Agriculture

Political Science

Class-10

Agriculture is derived from two Latin words – ***ager*** (field, land, soil) and ***cultura*** (cultivation)

It can be defined as the cultivation of crop plants or livestock (animal farming). It is a *primary activity* which includes farming, fisheries, forestry, horticulture etc. Agriculture also produces raw materials for various industries. 2/3 of India's population is engaged in agriculture.

Types of farming

Primitive Subsistence farming

- Small patches of land are used
- Trees, plants, grass are cut down and burnt to clear the land for cultivation.
- No use of machines or fertilizers. Remaining ash fertilises the soil.
- Productivity is low.
- Production is done for self-consumption.
- Cultivators keep on shifting from one patch of land to another
- This type of farming is harmful to the environment.

Intensive Subsistence Farming

- It is labour intensive farming
- It is practised in high population density areas.
- It is practised in well-irrigated areas.
- Machine tools and fertilizers are used.
- Multiple cropping pattern is adopted.
- The yield per unit is high.

Example: *Rice and wheat*

Regions: *Indo-Gangetic plains in Bihar, West Bengal, UP, and parts of Haryana.*

Commercial Farming

- Crops are raised for markets and earning.
- Modern technology is used.
- Crop specialisation is a feature.
- Cultivators use HYV seeds, chemical fertilizers, pesticides etc.

Example: *Oilseeds, cotton, jute, tea, coffee*

Plantation

- It is a mix of industry and agriculture.

- Large tracts of land are used to grow a single crop for commercial purposes.
- It is capital intensive and migrant labourers are employed.

- It needs well-developed support of transport and communication network.
- Markets play an important role in the feasibility of plantation agriculture.
- ***Example:*** *Banana, rubber, sugarcane, tea etc.*

Cropping Pattern

The physical and cultural *diversities of India are also reflected in agricultural practices* and cropping patterns in our country. Food crops, fibre crops, fruits, spices, condiments etc. are examples of the variety of crops. India has three cropping seasons.

Rabi Crops:

- Rabi crops are grown in winter and from *October to December* and are harvested in summer from *April to June.*
- Such crops get rain due to western temperate cyclones
- It is grown in Punjab, Haryana, Himachal Pradesh, J & K, Uttarakhand and in UP.
- The green revolution has also been an important factor in the growth of Rabi crops in Northern parts of India like Punjab, Haryana, Western Uttar Pradesh, and parts of Rajasthan.
- ***Examples of crops:*** Wheat, barley, peas, gram and mustard.

Kharif crops:

- It is a monsoon cropping season and begins with the onset of monsoon in India.
- It is grown in the month of June and July and harvested in September-October.
- ***Examples of crops:*** Rice, Bajra, Jowar, oilseeds, cotton, pulses like urad, moong, arhar(tur)
- ***Major rice-growing regions:*** Assam, UP, Bihar, W. Bengal, Andhra Pradesh, Andhra Pradesh, Telangana, Tamil Nadu, Kerala, coastal regions of Odisha, Konkan coast (Maharashtra).
- Three paddy crops: ***Aus, Aman*** and ***Boro*** paddy crops are grown in a year in Assam, W. Bengal and Odisha.

Zaid Season

- This is a short season that comes in summer in between Rabi and the Kharif Season.
- The sowing time lies around March.
- Early maturing crops are grown
- ***Example of crops:*** watermelon, bitter gourd, fodder crops, moong dal.

Major Food Crops with Geographical Conditions

Rice (Kharif Crop): It is a major staple food crop of the majority of people in India. It occupies around one-fourth of total crop area grown in India.

Climate: Warm and humid

Rainfall: Above 100cm and standing water required during growth. Different Means of Irrigation help grow rice in less rainfed areas like Punjab and Haryana.

Temperature: High temperature (above 25° C)

Soil type: Clay, loamy fertile soil with good water retention capacity.

Production area: Plains of North and north-eastern India, coastal areas and delta regions.

Leading producers: West Bengal (India) China (world), India ranks 2nd in the world.

