

Economically important crops

Introduction:

A cash crop is an agriculture crop which is grown for sale to return a profit. The term cash crop is applied exclusively to the agricultural production of plants; animal agriculture is not a part of the terminology. *Commercial Crops* in India are Cocoa, Coffee, Cotton, Jute and Mesta, Oilseeds, Opium, Rubber, Sunflower, Sugarcane, Tea Tobacco, ect.

This episode deals with different types of "Economically important crops" special reference to food industry, **Coconut, coffee, sugar cane ,coco, Cashew, ,Mango, health benefits, Ruber and its uses cet.,** The following topics are highlighted

- 1:List of commercial crops
- 2: Tea and Pepper
- 3: Coonut and Sunflower
- 4: Rubber and Sandal wood
- 5: Tobacco and Cotton

1:List of commercial crops

Cash Crops refer to those crops that are grown generally for money and which feed the live stocks of the producer and his family. Cash Crops in India form the strong base over which the Indian trade and commerce flourish both within and outside the country. Fiber crops form the most important Indian cash crop and Jute is one of the notable Indian cash crops and Cotton is considered as the major cash crop. Some of the major cash crops are given below;

- Cotton:
- Rubber
- Sunflower
- Cashew tree (*Anacardium occidentale*).
- Sandalwood : *antalaceae*

- Acacia concinna
- Piper nigrum (Black Pepper)
- Tea
- Myristica fragrans Nutmeg
- Coconut,ect

2: Tea and Pepper

Theaceae: Tea Family (Ternstroemiaceae)

Tea is one of the most popular and lowest cost beverages in the world, next only to water. Tea is consumed by a wide range of age groups in all levels of society as well as one of the healthiest. Since tea was first discovered in China, it has traveled the world conquering the thirsts of virtually every country on the planet. The discovery of tea occurred in 2737 BC by the Emperor of China

Classification of tea: They are divided in to four major groups.

- (a) Green Tea
- (b) Yellow and fermented Tea
- (c) Oolong and white Tea
- (d) Black Tea

Protective compounds & Nutrition facts in tea.

- (e) Polyphenols including flavonoids are naturally occurring plant chemicals (called phytochemicals) that are found in tea and have strong antioxidant properties. Antioxidants are agents that protect cells against damage caused by free radicals and reduce the damage caused by low density lipoprotein (LDL) or 'bad' cholesterol in the blood.
- (f) **Major Contribution of tea in the world.** The graph shows the production of tea from 2006 to 2014, by major producing countries. China produced approximately

1.9 million metric tons of tea in 2012, up from about 1.02 billion metric tons in 2006.

Piperaceae: Pepper Family Species: *P. nigrum*

Piper nigrum Black Pepper

Black pepper (*Piper nigrum*) is a flowering vine in the family Piperaceae, cultivated for its fruit, which is usually dried and used as a spice, seasoning and medicine.

Following the British hegemony in India, virtually all of the black pepper found in Europe, the Middle East, and North Africa was traded from Malabar region.

Black pepper is native to south India currently Vietnam is the world's largest producer and exporter of pepper and producing 34% of the world's *Piper nigrum* crop as of 2008.

Dried ground pepper has been used since antiquity for both its flavour and as a traditional medicine. Black pepper is the world's most traded spice. It is one of the most common spices added to European cuisine and its descendants. The spiciness of black pepper is due to the chemical piperine.

Piperine . Pepper gets its spicy heat mostly from piperine derived both from the outer fruit and the seed. Black pepper contains between 4.6% and 9.7% piperine by mass, and white pepper slightly more than that refined piperine, by weight.

3:Coconut and Sunflower

Cocos nucifera

Family: Arecaceae

The coconut tree (*Cocos nucifera*) is a member of the family Arecaceae (palm family). It is the only accepted species in the genus *Cocos*. All the parts of the plants are useful. They are;

Coconut Tree Leaves/Fronds -can be used for making,

Bags,. Barbecue , Baskets, Decorations, Fans, Fish Trap (made from the leaf bud sheath), Fruit Trays, Hats, Lamp Shades, Matting For Floors Or Walls, Mock Floral

Arrangements, Paper Pulp, Room Dividers, Ropes, Sunshades, Thatching Materials For Roofs, Toys, Umbrella, Wrap For A White Rice Called Puso

Coconut Midrib

Arrows, Brooms, Skewers, Spears, Toothpicks, Torches, Bakya Straps, Caps, Containers, Handbags, Mats.

