CLASS 10TH NOTES ON AGRICULTURE

WHAT IS AGRICULTURE?

→ Agriculture is the science and art of cultivating plants and livestock.
→ Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that enabled people to live in cities.
→ Agriculture is a primary activity which produces most of the food that we consume besides food grain it also produces raw material for various industries. Some agriculture product like tea, coffee, spice, etc...

IMPORTANCE OF AGRICULTURE

→ In India agricultural activities are of great importance.
→ These activities provide employment to approximately two third of Indian population and help us to get food as well as raw material for Industries.
→ Some agricultural products such as tea, coffee, spices are exported so as to get additional income to the country.
→ In India Cultivation methods have changed based on physical environment, technological improvements, socio-cultural practices.
→ The share of agriculture in providing employment and livelihood to the population continued to be as high as 63% in 2001.

FARMING

→ Farming is the act or process of working the ground, planting seeds, and growing edible plants.
→ Farming is a great way to describe the lifestyle and work of people whose jobs are in the agriculture industry.

WHY DO FARMING PRACTICES VARY IN DIFFERENT REGIONS?

→ The major reasons are:
→ Physical environment, i.e., relief, soil and climate.
→ Technological know-how.
→ Socio-cultural practices.

FEATURES OF AGRICULTURE IN INDIA.

01. OVER DEPENDENCE ON MONSOON: Major portion of the cropped area still depends upon monsoons for irrigation. Only one- third of the cropped area is under assured irrigation.
02. SUBSISTENCE AGRICULTURE: A farming in which the main production is consumed by the farmer's household is known as subsistence farming.
03. SMALL AND SCATTERED LAND HOLDING: Due to the increasing population, the per hectare availability of land is very low. The Jand holding is also scattered.
04. LACK OF INPUTS: Most of the farmers are poor so they do not use fertilisers and high yielding varieties of seeds.

TYPES OF FARMING

1) PRIMITIVE SUBSISTENCE FARMING

→ Primitive subsistence agriculture is practised on small patches of land with the help of primitive tools like hoe, dao and digging sticks, and family/community labour.
→ This type of farming depends upon monsoon, natural fertility of the soil and suitability of other environmental conditions to the crops grown.
→ This type of farming is practiced in areas of high population pressure on land.
→ It is practiced on small patches of land for obtaining higher production.
→ There is no pressure on agricultural
→ In this type of farming, agricultural productivity is high.
→ This allows the earlier patch of land to replenish its fertility through the natural process.
→ This is also called 'slash and burn' agriculture. A patch of land is cleared by slashing the vegetation and then the slashed plants are burnt. The ash; thus obtained is mixed with the soil and crops are grown.
→ Farmers clear a patch of land and produce cereals and other food crops to sustain their family. When the soil fertility decreases, the farmers shift and clear a fresh patch of land for cultivation.
→ It is jhumming in north-eastern states like Assam, Meghalaya, Mizoram and Nagaland, Pamlou in Manipur, Dipa in Bastar district of Chattishgarh, and in Andaman and Nicobar Islands.

WHAT IS SHIFTING AGRICULTURE?

→ It is that type of agriculture in which farmers clear the forest land and use it for growing crops. The crops are grown for 2 to 3 years, and when the fertility of the soil decreases, the farmer shifts to a new land.
→Usually, plant, tuber crops like yam, tapioca Dry paddy, maize, millets, root crops and vegetables are the crops commonly grown in this type of farming. It is practiced mainly by tribal living in forest.

SHIFTING AGRICULTURE IS BEING DISCOURAGED?

because:
→This leads to deforestation.
→The per hectare yield is very low.

WHAT IS HUMMING ?

→Slash and burn agriculture is locally called `Humming' in north- eastern states like Assam, Meghalaya, Mizoram and Nagaland.