Varieties of Rice: Sabarmati, Padma

Wheat (Rabi Crop): It is the 2nd most important crop of India. It occupies around 14% of the crop area in India. The green revolution has made India self-sufficient in wheat production.

Climate: Cool and bright sunlight

Rainfall: 50 – 75 cm, moderate and evenly distributed rain. Water should not stagnate in the wheat field.

Temperature: 15° to 20°C with bright sunshine.

Soil type: Well-drained fertile soil rich in humus and mineral content.

Production area: Ganga-Sutlej plain and black soil region. Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Maharashtra, Bihar, Rajasthan.

Leading producers: Uttar Pradesh (India) China (world), India ranks 2nd in the world.

Varieties of Rice: Sonalika, Heera

A comparative study of differences between wheat and rice farming.

Geological Conditions	Rice	Wheat
Crop type	Kharif	Rabi
Rainfall	Above 100 cm	50 – 75 cm
Temperature	Above 25° C	15 ° C
Producing regions	Plains of North and north-western India	North and north-west
Major Producing States	West Bengal	Punjab

Millets

Crops	Climate		Soil	Leading Producing Regions
	Temperature	Rainfall		
Jowar	20 -3 2° C	30 – 100 cm	Well-drained sandy and loamy soil.	Maharashtra (other states: Karnataka M.P. Tamil Nadu)
	• *Third important crop of India.* • *Needs moist area to grow.*			
Bajra	25 - 30° C	45 cm	Sandy, shallow black soil	Rajasthan (U.P. Maharashtra, Gujrat, Haryana)
	Warm and dry climate			
Ragi	20 - 30° C	60 – 80 cm	Red Black Sandy Loamy Shallow black	Karnataka (Tamil Nadu, Himachal Pradesh, Jammu and Kashmir, Arunachal Pradesh)
	• *Grows in the dry region.* • *Has high nutritional value being rich in iron and calcium and micronutrients*			

Maize:

- It is both, food as well as fodder crop.
- It provides starch and glucose for industrial purpose.
- It is sown as Kharif and in some parts sown as Rabi crop.
- Use of modern technology, HYV seeds, fertilizers, irrigation facilities

Temperature: 21° C - 27° C

Rainfall: 50 – 100 cm

Soil: old alluvial soil

Growing states: Andhra Pradesh, Karnataka, Uttar Pradesh. Bihar, Telangana, Maharashtra, Madhya Pradesh

Leading producers: Andhra Pradesh (India) The USA (World)

Varieties: Ganga, Dhawal

Pulses (Kharif crop)

- India is the largest producer as well as consumer of pulses.
- Major source of protein in vegetarian diet in India.
- It is leguminous crop and therefore sown mostly in rotation with other crops.

Climate: cool, dry, cleaner and frost-free climate

Temperature: 20 – 13°C

Rainfall: 50 – 100 cm

Soil type: Well-drained aerated soil, soil health is improved by fixing atmospheric nitrogen in soil.

Example of Pulses: Arahar, urad, moong

Producing regions: Madhya Pradesh, Uttar Pradesh, Maharashtra, Rajasthan, Karnataka

Leading Producers: Madhya Pradesh (World)

Sugarcane (Cash Crop)

- It is grown for commercial and industrial purposes
- It is a labour-intensive crop
- Sugarcane Products: Jaggery (gur), khandsari, molasses

Climate: Hot, wet-tropical regions, High-solar radiation

Temperature: 21° to 27°C

Rainfall: 75 – 100 %, needs irrigation in case of low rainfall

Soil type: well-drained soil

Producing regions: Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Bihar, Punjab, Haryana

Leading Producers: Uttar Pradesh (India) Brazil (World)

Tea

- Queen of beverages
- Introduced in India by the British in 1823
- Labour intensive and needs abundant cheap and skilled labours.
- Tea is processed within the tea garden

Climate: Tropical and subtropical, warm, moist and frost-free days

Temperature: 20°C to 30° C is the ideal temperature

Rainfall: 150 – 300 cm, evenly distributed showers throughout the year. No waterlogging