Coconut Shell

Bangles, Bird Feeder, Bowls, Buttons, Charcoal for Cooking, Cups, Decorative Artwork, Drums, Earrings, Fish Hooks, Fuel, Musical Instruments, Necklaces, Pendants, Plate, Scrapers, Small Animal Home, Spoons, Storage Containers,.

Coconut Husk

Cloth, Compost material, Decorative element of a dish of food, Floor Polisher, Fuel for cooking fire, Lashing, Matting, Nets, Peat Moss substitute, Rope, Scrubber to clean floors and cooking pots, Shredded as Stuffing for pillows and mattresses, Smoke of the burning husk is a natural mosquito repellent, Strainer.

Coconut Tree - Consumables

Coconut Butter, Coconut Cream, Coconut Meat (which can be used for), Animal Feed, Candies, Coconut Chips, Coconut Sprout (an edible fluff of marshmallow-like consistency from newly, germinated coconuts), Effective Natural Laxative, Desiccated Coconut, Flour, Latik, Relief from colitis, Relief from diarrhea, Relief from dysentery, Relief from Indigestion, Relief from piles, Relief from ulcers, Rids the body of worms and parasites, Snacks Coconut Milk (which can be used for or as), Bath Soak, Beverage (has anti-carcinogenic and antiviral properties), Body Lotion, Body Wash, Bone builder (contains high levels of phosphorus), Cooking, Cuticle Soak, Cough Syrup Substitute, Coconut Oil), Coconut Sap, Beverages (known as Neera, Toddy, Tuak, Karewe), Candy, Coconut Amino Seasoning Sauce, Sugar, Syrup, Vinegar, Vodka, Wine

Coconut Water

Acts as a diuretic, acts like an antioxidant and scavenges free radicals, Aids body in fighting infections, Aids in breaking kidney stones and also flushes the toxins out of the

Kidneys, Aids in removal of intestinal worms and parasites, used during urinary infections and alkalizes urine, applied to the body directly or on a soaked cloth, it cools the body when , overheated from exertion or fever, Balances electrolytes, Balances the body's PH, Boosts immune system, Boosts poor circulation, Detoxifies all the systems in the body, Increases endurance, Increases energy, Increases metabolism and helps reduce weight, Keeps the reproductive system healthy, Prevents dehydration, Promotes liver function, Provides relief from prickly heat.

Sunflower:

Family: Asteraceae

Species: *H. annuus*

Several species of sunflowers are of economic importance. Many more species of Asteraceae are used locally for various medicinal and food purposes. The economic importance of many species of sunflowers is yet to be fully explored

It mainly grown as a crop for its edible oil and edible fruits, ie seeds. This sunflower species is also used as bird food, as livestock forage and in some industrial applications. The plant was first domesticated in the Americas. Wild *Helianthus annuus* is a widely branched annual plant with many flower heads. The Seeds were brought to Europe from the Americas in the 16th century, where, along with sunflower oil, they became a widespread cooking ingredient.

Sunflower oil, *Helianthus annuus* L.: It was first domesticated in Mexico around 2600 BC. These crops were found in Tabasco, Mexico at the San Andres dig site. During the 18th century, the use of sunflower oil became very popular in Russia, particularly with members of the Russian Orthodox Church and used as cooking oil .

Sunflower contains 40 to 44% of good quality oil and high amount of quality protein in cake The oil is also used in the manufacture of hydrogenated oil. Sunflower oil is considered as premium because of its high PUFA (Poly• Unsaturated Fatty Acid) content with high level of linoleic acid and absence of linolenic acid. Because of this, its use in diet reduces the level of blood cholesterol, a factor which is responsible for the

incidence of coronary heart. This is also used in the manufacture of soaps and detergents Sunflower meal is used as an animal food protein concentrate. Sunflower hulls are used as roughage in animal food and as a fuel.

4: : Rubber and Sandal wood

Rubber, Guayule, *Parthenium argentatum*:

Family: Moraceae

Genus: Ficus

Species: *F. elastica*

Rubber is the most recent of the major crops of the world. The industry by 2003 was about 150 years old, but cultivation has been carried on only about 100 years. *Ficus elastica* is grown around the world as an ornamental plant, outside in frost-free climates.

