Agriculture | Easy and detailed notes for class 10th | NCERT

Introduction : A brief discussion about primary sector

Agriculture is a primary activity.

- It produces food grains as well as raw material for various industries.
- Agriculture sector is known as the backbone of the Indian Economy as two-thirds of its population is engaged in agricultural activities.
- Many agricultural products like tea, coffee, spices, etc. are also exported.
- Although it employs many people, however it contributes less as compared to other sectors. Still it is considered a very important sector because it is the sector which not only provides employment to the people in the primary sector but also helps other sectors as well to run their businesses.

Types of Farming :

People use different methods to cultivate the land due to differences in physical environment, technological know-how and socio-cultural practices. let's discuss some of the ways they use :-

Subsistence farming :

- This type of farming is basically for fulfilling self consumption needs. It can be further divided into two categories :-

A. Primitive Subsistence Farming :

- It is practiced on small patches of land.
- Primitive tools like hoe, dao and digging sticks are used.
- It depends upon monsoon, natural fertility of the soil and suitability of other environmental conditions.
- Moreover, It is a slash and burn agriculture which is known by different names in different places.
- It is also known as shifting agriculture as farmers shift from one place to another. They clear a patch of land and produce food crops to sustain their family and shift to a fresh patch of land when the soil fertility decreases in order to let nature work for regaining its fertility.
- It is known as Jhumming in north-eastern states like Assam, Meghalaya, Mizoram and Nagaland; Pamlou in Manipur, Dipa in Bastar district of Chhattisgarh, and in Andaman and Nicobar Islands. Milpa in Mexico and Central America etc.

B. Intensive Subsistence Farming :

- It is practiced in the areas of high population pressure on land.
- Due to which farmers use high doses of chemical inputs for obtaining higher production in order to fulfill the consumption needs of a large population.
- It is a labor-Intensive farming.
- It is practiced in some parts of Rajasthan, Uttar Pradesh, Madhya Pradesh.

2. Commercial farming :

This type of farming is practiced for commercial purposes.

- Higher doses of modern inputs are used to obtain higher productivity.
    - For example :- High yielding variety (H.Y.V) seeds, chemicals, fertilizers, insecticides and pesticides.
- Crops can be grown for commerce or subsistence. It depends on the production of that very product.
    - For example :- Rice is a commercial crop in Haryana and Punjab but in Odisha, it is subsistence crop.
- Plantation is another type of commercial farming. In this farming single crop is grown on a large area.
    - It is practiced on large tracts of land by using capital intensive inputs.
    - In India, tea, coffee, rubber, sugarcane and bananas. etc. are important plantation crops.
    - Tea in Assam and North Bengal, coffee in Karnataka are grown mainly for production in the market.

Cropping Pattern :

It is different in different parts due to physical diversities and plurality of culture in India. There are three cropping seasons.

1. Rabi
2. Kharif
3. Zaid

1. **Rabi Crops** :- These are sown in winter from October to December and harvested in summer from April to June.
    - *Important Rabi Crops* – Wheat, barley, peas, gram and Mustard.
    - Rabi crops are mainly grown in large part of Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh.
    - Growth of Production of wheat (Rabi crop) in Punjab, Haryana, Western Uttar Pradesh and parts of Rajasthan is the result of Green Revolution which was successful in these states.
2. **Kharif Crops –** These crops are grown with the onset of monsoon in different parts of the country and these are harvested in September – October.
    - *Important crops* – Paddy, Maize, Jowar, Bajra, Tur (arhar), moong, Urad, Cotton, Jute, Groundnut and soyabean.
    - Important Rice growing regions are Assam, West Bengal, Coastal regions are Assam, West

Bengal , coastal regions of Odisha, Andhra Pradesh, Telangana, Particularly the (Konkan coast) along with Uttar Pradesh and Bihar.
    - Three crops of paddy are grown in a year which are Aus, Aman and Boro.
3. **Zaid Crops :-** In between the Rabi and the Kharif seasons there is a short season during the summer months known as the Zaid season.
    - Crops : Watermelon, Muskmelon, Cucumber, Vegetables, fodder crops and sugarcane which takes almost a year to grow.