DIFFERENT NAMES OF SLASH AND BURN FARMING:

Slash and Burn Farming in India	
NAME	REGIONS
Jhumming	Assam, Meghalaya, Mizoram and Nagaland
Pamlou	Manipur
Dipa	Bastar (Chhattisgarh) and Andaman & Nicobar Islands
Bewar or Dahiya	Madhya Pradesh
Podu or Penda	Andhra Pradesh
Pama Dabi or Koman or Bringa	Orissa
Kumara	Western Ghats
Valre or Waltre	South eastern Rajasthan
Khi	Himalayan belt
Kuruwa	Jharkhand

Although there are different names for slash and burn farming in different regions of India, the name 'Jhum Cultivation' or Jhuming is commonly used in this context. The following table shows various names for slash and burn farming in different countries.

SLASH AND BURN FARMING IN WORLD	
NAME	COUNTRIES
Milpa	Mexico and Central America
Conuco	Venezuela
Roca	Brazil
Masole	Central Africa
Lading	Indonesia
Ray	Vietnam
chena	Sri Lanka

INTENSIVE SUBSISTENCE FARMING –

→ The term, 'intensive subsistence agriculture' is used to describe a type of agriculture characterised by high output per unit of land and relatively low output per worker.

→ Intensive farming aims at maximum possible production on the limited farms with all efforts possible under the circumstances.

→Intensive farming is capable of raising more than one crop a year.

→ Huge capital and human labour is employed on every hectare of land.

→ HYV (high yielding variety) seeds and modern inputs are used to increase the production.

→ It is practiced in most parts of densely populated areas.

→ In this type of farming, high doses of with the help of primitive tools and also bio-chemical inputs and irrigation are used lacks in capital and irrigational facilities.

→ The farmers continue to take maximum output from the limited land in the absence of alternative source of livelihood.

→ There is enormous pressure on land agricultural land.

→In this type of farming, agricultural productivity is low.

→ The farmers continue to take maximum of land for cultivation.

→ Intensive subsistence farming is practised in Punjab,some parts of Rajasthan ,Uttar Pradesh, Madhaya Pradesh in India.

→ This form of agriculture is best developed in and practically confined to the monsoon lands of Asia. It is found in China, Japan, Korea, India, Pakistan, Sri Lanka

PROBLEMS OF INTENSIVE FARMING:

→Division of land through successive generation leads to plot size getting smaller and smaller.

→This makes it impossible to properly manage the farm inputs. Moreover, large-scale farming is not possible in that case.

EXTENSIVE FARMING:

→It is the modern system of farming done on large farms.

→It is also known as mechanical farming due to extensive use of machines.

→Extensive farm raises only one crop a year.

→Employment of labour and capital per hectare of land is comparatively less.

→It is practiced in sparsely populated areas like USA, Canada, Russia and Australia.

PLANTATION AGRICULTURE.

→This is a type of agriculture which involves growing and processing of a single cash crop purely meant for sale. Rubber, tea, coffee, spices, coconut, sugarcane, banana, etc. are important plantation crops.

→ Tea is mainly produced in the tea gardens of Assam and North Bengal, coffee is produced in Tamil Nadu, and banana is produced in Bihar and Maharashtra.

→ Plantation requires a well-developed network of transport and communication, processing industries and a good market.

FEATURES:

→ It is a single crop farming.

→ It is a capital-intensive farming, i.e., a huge amount of capital is required, and a large number of workers.

→ It needs vast estates, managerial ability, technical know-how, sophisticated machinery, fertilisers, good transport facilities and a factory for processing.

→ This type of agriculture has developed in areas of north-eastern India, Sub-Himalayan region, West Bengal and Nilgiri.(Kerala, Karnataka, Assam and Maharashtra.)

→ A particular or single sown crop like rubber, tea, coconut, coffee, cocoa, spices and fruit crops etc. Is sown and the yield is generally obtained continuously for a number of years.

→ Plantation agriculture requires a long growing period.

COMMERCIAL FARMING

→ The main characteristic of this type of farming is the use of higher doses of modern inputs, e.g. high yielding variety (HYV) seeds, chemical fertilizer's, insecticides and pesticides in order to obtain higher productivity.

→ The degree of commercialization of agriculture varies from one region to another.

→ For example, Punjab, Haryana, Western UP and some parts of Maharashtra are the areas where commercial farming is done on large scale.