The increase in the production of plantation rubber was from 800 long tons in 1900 to 305,000 tons in 1920 and 1,395,000 tons in 1940. This development of the rubber-growing industry has not been without drawbacks. Overproduction had seriously affected the industry financially by 1950 and many attempts have been made to regulate its supply.

Latex occurs in special cells or in a series of special vessels, which permeate the bark, leaves, and other soft parts of the tree. Usually only the latex from the lower part of the trunk is of importance commercially. It consists of a mixture of water, hydrocarbons, resins, oils, proteins, acids, salts, sugar. This latex was formerly used to make rubber.

- The properties of rubber were known by primitive cultures in Central America and Peru. Their word *cauchuc* has been changed to the present caoutchouc (*caucho* in Spanish). Columbus was the first to report the existence of rubber to Europeans, but it was not introduced into Europe until 1735. Priestley first applied the name "rubber" in 1770, due to the fact that caoutchouc could be used for removing pencil marks

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Sandalwood : *antalaceae*: Sandalwood Family

Sandalwood is the name of a class of woods from trees in the genus *Santalum* and most commonly known source of sandalwood. The woods are heavy, yellow, and fine-grained, and unlike many other aromatic woods, they retain their fragrance for decades. The essential oil of sandalwood is extracted through steam distillation of pieces of wood from matured Sandalwood trees which are 40-80 years old, Sandalwood oil is perhaps best known in the west as a sweet, warm, rich and woody essential oil used as is for a body fragrance.

Sandalwood oil in India is widely used in the cosmetic industry. The main source of true sandalwood, *S. album*, is a protected species, and demand for it cannot be met. Many species of plants are traded as "sandalwood". However, most woods from these alternative sources lose their aroma within a few months or years.

Isobornyl cyclohexanol is a synthetic fragrance chemical produced as an alternative to the natural product. Isobornyl cyclohexanol (IBCH) is an organic compound used primarily as a fragrance because of its aroma which is similar to sandalwood oil. Over 70 years ago, nearly 90% of the natural sandalwood populations occurred in the southern part of Karnataka and northern part of Tamil Nadu¹. Mysore sandal oil , soap is world famous since 100 years.

Medicine

Sandalwood oil was popular in herbal medicine up to 1920-1930, mostly as a urogenital (internal) and skin (external) antiseptic. Its main component is santalol (about 75%). It is used in aromatherapy and to prepare soaps.

Aromatherapy uses plant materials and aromatic plant oils, including essential oil and other aromatic compounds for the purpose of altering one's mood.

The use of essential oils for therapeutic, spiritual, hygienic and ritualistic purposes goes back to a number of ancient civilizations including the Chinese, Indians, Egyptians, Greeks, and Romans who used them in cosmetics, perfumes and drugs. In some

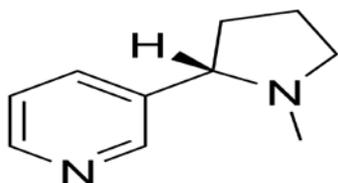
Buddhist traditions, sandalwood is considered to be of the *padma* group. Sandalwood scent is believed by some to transform one's desires and maintain a person's alertness while in meditation. It is also one of the more popular scents used when offering incense to oneself.

5: Tobacco and Cotton

Tobacco: Tobacco is a product prepared from the leaves of the **tobacco** plant by curing them. The plant is categorized within the genus *Nicotiana* of the Solanaceae .

Nicotiana tabacum, or cultivated **tobacco**, is an annually-grown herbaceous **plant**.

Tobacco is a product prepared from the leaves of the tobacco plant by curing them. The plant is categorized within the genus *Nicotiana* and Tobacco use is a risk factor for many diseases, especially those affecting the heart , liver and lungs and several cancers. In 2008, the WHO named tobacco as the world's single greatest cause of preventable death.



Nitocine the compound responsible for the addictive nature of tobacco use.

Tobacco is consumed in many forms and through a number of different methods. Some examples are:

Beedi , chewing tobacco is the oldest way of consuming tobacco leaves.

Cigars,cigarettes,creamy snuffs,Gutka,Hookah, Pipe smoking,tobacco water,tobacco paste.

Tobacco advertising of tobacco products by the tobacco industry is through a variety of media, including sponsorship, particularly of sporting events. It is now one of the most highly regulated forms of marketing. Some or all forms of tobacco advertising are banned in many countries.