Major Crops :-

1. Food Crops
    - Grains : Rice, Wheat, Millets, Pulses.
    - Other than Grains : Sugarcane, tea, coffee.
2. Non Food Crops : Rubber, Fibre crops; cotton, Jute.
3. Horticulture Crops : Fruits and Vegetables.

Food Crops :

Rice:

- In India, It is a regular diet of a majority of the people.
- **India is the second largest producer of rice** in the world after China.
- Rice is Kharif Crop.
- It requires high temperature (above 25 degree Celsius) and high humidity with annual rainfall above 100 cm.
- Moreover, It can also be grown in the areas of less rainfall with the help of irrigation.
- Furthermore, It is grown in the plains of north and north-eastern India, coastal areas and the deltaic regions.
- For example – Punjab, Haryana and Western Uttar Pradesh and parts of Rajasthan.

Wheat:

- It is main food crop in north and north-western part of the country.
- Wheat is Rabi Crop.
- It requires a cool growing season and bright sunshine at the time of Ripening.
- Also, It requires 50 to 75 cm annual rainfall.
- There are two important wheat growing zones in the country – Ganga – Satluj plains in the north-west and black soil region of the Deccan.
- The major wheat producing states are Punjab, Haryana, Uttar Pradesh, Bihar, Rajasthan and parts of Madhya Pradesh.

Millets:

- Millets are also known as coarse grains. They have high nutritional value.
- **Sorghum** is the third most important food crop with respect to area and production.

- **Jowar** grows in moist areas.
    - Major Jowar producing states are Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh.
- **Bajra** grows well on sandy soil and shallow black soil.
    - Major Bajra producing states are Rajasthan, Uttar Pradesh, Maharashtra, Gujarat and Haryana.
- **Ragi** grows well on red, black, sandy, loamy and shallow black soil as it is a dry region crop.
    - Major Ragi producing states are Karnataka, Tamil Nadu, Himachal Pradesh, Uttarakhand, Sikkim, Jharkhand and Arunachal Pradesh.
- **Maize** is a crop which is used both as a food and fodder. It is a kharif crop but in some states like Bihar, It can be grown in Rabi season. It requires a temperature between 21 to 27 degree Celsius and grows well in old alluvial soil.
    - Major Maize producing states are Karnataka, Uttar Pradesh, Bihar, Andhra Pradesh, Telangana and Madhya Pradesh.

Pulses:

- **India is the largest producer as well as the consumer of pulses** in the world.
- Major Pulses are tur (arhar), urad, moong, masur, peas and gram in India.
- They need less moisture and survive even in dry conditions.
- Except Arhar, pulses help in restoring soil fertility by fixing nitrogen from the air.
- Major pulse producing states are Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharashtra and Karnataka.

Food Crops other than Grains :-

Sugarcane :

- Sugarcane is a tropical as well as a subtropical crop.
- It grows well in hot and humid climate with a temperature of 21 to 27 degree Celsius.
- It requires annual rainfall between 75 cm and 100 cm.
- Furthermore, It grows in variety of soils and needs manual labor from sowing to harvesting.
- **India is the second largest producer of sugarcane** after Brazil.
- Additionally, It is the main source of sugar, jaggery, Khandsari and molasses.
- The major sugar producing states are Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Bihar, Punjab and Haryana.

Oil Seeds:

- Main oil-seeds produced in India are groundnut, castor seeds, cotton seeds, linseed, mustard, coconut, Sesamum, Soyabean, sunflower.
- Groundnut is a kharif crop. It is an important oilseed crop in India which occupies first position in terms of area and second position in terms of production. Gujarat was the largest producer of groundnut in 2015-16.
- **India is the third largest producer of rapeseed** after Canada and China.

- Linseed and mustard are Rabi crops.
- Sesamum is a kharif crop in north and Rabi crop in south India.
- Castor seed is both Rabi as well as kharif crop.
- Different oil seeds are grown covering approximately 12 percent of the total cropped area of the country.