→ However, this type of farming is also done in many other states; like Bihar, West Bengal, Tamil Nadu, etc.

→ Wheat, cotton, sugarcane, corn etc. Are some of the commercial crops.

FEATURES OF COMMERCIAL FARMING:

(I) Higher doses of modern inputs are used

(ii) It uses High Yielding Variety (HYV) of seeds, chemical fertilizers, insecticides and pest higher productivity

(iii) Modern techniques and scientific methods of cultivation are practiced. Productivity as high. It is a mechanized and commercialized farming. Is

(iv) The main objective of this farming is to earn money and foreign exchange.

(v) The degree of commercialization of agriculture varies from one region to another. For example, rice is a commercial crop in Haryana and Punjab, while in Odessa, it is a subsistence crop.

DRY LAND FARMING:

→ In dry land farming moisture is maintained by raising special type of crops.
→ Gram jowar, bajra and peas are such crops which need less water.
→ This is practiced in dry areas of the country such as western, north-western India and central India.
→ It is practiced in low rainfall areas or where there is inadequate irrigation facility.

WET LAND FARMING:

A. BASIC CLASSIFICATION
i. Wet land farming depends mainly upon rains, so it is practiced in high rainfall or well irrigated areas.
ii. In this type of farming rice, jute and sugarcane are grown.
iii. This type of farming is prevalent in the north, north-eastern India and on the slopes of the Western Ghats.

B. ON THE BASIS OF CROPPING PATTERN

→ Different crops grown in an area at a particular point of time is called cropping pattern.
→ Cropping pattern depends on climate (temperature, rainfall, wind etc.), soil, support price, value, demand - market, labor availability, historical setting, etc.

I. KHARIF CROPS

→ Sown in June-July when rains first begin (Monsoon crop).
→ Harvested in September-October.
→ Requires lot of water and hot weather to grow.
→ Example: Rice, Jowar, Bajra, Maize, Cotton, Groundnut, Jute, Sugarcane, Turmeric, Pulses (like Urad Dal) etc.
→State: Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra

II. RABI CROPS

→ Sown in October-November
→ Harvested in April-May.
→Requires warm climate for germination of seeds and maturation and cold climate for the growth.
→ Example: Wheat, Oat, Gram, Pea, Barley, Potato, Tomato, Onion, Oil seeds (like Rapeseed, Sunflower, Sesame, Mustard) etc.
→ State: Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh

III. ZAID CROPS

→ Grown between March-June between Rabi and Kharif crop seasons. Zaid crops are grown in short season of summer.
→ Early maturing crops.
→ Example: Cucumber, Bitter Gourd, Pumpkin, Watermelon, Muskmelon, Moong Dal etc.
→ State: Most of the northern and northwestern states

CATEGORIES OF CROPS IN INDIA

→ The major crops can all be divided into four main categories depending on their usage.
1. Food Crops (Wheat, Maize, Rice, Millets and Pulses
2. Cash Crops (Sugarcane, Tobacco, Cotton, Jute and Oilseeds etc.)
3. Plantation Crops (Coffee, Coconut, Tea, and Rubber etc.)
4. Horticulture crops (Fruits and Vegetables)

MAJOR FOOD CROPS

RICE

→ It is a kharif crop
→ Temperature: Between 22-32°C with high humidity.
→ Rainfall: Around 150-300 cm.
→ Soil Type: Deep clayey and loamy soil.
→ Top Rice Producing States: West Bengal > Punjab > Uttar Pradesh > Andhra Pradesh > Bihar > Orissa > Chhattisgarh > Assam > Tamil Nadu > Haryana.
→ It is the staple food crop of majority of Indian people. India is the second largest producer of rice in the world after China.
→ In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are Aus, Aman and Boro.
→ National Food Security Mission, Hybrid Rice Seed Production and Rashtriya Krishi Vikas Yojana are few government initiatives to support rice cultivation.
→ Varieties: Aman, Sali, Afghani, Aus, Boro, Palua
→ Highest per Hectare Yield : Punjab
→ Research Centre : Cuttack, Odisha