Soil type: Deep fertile and well-drained soil, loamy soil acidic in nature, rich in humus and organic matter

Major regions of production: Darjeeling, West Bengal, Tamil Nadu, Kerala

Leading producer: Assam (India) China (World)

Coffee

- Indian varieties are known all over the world for their good quality products
- Varieties Produced: Robusta, Arabica (brought in India from Yemen)

Temperature: 16°C to 28°C

Rainfall: 150 – 250 cm

Soil type: Well-drained forest and loamy soil

Major regions of production: Baba Budan hills and Nigiri hills in Karnataka, Kerala and Tamil Nadu

Leading Producers: Karnataka (India) Brazil (World)

Major Non-Food Crops with Geographical Conditions

Rubber:

- It is obtained from the latex of rubber plant.
- Varieties: wild rubber, synthetic (70 – 80% of total use by people), plantation rubber
- **Uses:** auto tyres and tubes, footers, sports goods, mattresses etc.

Climate: Equatorial, tropical and sub-tropical regions

Temperature: High at 25 to 35°C

Rainfall: Annual rainfall above 200cm throughout the growing period.

Soil type: Loamy soil

Major Producing Regions: Kerala, Tamil Nadu, Karnataka, Andaman Nicobar Islands, Garo hills in Meghalaya

Highest Producer: Kerala (India) Thailand (World) India ranks 4th in the world

Cotton (Fibre Crop)

- It is also called universal fibre owing to its worldwide use
- India is its original home
- It is a raw material for cotton textiles industries
- It is a labour-intensive crop
- Different categories: Long staple, short-staple, mediums staple

Climate: It is a Kharif crop and needs 210 frost-free days and bright sunshine.

Temperature: Hight at 20°C to 30°C

Soil type: Black soil

Maturing time: 6 to 8 months

Producing regions: Maharashtra, Gujrat, Madhya Pradesh, Telangana, Tamil Nadu, Karnataka, Haryana, Punjab

Highest Producers: Gujrat (India) China (World) India is the 2nd largest producer of cotton.

Jute: (Fibre Crop)

- It is also called 'Golden Fibre'
- Uses: Gunny bags, mats, ropes, yarn, artefacts
- It is losing market as it is costly and also facing competition from synthetic fibres

Temperature: 20 to 30 °C

Rainfall: Plenty of rainfall (150-20 cm)

Soil type: Well-drained fertile soil renewed every year, sandy and loamy soil

Maturing time: 8 – 10 months

Growing regions: Flood-plains, Ganga-Brahmaputra delta region, W. Bengal, Bihar, Odisha, Meghalaya

Highest Producers: W. Bengal (World)

Highest Exporter: Bangladesh in the world.

Oil Seeds:

- Covers approximately 12 per cent of the total cropped area of the country
- ***Uses:*** edible oil for cooking. Raw material to produce soaps, cosmetics, ointments, paints etc. Oil cake is used as fertilizer and to feed cattle with fodder.

Crop	Season
Groundnut • *accounts for about half of the major oilseeds produced in the country)* • *Gujrat leads followed by Rajasthan and Tamil Nadu*	Kharif
Lin seed	Rabi
Mustard	Rabi
Sesamum	Kharif in North and Rabi in South
Castor	both as rabi and Kharif

Horticulture (cultivation of fruits and vegetables)

Crop		Growing regions
Mango	*India is the leading producer both tropical and temperate fruits as well as vegetables like pea, cauliflower, onion, cabbage, tomato, brinjal and potato.*	Maharashtra, Andhra Pradesh, Telangana, Uttar Pradesh and West Bengal
Orange		Nagpur and Cherrapunjee (Meghalaya)
Banana		Kerala, Mizoram, Maharashtra and Tamil Nadu
Pineapple		Meghalaya
Grapes		Andhra Pradesh, Telangana and Maharashtra
lichi and guava		Uttar Pradesh and Bihar
Apple, pears, apricots and walnuts		Jammu and Kashmir and Himachal Pradesh

Technological and Institutional Reforms

Agriculture has been the main mainstay of most of the people in India. Lack of incorporating techno-institutional changes in the sustained use of land has affected the growth of agricultural development. Indian agricultural is still more dependent on rain and natural fertility of the soil. Various technical and institutional reforms need to be introduced and implemented to make Indian agriculture the support of 60% of the farmer population in India. Some of such reforms are discussed below.