Cotton:

Family: Malvaceae

Tropical and subtropical plant which is commercially grown to make cotton fabric and thread. Oil and a protein-rich flour are also obtained from the seeds. Cotton is a soft, fluffy staple fiber as well as a protective case, around the seeds of cotton plants of the genus *Gossypium* in the family of Malvaceae. A soft white fibrous substance which surrounds the seeds of the cotton plant and is made into textile fibre and thread for sewing. Cotton, a very pure form of cellulose, has been used for a very long time in the production of artificial fibers and other cellulose products. These fibers may then be reorganized as paper, or they may be treated further chemically.

The world produces around 25 million tonnes of cotton every year. Six countries - China, Brazil, India, Pakistan, the USA and Uzbekistan - account for more than 80% of total production. From a net exporter, China has become a major purchaser of raw cotton, with imports of 3.2 million tonnes in 2006, mainly from the world's leading cotton exporter, the United States.

Cashew tree (*Anacardium occidentale*).

Family-Anacardiaceae

Species: *A. occidentale*

Cashews are not actually nuts but seeds. Many Southeast Asian cuisines use cashews for this unusual characteristic, rather than other nuts. The shell of the cashew nut is toxic, which is why the nut is never sold in the shell to consumers.

A cashew "nut" attached to its swollen stalk The shell of the "nut" contains the poison oak allergen urushiol, and may cause dermatitis in hypersensitive people. Technically, the "nut" is a dry fruit called a drupe. It consists of a thin outer layer (A tasty nut and fleshy fruit native to tropical America.

Brassicaceae: Mustard Family (Cruciferae)

Cruciferae, an older name, meaning "cross-bearing", describes the four petals of mustard flowers, which resemble a cross; This family is commonly called as 'mustard family'. It includes about 300 genus and about 3700 species

Nutritional value

Some of the many vitamins and nutrients found in mustard seeds are selenium and omega 3 fatty acid. Commercially, selenium is produced as a byproduct in the refining of these ores, most often during production. Minerals that are pure selenide or selenate compounds are known, but are rare.

Omega-3 fatty acids are important for normal metabolism. Mammals are unable to synthesize omega-3 fatty acids, but can obtain the shorter-chain omega-3 fatty acid ALA.

Uses:The major processed products are mustard powder used in the manufacture of mayonnaise, dried or dehydrated mustard leaves, whole mustard seeds etc. Whole mustard is used as a flavouring agent in Indian cooking, whereas ground mustard provides flavour and consistency in Bengali fish curries. Mustard flour has preservative and antioxidant properties in addition to providing flavour and colour.

Nutmeg Family: Myristicaceae:

Genus: Myristica

Myristica fragrans Nutmeg

Nutmeg is one of the two spices derived from several species of tree in the genus *Myristica*. The most important commercial species is *Myristica Fragristica*, indigenous to the Indonesia. The prices of nutmeg and mace is always continue to rule high on short supply in the domestic and international markets.

The history of nutmeg is remarkable and illuminating. Nutmeg is known to have been a prized and costly spice in European cuisine as a flavouring, medicinal, and preservative agent. It's said to taste a bit like crystallized ginger.

Uses

Nutmeg is usually used in powdered form. Several other commercial products are also produced from the trees, including essential oils, extracted oleoresins and nutmeg butter. It is semisolid, reddish-brown in colour, and tastes and smells of nutmeg. About 75% (by weight) of nutmeg butter is trimyristin which can be turned into myristic acid. Which can be used as a replacement for coco butter, can be mixed with other fats like palm oil and has applications as an industrial lubricant.

World production:

World production of nutmeg is estimated to average between 10,000 and 12,000 tonnes per year, with annual world demand estimated at 9,000 tonnes; production of mace is estimated at 1,500 to 2,000 tonnes. Indonesia and Grenada dominate production and exports of both products, with world market shares of 75% and 20%, respectively.

Nutmeg oil contains eugenol it is a phenylpropene, an allyl chain-substituted guaiacol. Eugenol is a member of the phenyl propanoids class of chemical compounds. It is present in concentrations of 80–90% in clove bud oil and at 82–88% in clove leaf oil. It is used in perfumeries, flavorings, essential oils and in medicine.

Conclusion:

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