.
Sunflower seed	26–30°C	Less than 50 cm	Well-drained loamy soil	It requires adequate moisture in soil in the first 45 days. Rainfall should not be heavy during its flowering stage.	Bihar, Maharashtra, Andhra Pradesh and Karnataka
Sesame	21°C It cannot withstand frost.	Moderate rainfall between 40 cm and 50 cm. Excessive rainfall ruins the crop.	Well-drained light loamy soil	It is grown as a kharif crop in the northern states and as a rabi crop in the southern states.	Uttar Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Odisha, Gujarat, Karnataka Andhra Pradesh and Tamil Nadu
Linseed	15–20°C	45–75 cm	It is grown during the rabi season and is harvested in march April.	Alluvial soils, clayey loamy soil and deep black soils.	Madhya Pradesh and Uttar Pradesh
Castor seed	20–25°C	50–75 cm	It is sown in June and July and harvested in November and December.	It grows on red sandy loamy soil.	Gujarat, Andhra Pradesh and Rajasthan are the leading producers. It is also grown in Odisha, Karnataka and Tamil Nadu.

Cotton

Cotton is an important cash crop which provides raw materials to Indian industries. It is a tropical crop grown in the kharif season.

Climatic Conditions

- The cotton plant requires a high temperature ranging between 21°C and 30°C. While during October, the temperature should be above 26°C to help in ripening and bursting of cotton balls, the minimum temperature should not fall below 20°C as it retards plant growth.
- A long growing period of at least 200 frost-free days is also necessary for the plant to mature.
- Moderate rainfall of 50–75 cm is required for the growth of the plant. Rainfall more than 85 cm can destroy the crop.

Soil

Well-drained clayey soil rich in lime and phosphate is suitable for the growth of cotton plant. The deep black soil of the plateau regions and Gujarat is also considered suitable for the growth of the cotton plant.

Methods of Cultivation

- **Sowing:** The seeds are sown by the drilling or broadcast methods generally before the beginning of rainfall.
- **Harvesting:** Harvesting is done in October when the cotton balls ripen and burst.
- **Processing:** After harvesting, the cotton crop passes through the following processes:
 - The cotton balls are ginned after harvesting. Ginning is a process of separating cotton fibres from cotton seeds.
 - The seeds are then crushed to produce oil; the residue is then used for feeding cattle.
 - The cotton fibre or the bale is then transported to the manufacturing regions.
 - After washing fibres, rope-like mass of fibre known as sliver is formed.
 - The sliver is then spun to make cotton yarn.

Varieties of Cotton

Five main varieties of cotton are grown in India. These are superior long staple, long staple, superior medium staple, medium staple and short staple.

Distribution

The chief cotton-growing regions of the country are

- The northwestern parts of the Deccan having fertile black soil
- The central and southern Deccan of Karnataka and Tamil Nadu
- The Upper Ganga Valley

Gujarat, Andhra Pradesh, Maharashtra and Punjab are the chief cotton-producing states in the country. Other cotton-producing states are Madhya Pradesh, Rajasthan, Haryana, Karnataka and Tami Nadu.

Jute

Jute is one of the most important fibres grown in India. White jute grows on lowlands and uplands. The tossa jute is grown only on uplands as it can be damaged by floods. Jute is used for manufacturing sacks and other packaging materials. Jute is also used for manufacturing many utility products such as carpets, rugs, twine and tarpaulins.

Mesta is an inferior substitute for jute.

Climatic Conditions

- The jute crop requires hot and humid climate with temperatures ranging between 24°C and 35°C.
- The crop requires an annual rainfall of more than 150 cm.
- Uninterrupted rains and prolonged droughts are harmful for the crop.

Soil

New alluvial soil is considered suitable for the growth of the jute crop.

Methods of Cultivation

Sowing: Seeds are sowed by broadcasting and drilling methods. They are sown in February on lowlands and in March and June on uplands.

Harvesting: The crop is harvested from July to September. The plants are cut after they attain the height of 2–4 m, and then they are put into a pond for retting. After peeling the bark, the fibre is rinsed, washed, dried and pressed into bales.

Processing: Jute is put into specialised tanks for retting. After obtaining fibres, they are dried, spun and woven into sacks and carpets.

Distribution

West Bengal is the leading producer of jute in the country. In Bengal, jute is grown in Nadia, Parganas, Jalpaiguri, Malda and Burdwan. It is also grown in Assam, Bihar, Odisha and Uttar Pradesh.

Tea

Tea is an important beverage in India.

Climatic Conditions

- The ideal maximum temperature for the growth of the tea plant is about 24–30°C. The tea plant grows well under shade.
- High humidity, heavy dew and morning fog are good for the development of young leaves.
- The tea plant grows well in humid climate. It needs adequate annual rainfall of about 150 cm distributed throughout the year.

Soil

- It grows well in regions of well-drained loamy soil or forest soil rich in humus.
- The soil should be gently rolled to prevent waterlogging.

Methods of Cultivation

Sowing

- One way of planting tea is that first high-quality seeds are sown in nurseries. The saplings are then transplanted within a year in a tea garden.
- Tea shrubs can also be grown in nurseries from the cutting of high-yielding varieties. This is known as the clonal planting method of propagating tea.
- Tea gardens are located on hillslopes as slopes prevent the soil from waterlogging. Standing water or waterlogging can seriously damage the crop.