WHEAT

→ It is the 2nd most important food crop in India. It is a Rabi crop.
→ It is more flexible in terms of climactic and other conditions of growth.
→ India is the second largest producer after China.
→ This is the second most important cereal crop and the main food crop, in north and north-western India.
→ Success of Green Revolution contributed to the growth of Rabi crops especially wheat.
→ Temperature: Between 10-15°C (Sowing time) and 21-26°C (Ripening & Harvesting) with bright sunlight.
→ Rainfall: Around 75-100 cm.
→ Soil Type: Well-drained fertile loamy and clayey loamy (Ganga-Satluj plains and black soil region of the Deccan)
→ Top Wheat Producing States: Uttar Pradesh > Punjab > Madhya Pradesh > Haryana > Rajasthan> Bihar > Gujarat> Maharashtra> West Bengal> Uttarakhand.
→ Highest per Hectare Yield: Punjab
→ Research Centre: Karnal, Haryana
→ Macro Management Mode of Agriculture, National Food Security Mission and Rashtriya Krishi Vikas Yojana are few government initiatives to support wheat cultivation.

MAIZE:

→ It is a crop which is used both as food and fodder.
→ It is a kharif crop
→ It requires temperature between 21° C to 27° C
→ It grows well in old alluvial soil.
→ In some states like Bihar maize is grown in rabi season also.
→ Use of modern inputs such as High-Yielding Variety seeds, fertilizer's and irrigation have contributed to the increasing production of maize.
→ Top Maize Producing States: Karnataka>Maharashtra > Madhya Pradesh > Tamil Nadu > Telangana
→ India is the seventh largest producer worldwide.
→ Technology Mission on Maize is one of the government's initiatives for maize.
→ Research Centre: Hyderabad, Telangana.

MILLETS (NUTRI-CEREALS)

→ Jowar, bajra and ragi are the important millets grown in India. These are known as coarse grains, they have very high nutritional value.

A. JOWAR

i. Jowar is the third most important food crop with respect to area and production.
ii. It is a rain-fed crop mostly grown in the moist areas which hardly needs irrigation.
iii. Maharashtra is the largest producer of jowar followed by Karnataka, Andhra Pradesh and Madhya Pradesh.

B. BAJRA

i. Bajra grows well on sandy soils and shallow black soil.
ii. Rajasthan is the largest producer of bajra followed by Uttar Pradesh, Maharashtra, Gujarat and Haryana.

C. RAGI

i. Ragi is very rich in iron, calcium, other micro nutrients and roughage.
ii. Ragi is a crop of dry regions and grows well on red, black, sandy, loamy and shallow black soils.
iii. Karnataka is the largest producer of ragi followed by Tamil Nadu. Apart from these states, Himachal Pradesh, Uttaranchal, Sikkim, Jharkhand and Arunachal Pradesh are also important for the production of ragi.

→ Top Millets Producing States: Rajasthan > Karnataka > Maharashtra > Madhya Pradesh > Uttar Pradesh
→ National Agricultural Insurance Scheme, Initiative for Nutritional Security through Intensive Millets Promotion are examples of government's efforts to support millet production.
→ Research Centre: Hyderabad, Telangana.

PULSES:

→ Temperature: Between 20-27°C
→ Rainfall: Around 25-60 cm.
→ Soil Type: Sandy-loamy soil.
→ Top Pulses Producing States: Madhya Pradesh > Rajasthan > Maharashtra > Uttar Pradesh > Karnataka.
→ India is the largest producer as well as the consumer of pulses in the world.
→ These are the major source of protein in a vegetarian diet.
→ Major pulses grown in India are tur (arhar), urad, moong, masur, peas and gram.
→ Being leguminous crops, all these crops except arhar help in restoring soil fertility by fixing nitrogen from the air. Therefore, these are mostly grown in rotation with other crops.
→ National Food Security Mission for Pulses, Pulses Development Scheme and Technological Mission on Pulses are few of the government's plans to support pulses production.
→ Research Centre: Kanpur, Uttar Pradesh.