Institutional Reforms

- Collectivisation and consolidation of landholdings.
- Abolition of zamindari system
- Land Reforms was the main focus of the First Five Year Plan.

Agrarian Reforms

- India govt introduced agricultural reforms to improve Indian agriculture in the 1960s and 1970s
- The Green Revolution based on package technology and the White Revolution (Operation Flood) were the strategies adopted to improve agricultural productivity and milk production.
- A comprehensive land development programme was initiated in the 1980s and 1980s.
- Gramin banks and cooperative societies were established to extend loan facilities to farmers at lower interest rates.

Schemes for farmers

- Kisan Credit Card (KCC)
- Personal Accident Insurance Schemes (PAIS)
- Crop insurance against drought, flood, cyclone, fire and disease
- Subsidy on purchase of seeds, fertilisers etc.
- Announcement of minimum support prices (MSP) to procure agricultural products directly from farmers to check exploitation of farmers by middlemen and speculators.
- Use of media like DD Kisan Channel and weather bulletins on radio
- Gramin Banks and cooperative societies provide loans to farmers at lower rates of interest.

Contribution of Agriculture to the Indian economy

- Agriculture is the backbone of the Indian economy as most of the people, around 52% (years 2010-110), are engaged in the agriculture sector for their sustenance.
- The matter of concern is that the share of agriculture has been on the decline since 1951. This decline affects other sectors of the economy and ultimately its effect is felt by society. Share of the three sectors is as - Agriculture: 17.9%, Industrial sector: 24.2%, Services sector: 57.9%
- Government took some corrective measures to modernise agriculture. Some of them are listed below.
    - Indian Council of Agricultural Research (ICAR) was established in
    - Agricultural universities were set up.
    - Veterinary services and animal breeding centres were opened.
    - The government gave priority to promoting horticulture development, research and development in the field of meteorology and weather forecast etc
    - Efforts to improve rural infrastructure was also considered important.

Some reasons behind the decelerating growth of Indian Agriculture (low employment in agriculture)

- Indian farmers are facing competition from developed countries in the international market
- Government is reducing investment in agriculture sector especially in irrigation, power, rural roads, mechanisation etc
- Government is also reducing subsidies on agricultural inputs like fertilisers.
- Reduction in import duties on agriculture products.
- Farmers are losing interest in investment in the agriculture sector.

Impact of globalisation on Indian agriculture

- International trade is an important factor in globalisation and India was part of it during colonisation. Indian spices were exported to the world and are still an important part of Indian export items.
- The British showed interest in the cotton belt of India and cotton was exported as raw material to England to feed the cotton industries there in cities like Manchester and Liverpool. Indigo was also in demand in England and the farmers were forced to grow indigo in place of food crops.
- After 1909, the Indian farmers have been facing competition in the international market from developed countries who provide heavy subsidy to farmers.

Today Indian agriculture is at the cross roads

- Proper thrust should be given to improve the condition of the marginal and small farmers.
- Green Revolution increased production but at the same time, the heavy doses of fertilisers, pesticides and chemicals have degraded land and affected biodiversity.
- The keyword today is 'gene revolution' which is based on genetic engineering that helps in inventing HYV seeds.
- Environment friendly organic farming should be adopted to avoid use of chemical elements that affect environment and degrade land.
- Some economists do not see future for farmers in traditional farming on small land holdings. Rural population is about 833 million (2011 census) and available agricultural land is about 250 million that amounts to half a hectare per person. Farmers should diversify the cropping pattern.
- Diversified farming should be adopted. Pattern of cropping should move toward growing high-value crops like fruits, medicinal herbs, flowers vegetables, bio-diesel crops like jatropha and jojoba. Such crops increase income as well as reduce environment degradation. The diverse climate of India permits the growth of wide variety of high-value crops.

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