Tea: (Plantation Agriculture)

- Tea cultivation is an important beverage crop.
- The Tea plant grows well in tropical and subtropical climates.
- It grows well in deep and fertile well-drained laterite soil, rich in humus and organic matter.
- Besides, it grows best in regions which enjoy a warm, humid climate with rainfall measuring at least 100-150 cm a year. However, a good rainfall ranges between 150 to 250 cm.
    - Note: The rainfall should be evenly distributed throughout the year for the growth of tender leaves.
- Tea is a labor intensive industry.
    - It requires cheap and skilled labor.
- Major tea producing states are Assam (hills of Darjeeling and Jalpaiguri districts), West Bengal, Tamil Nadu and Kerala.
- Other tea producing states are Himachal Pradesh, Uttarakhand, Meghalaya, Andhra Pradesh and Tripura.
- Moreover, **India is the second largest producer of tea** after China.

Coffee:

- **India is among the top 10 coffee-producing countries**. It produces about 3% of the world's coffee production.
    - Note: Brazil is the Largest coffee producer.
- Indian coffee is known in the world for its good quality.
    - 'Arabica' is one of the main varieties of coffee which is grown in India.
    - Initially, people brought it from Yemen.
    - This variety is in great demand all over the world.
    - Besides, initially its cultivation was introduced on the Baba Budan Hills.
    - Even today its cultivation is confined to the Nilgiri in Karnataka, Kerala and Tamil Nadu.

Horticulture:

- **India ranks second in fruits and vegetable production** in the world, after China.
- India produces about 13% of the world's vegetables.
    - It is an important producer of pea, cauliflower, onion, cabbage, tomato, brinjal and potato.
- Furthermore, It is a producer of tropical and temperate fruits.
    - Tropical fruits: Loquat, Orange, grapefruit, Litchi.
    - Temperate fruits: Mango, Apple, Pear, Plum, peach, grape and strawberry.
- Different fruits grow in the states of India. These are:-
    - Major ***Mango*** producing states in India are:-
        - Uttar Pradesh, Andhra Pradesh, Karnataka, Bihar, Gujarat, Telangana.

        - **Famous states for Mango:** Andhra Pradesh, Uttar Pradesh, Karnataka, Bihar, Gujarat and Telangana.
    - ***Orange*** growing states are:-
        - Maharashtra, Madhya Pradesh, Assam, Rajasthan, Mizoram, Meghalaya, Nagaland and Karnataka.
        - **Note:-** Orange is a major horticulture crop in Meghalaya. Nagpur and Cherrapunjee are famous for oranges.
    - ***Banana*** producing states:-
        - Tamil Nadu, Gujarat and Maharashtra.
    - ***Litchi and Guava:-***
        - Uttar Pradesh, Bihar.
    - ***Pineapples:-***
        - Meghalaya is one of the major pineapple producing states in India.
    - ***Grapes:-***
        - Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh and Punjab.
    - ***Apples, pears, apricots and Walnuts:-***
        - Himachal Pradesh, J&K, Uttaranchal and other eastern hilly states of India.
        - **Famous states:** J&K and Himachal Pradesh.

Non-Food Crops:

Rubber:

- Rubber is an equatorial crop which grows in tropical and subtropical areas.
- It requires a moist and humid climate with rainfall of about 2000 – 4500 mm.
- Additionally, temperature above 25 Degree Celsius.
- Rubber is an important industrial raw material.
- It is mainly grown in Kerala, Tamil Nadu, Karnataka, Andaman & Nicobar Islands and Garo Hills of Meghalaya.
- India is the **world's third largest natural rubber producer** after Indonesia and Brazil.

Fibre Crops:

- Four main crops are cotton, jute, hemp (cannabis plant), and natural silk.
- Cotton: **India is the second largest producer of cotton after China.**
    - It is a Kharif crop.
    - It grows well in drier parts of the black soil of the Deccan Plateau.
    - Besides, it requires high temperature, light rainfall or irrigation.
    - Furthermore, a long frost-free period (at least 210 days), a lot of heat and plenty of sunshine.
    - Also, It requires 6 to 8 months to mature.
    - Cotton producing states are:-
        - Punjab, Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat, Maharashtra and parts of Andhra Pradesh & Karnataka.

  - **Note:-** We often refer, India as the Birth place of Cotton.
- Jute: **India occupies the first place in Jute production.**
  - Jute is a Kharif crop.
  - It is also known as golden fibre.
  - It requires a warm and humid climate with temperature between 24° C to 37° C.
  - Additionally, it grows well in loamy alluvial.
  - Major jute producing states are:-
    - West Bengal, Bihar, Assam, Odisha and Meghalaya.