Harvesting

- Bushes of the plant are pruned. In India, tea leaves are picked frequently.
- Tea picking is a skilful job and is mostly done by women.

Processing

There are four types of tea and each is processed differently.

Black Tea

- Withering: Tea leaves are dried under the Sun to extract moisture.
- Rolling: Leaves are then rolled mechanically between steel rollers to break the fibres.
- Fermentation: The leaves are fermented, reducing the amount of tannic acid in tea by half.
- Drying: Leaves are then dried over a fire or in an oven until they are black.
- Blending: Blenders then give blend grades of tea to give it a special aroma.

Green Tea

- The picked leaves are heated immediately by roasting them.
- There is no fermentation process and leaves remain green even when they are dried, graded and packed.

Oolong Tea

- This tea is prepared by partially drying and fermenting the leaves.
- Much of this tea is exported to the United States.

Brick Tea

- Inferior and coarser leaves and stems are compressed into rectangular blocks of brick tea.
- This tea is mostly consumed in Tibet and Russia.

Distribution

India is the fourth largest exporter of tea. Assam is the leading producer of tea in India, followed by West Bengal. Tea is also produced on a large scale in Tamil Nadu and Kerala. Other minor tea-producing regions are Ratnagiri and Satara in Maharashtra, Purnea in Bihar, Kangra Valley in Himachal Pradesh and Coorg and Shimoga in Karnataka.

Coffee

Three main species of coffee are grown in India. These are

Coffea robusta: It is grown in areas of lower elevation where Arabica is not usually grown and can survive in even arid conditions. It produces poor quality coffee.

Coffea liberica: It is a disease-resistant species of coffee which is generally grown on the lowlands. Both Robusta and Liberica are suitable for making 'instant' coffee and thus have become popular.

Coffea arabica: It is the finest quality of coffee, but it is prone to diseases. Its main varieties are Chicks, Blue Mountain and Bourbon Amarillo.

Climatic Conditions

- Coffee requires warm climate with a temperature of 15–28°C. It can neither withstand frost nor high temperature.
- The coffee plant is planted under the shade of trees (such as silver oak and jackfruit) as direct sunlight can damage the crop.
- The coffee plant requires rainfall between 150 and 200 cm. A prolonged drought may severely damage the crop.

Soil

Rich, well-drained friable loamy soil is suitable for the growth of coffee plant. Fertilisers are added to make the soil fertile.

Methods of Cultivation

Sowing

- Saplings of coffee plant are taken from the nursery and are then transplanted to the field.
- Plants are planted 3 m apart from each other. They are pruned. The height of the coffee plant is maintained at 1.5 to 2.5 m.
- Coffee plants are grown on slopes as stagnant water is harmful for the crop.
- Many trees such as oranges, cardamom and pepper vines are also planted to generate extra income.

Harvesting

- The coffee plant is harvested in the fourth or fifth year. Coffee is picked by hands by removing ripe berries from the stalk.

Processing

- The coffee berries are passed through the machine which removes their outer covering.
- The beans are then fermented by drying under the Sun. After being peeled, the beans are roasted at a temperature of 99°C and are then ground into coffee powder.

Distribution

Coffee is mainly produced in Karnataka (Coorg and Chikmagalur), Kerala (Kozhikode, Palakkad and Idukki) and Tamil Nadu (Nilgiri district, Madurai and Coimbatore).

Rubber

Rubber is obtained from latex—a milky juice obtained from various plants such as castile and *Hevea brasiliensis* (para rubber).

Climatic Conditions

- Para rubber is grown in India at an elevation of about 300 to 450 m on the slopes of the Western and Eastern Ghats.
- It grows well in hot and humid conditions. It is grown in regions where the temperature does not fall below 21°C. It grows well between 25°C and 35°C.
- The rubber plant requires evenly distributed high rainfall of 200–400 cm.

Soil

The plant requires rich, well-drained alluvial and laterite soils.

Methods of Cultivation

Sowing

- Rubber is cultivated either by propagating seeds or by bud grafting.
- In propagation of seeds, seeds are allowed to sprout in the river bed sand. After germination, they are planted in nurseries and are then transplanted in the fields.
- Bud grafting is carried out by selecting quick-growing buds. After the seedlings grow, the buds are grafted on the seedlings.
- Rubber plant needs proper caring and good manuring for growth and good yield.

Harvesting

- Latex is obtained from the rubber tree by the process of tapping. After cutting the bark of the rubber tree, latex is collected in containers placed below the plant.
- Tapping is not carried out in the rainy season as latex dilutes because of rainwater. It is also suspended during winter as its production is minimal at this time.

Processing

- Latex contains about 35% of dry rubber. After collecting, it is sent to a factory for processing.
- It is cleaned and mixed with acetic acid and is heated for about 24 hours.
- The spongy whitish mass is then obtained which is passed through the rollers to drain out water.
- They are then rolled into sheets and dried.

Distribution

India is the fourth largest producer of natural rubber in the world. Kerala produces about 95% of the total annual output. It is produced mainly in Kottayam, Kozhikode, Ernakulum and Kollam districts in Kerala. It is also grown in Tamil Nadu and Karnataka. Tripura, Assam, Goa and Andaman and Nicobar Islands also produce rubber in small quantities.