SUGARCANE

(1) Sugarcane is the cash crop produced as a tropical crop in both North India and South India.
(2) It is the raw material for the sugar industries and many other beverage cola producing industries. Sugar mill produces the sugar crystals by crushing the sugarcane stems.
(3) The left over material after crushing is called **biogases**, which can be a good ingredient for paper industry
(4) The service of transportation of the sugarcanes after harvesting to the factory sites is very important; otherwise the juice can get dried up.
(5) That is why, the role of service sector is so vital to make the connection of agricultural and industrial sectors strongly bonded.
(6) Sugarcane is an important cash crop. India stands at 2nd position among all countries in the world in its production.

→ **Temperature:** Between 21-27°C with hot and humid climate.
→ **Rainfall:** Around 75-100 cm.
→ **Soil Type:** Clayey Loamy Soil/ Black Cotton Soil/ Red Loamy Soil/ Brown Loamy Soil
→ **Top Sugarcane Producing States: Uttar Pradesh > Maharashtra > Karnataka > Tamil Nadu > Bihar.**
→ India is the **second largest producer of sugarcane after Brazil.**
→ It can be grown on all variety of soils ranging from sandy loam to clay loam given these soils should be well drained.
→ It needs manual labour from sowing to harvesting.
→ It is the main source of **sugar, gur (jaggery), khandsari and molasses.**
→ **Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU)** and **National Policy on Biofuels** are two of the government initiatives to support sugarcane production and sugar industry.
→ It is a kharif crop
→ Highest Producer: Uttar Pradesh
→ Highest per Hectare Yield: Tamil Nadu
→ Research Centre: Lucknow
→ Highest Producing Country: Brazil

OIL SEEDS:

→ India was the second largest producer of groundnut in the world after china.
→ In rape seed production India was third largest producer in the world after Canada and China in 2008.
→ Different oil seeds are grown covering approximately 12 per cent of the total cropped area of the country.
→ Main oil-seeds produced in India are groundnut, mustard, coconut, sesamum (til), soyabean, castor seeds, cotton seeds, linseed and sunflower.
→ Most of these are edible and used as cooking mediums. However, some of these are also used as a raw material in the production of soap, cosmetics and ointments.
→ Yellow Revolution and Integrated Scheme on Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) are examples of government initiatives for oilseeds.
→ Groundnut is a kharif crop and accounts for about half of the major oilseeds produced in the country.
→ Gujarat was the largest producer of groundnut followed by Andhra Pradesh and Tamil Nadu in 2011-12. Linseed and mustard are rabi crops.
→ Sesamum is a kharif crop in north and rabi crop in south India.
→ Castor seed is grown both as rabi and kharif crop.

TEA

→ Tea is an evergreen plant that mainly grows in tropical and subtropical climates.
→ Tea is a labour intensive crop and 50% of the labourers are women. It requires abundant, cheap and skilled labour.
→ It grows faster under light shade. Commercial cultivation of tea started the eastern hill slopes of India by the British.
→ India is the 2nd largest producer and the largest consumer of tea in the world.
→ Tea plants require high rainfall but its roots cannot tolerate water logging. Hence, it requires sloppy areas.
→ Slopes of eastern hills have humid climate and evenly distributed rainfall without water logging which are optimal conditions for terrace farming of tea.
→ Tea is processed within the tea garden to retain its freshness.
→ Temperature: Between 20-30°C
→ Rainfall: Around 150-300 cm.
→ Soil Type: Deep and fertile well-drained soil, rich in humus and organic matter.
→ Top Tea Producing States: Assam > Darjeeling (West Bengal) > Tamil Nadu.
→ Tea Development and Promotion Scheme, Wage Compensation Scheme and Tea Boutiques are few of the government schemes for tea.
→ Highest Producer: Assam
→ Research Centre: Tocklai, Assam
→ Highest Producing Country: China

COFFEE

→ Coffees are grown in shade and commonly with two tiers of shade.
→ Growing altitudes of coffee range between 1,000 to 1,500 m above sea level for Arabica (premier coffee), and 500 to 1,000 m for Robusta (lower quality). Both
→ Temperature: Between 15-28°C
→ Rainfall: Around 150-250 cm.
→ Soil Type: Well drained, deep friable loamy soil.
→ Top Coffee Producing States: Karnataka > Kerala > Tamil Nadu.
→ India is the seventh largest producer.
→ Coffee was initially brought from Yemen and introduced on the Bab Budan Hills.
→ Hills with well-defined shade canopy, comprising evergreen leguminous trees provide the optimal condition for coffee cultivation that is why it is mainly concentrated in the hilly regions.
→ Indian variety of coffee 'Arabica' is famous worldwide.
→ Various Integrated Coffee Development Projects and schemes have been launched by the government to support coffee production.
→ Highest Producer: Karnataka
→ Highest Producing Country: Brazil
→ Research Centre: Chikmagalur, Karnataka

HORTICULTURE CROPS

→ Horticulture is the branch of agriculture concerned with cultivation, production and sale of fruits, vegetables, flowers, herbs, ornamental or exotic plants.
→India was the second largest producer of fruits and vegetables in the world after China.
→ India is the second largest producer of fruits and vegetables and it produces both tropical and temperate fruits.
→ India produces about 13 percent of the world's vegetables. It is an important producer of peas, cauliflower, onions, cabbage, tomato, brinjal and potato.
→ Golden Revolution, Mission for Integrated Development of Horticulture (MIDH) and Coordinated Horticulture Assessment and Management using geo-informatics (Project CHAMAN) are government initiatives to help horticulture sector.

FRUITS	STATES
Mangoes	Maharashtra, Andhra Pradesh, Telangana, Uttar Pradesh and West Bengal
Oranges	Nagpur and Cherrapunjee (Meghalaya) Bananas Kerala, Mizoram, Maharashtra and Tamil Nadu
Litchi and Guava	Uttar Pradesh and Bihar
Pineapples	Meghalaya
Apples, Pears, Apricots and Walnuts	Jammu and Kashmir and Himachal Pradesh
Grapes	Andhra Pradesh, Telangana and Maharashtra

RUBBER

→ It is an equatorial crop, but under special conditions, it is also grown in tropical and sub-tropical areas.
→ Rubber is an important industrial raw material.
→ Thailand is the leading Rubber producing country in the world. Thailand is followed Indonesia and China at the second and third place respectively.
→ India stands at fourth position in Rubber production.
→ Temperature: Above 25°C with moist and humid climate.
→ Rainfall: More than 200 cm.
→ Soil Type: Rich well drained alluvial soil.
→ Top Rubber Producing States: Kerala > Tamil Nadu > Karnataka.
→ Rubber Plantation Development Scheme and Rubber Group Planting Scheme are examples of government led initiatives for rubber.
→ Research Centre: Kottayam, Kerala

FIBRE CROPS:

→ Cotton, jute, hemp and natural silk are the four major fibre crops grown in India.
→ Rearing of silk worms for the production of silk fibre is known as sericulture.

COTTON

→ Cotton is a tropical and subtropical Kharif crop and requires 6 to 8 months to mature.
→ It is a fibre crop and is known as 'White gold'.
→ India ranks 3rd in the production of cotton worldwide.
→ It is a dry crop but roots need timely supply of water at maturity.
→ Temperature: Between 21-30°C
→ Rainfall: Around 50-100cm.
→ Soil Type: Well drained black cotton soil of Deccan Plateau.

→ Varieties: Long Staple, Medium Staple, Short Staple
→ Top Cotton Producing States: Gujarat > Maharashtra > Telangana > Andhra Pradesh > Rajasthan.
→ India is believed to be the original home of the cotton
→ plant. Cotton is one of the main raw materials for cotton textile industry.
→ Cotton needs 210 frost-free days and bright sun-shine for its growth.
→ Silver Fibre Revolution and Technology Mission on Cotton are the government initiatives for increasing cotton production in India.
→ Cotton has been genetically modified into BT Cotton to fight environmental stress and pest attacks.
→ Highest Producer: Gujarat (2015 report)
→ Research Centre: Nagpur, Maharashtra
→ Highest Producing Country: China

JUTE

→ Jute is a tropical plant that requires hot and humid climate.
→ It is one of the most important natural fibres in terms of cultivation and usage.
→ Almost 85% of the world's jute is cultivated in the Ganges Delta.
→ It is a fibre crop and is known as the golden fibre.
→ Temperature: Between 25-35°C
→ Rainfall: Around 150-250 cm
→ Soil Type: Well drained alluvial soil
→ Type of Crop: Zaid
→ Varieties: White Jute, Tossa Jute
→ Top Jute Producing States: West Bengal > Bihar > Assam > Andhra Pradesh > Odisha.
→ It is mainly concentrated in eastern India because of the rich alluvial soil of Ganga-Brahmaputra delta.
→ Highest Producer: West Bengal
→ India is the largest producer of jute. (but highest exporter is Bangladesh)
→ It is used in making gunny bags, mats, ropes, yarn, carpets and other artefacts.
→ Due to its high cost, it is losing market to synthetic fibres and packing materials, particularly nylon.
→ Golden Fibre Revolution and Technology Mission on Jute and Mesta are two of the government initiatives to boost jute production in India.
→ Research Centre: Kolkata & Nilgunj, West Bengal

SPICES

→ India has been known for its spices since ancient times.
→ Cardamom (Queen of Aromatic Spices) – Assam, Kerala, Tamil Nadu
→ Pepper (King of Spices) – Kerala
→ Chillies – Andhra Pradesh, Maharashtra, Odisha, Rajasthan
→ Turmeric – Andhra Pradesh, Karnataka, Tamil Nadu Nutmeg – Kerala
→ Arecanut – Kerala, Karnataka, Tripura, Assam
→ Coconut – Kerala, Tamil Nadu, Karnataka, Andhra Pradesh
→ Cinnamon – Kerala Clove – Kerala
→ Ginger – Kerala, Meghalaya, Sikkim

TECHNOLOGICAL AND INSTITUTIONAL REFORMS

→ More than 60 percent of India's population depends on agriculture.
→ After independence, major institutional reforms such as Collectivisation, consolidation of holdings, cooperation and abolition of zamindari, etc. were given priority.
→ In 1960s and 1970s, technical reforms such as Green Revolution and White Revolution also introduced to improved the condition of agriculture.
→ In 1980s and 1990s, various provisions for crop insurance, establishment of Grameen banks, cooperative societies and banks for providing loan facilities to the farmers at lower rates of interest.
→ Kissan Credit Card (KCC), Personal Accident Insurance Scheme (PAIS) are some other schemes introduced by the Government of India for the benefit of the farmers.
→ Special weather bulletins and agricultural programmes for farmers were introduced on the radio and television.
→ Minimum support price, remunerative and procurement prices for important crops to check the exploitation of farmers by speculators and middlemen. Contribution of agriculture to the national economy, employment and output
→ In 2010-11 about 52 percent of the total workforce of India was employed by the farm sector.
→ India's GDP growth rate is increasing over the years but it is not generating sufficient employment opportunities in the country.

BHOODAN – GRAMDAN & LAND REFORMS

→ Land reform was the main focus of the First Five Year Plan. Vinoba Bhave started the Bhoodan Andolan to encourage big landlords to donate a part of their land to the landless farmers.
→ Many people came out in support of Vinoba Bhave and donated land.
→ Small plot size hampers proper farm management. To improve the condition, the government brought certain measures for land reform.
→ In some states, land was redistributed so that all of the land owned by a farmer could come on a single plot.
→ The reform was successful in some states (like Punjab and UP) but could not be implemented throughout the country, because of poor response by farmers.

GREEN REVOLUTION: Green Revolution was started in the 1960s and 1970s to improve farm output. Use of new technology and HYV seeds was encouraged.
→ Green revolution produced very good results; especially in Punjab and Haryana.

WHITE REVOLUTION: White Revolution (Operation Flood) was initiated to improve milk production in the country.
→ A comprehensive land development programme was launched in the 1980s and 1990s. These programmes included both institutional and technical reforms. Provision for crop insurance was made against drought, flood, cyclone, fire and disease.

→ Gramin banks and cooperative societies were opened in rural areas so that farmers could get access to loan facilities.
→ Kissan Credit Card (KCC), Personal Accident Insurance Scheme (PAIS) and many other schemes were introduced for the benefit of farmers.
→ The government owned radio and TV channels broadcast special weather bulletins and agricultural programmes. Government also announced MSP (Minimum Support Price) so that farmers can be saved from exploitation by middlemen.

CURRENT SCENARIO:

→ The growth in agricultural sector is going down. Reduction in import duties on agricultural products means that farmers are facing tough competition from international markets.
→ Investment is not coming into agriculture and hence employment opportunities are also showing de-growth in this sector.
→ The share of agriculture in GDP has being declining from 1951 onwards. Yet it continues to be the largest employer. About 63% of the total workforce was employed in agriculture in 2001.
→ A decline agriculture can be an alarming situation because it has wider implications for the whole economy.
→ Government is making continuous efforts to modernize agriculture. ICAR (Indian Council of Agricultural Research), agricultural universities, veterinary services, animal breeding centres, horticulture development, R& D in the field of meteorology, etc. are given top priority with an aim to improve Indian agriculture. Government is also taking measures to improve rural infrastructure.

FOOD SECURITY

In order to ensure food security to all sections of society, the government has carefully designed a national food security system.
It has two components:

BUFFER STOCK: Once the government procures food grains through FCI (Food Corporation of India), buffer stock is maintained at various locations. This stock is utilized in case of food shortage at any place. This stock is also utilized in case of natural disasters; like flood and drought.

PUBLIC DISTRIBUTION SYSTEM: PDS is a programme which provides food grains and other essential commodities at subsidised prices to poor people in rural and urban areas.
→The FCI procures food grains from the farmers at the government announced minimum support price (MSP).
→ A person needs to get a ratio card made to avail the benefits of PDS. Separate cards are made for BPL (Below Poverty Line) and APL (Above Poverty Line) families. The PDS is also fed by the FCI.

WHY CROPPING PATTERN IS A DYNAMIC CONCEPT

Cropping pattern is a dynamic concept because it changes over space and time. It can be defined as the proportion of area under various crops at a point of time. Sometimes a number of crops are cultivated in combinations and rotations over a period.

→ In India, the cropping pattern is determined by rainfall, climate, temperature, soil type, technology and socio-economic conditions of the farmers.
→ These changes in the cropping pattern mainly occurred due to increase in the prices of crops. After independence a lot of changes had been recorded in the cropping pattern in India.
→ Green Revolution also led to changes in the cropping patterns. Rice was introduced to Punjab, Haryana and Uttar Pradesh.
→ Cultivation of food crops has become very remunerative and productive due to the introduction of new technologies in Indian agriculture.
→ Farmers are more intensively moving towards cultivation of cash/commercial crops such as oilseeds, fruits, vegetables, spices, etc. from the traditional non-cash/non-commercial crops such as cereals and pulses.
→ Farmers have changed their crop patterns in order to reap the benefits of economic expansion as well.
→ Climate change has affected the Indian monsoon due to which cropping patterns are also changing.
→ Population explosion and urbanization has led to land conversion, boosting intensive farming and has brought changes in cropping patterns.
→ At the beginning of the present century, nearly 83 percent of the total cultivable land of India was put under food crops and the remaining 17 percent was put under non-food crops. But in 1944-45, there was a change in the cropping pattern in India and area under food crops came down to 80 percent and the area under non- food crops slightly increased to 20 percent.
→ Among all the food crops, the largest increase in area since 1950- 51 has already been recorded by wheat cultivation which shows an increase of 132 percent by 1987-88. But in the case of both rice and pulses, the increase in area has been restricted to only 23 percent; Coarse cereals have recorded only marginal increase of 11 percent by 1987-88.