Technological and Institutional Reforms:

- In order to work for the betterment of Agriculture, there was a need for technical and institutional reforms.
- **Farmers had to face many problems such as:-**
  - Primitive methods of farming.
  - Dependence on monsoon and natural fertility of soil.
  - Fragmentation of land holdings by successive inheritance.
  - Exploitation of peasants by local money lenders and middlemen.
  - Lack of insurance against natural calamities such as drought, floods etc.

Important:- ***What technological and institutional measures were taken by the government after independence to improve the condition of farmers?***

- **Technological and Institutional reforms are:-**
  1. ***Land Reforms:*** Collectivization, consolidation of holdings, cooperative farming, abolition of zamindari, land ceiling Act, protection of tenants against eviction.
  2. ***Agricultural Reforms:*** Green Revolution, White Revolution (operation flood).
  3. ***Land developmental programme:*** Procurement (process of buying) for crop insurance against drought, flood, cyclone etc., establishment of Grameen banks, Cooperative societies and banks for providing loans.
  4. Issuing of **Kissan Credit Card** and **Personal Accident Insurance Scheme**, etc.
  5. Special weather bulletins and agricultural **programmes for farmers on radio and Television.**
  6. Introduction of **Minimum Support Price**.
  7. **Remunerative** (financially rewarding) and **procurement prices** for important crops.
     - **Note:** Remuneration for farmers and procurement prices for consumers under the PDS system.

Bhoodan- Gramdan

- It was a **bloodless revolution** initiated by **Vinoba Bhave** in 1951.
  - Note:- *Vinoba Bhave was also declared a spiritual heir of M.K. Gandhi for carrying forward his ideas and principles.*
- The attempt of offering land to landless villagers marked the beginning of **Bhoodan Movement.**
  - First, Shri Ram Chandra Reddy distributed 80 acres of land to 80 land-less villagers.
  - Later on, some zamindars and owners of villages offered to distribute some villages among

the landless. Thus, it was called **Gramdan.**

Contribution of Agriculture to the national economy, employment and output

- **National Economy:** Declining share of Gross Domestic Product.
- **Employment:** 41.49 % of the total work force in the Agriculture sector (2022).

Agriculture is a backbone of the Indian economy. So, it becomes significant to work towards its progress. Therefore, Government of India made such efforts by establishing the following:-

- Indian Council Agricultural Research (ICAR).
- agricultural universities.
- veterinary services.
- Animal breeding centers.
- Horticulture development.
- Research and development in the field of meteorology (the study of Earth's atmosphere & variations in temperature & moisture pattern).
- Weather forecast.
- Improvement in rural infrastructure.

Challenges faced by Farmers in modern times

1. International Competition.
2. Reduction in the public investment in the agriculture sector.
3. Increase in the cost of production due to decreasing subsidies on fertilizers.
4. Moreover, reduction in import duties on agricultural products.
5. Problems faced by mainly marginal and small farmers.
    - Water crises as they cannot construct deep tube-wells like big farmers.
    - Inadequate storage and market facilities.
    - Lack of bargaining power to fix prices in their favor at the time of bumper cropping.

Note: Due to these reasons, farmers are withdrawing their investment from agriculture. It means ***'downfall in employment in agriculture'***. Besides, these challenges led many farmers to give up their lives.

The following additional details are now excluded from the current syllabus for 2025–26.

Reasons for decrease in net sown area:

1. It is due to a **gradual shift** from food crops to horticulture, oil-seeds and industrial crops.
2. The **competition for land** between agricultural and non-agricultural uses.
3. **Degradation of soil** due to excessive use of fertilizers, insecticides and pesticides.
4. **Reduction in the area under irrigation** because of periodic scarcity of water.
5. **Waterlogging and salinity** as a result of inefficient water management.

Food Security:

- Food security means efficiency of a country in ensuring sufficient quantity of affordable food which also provides a minimum nutritional level to all. In simple words, Ability to ensure the 3 As (Availability, Accessibility and Affordability).

Food Security in India:

- In India, food Security is not so impressive.
- Rather, Food Insecurity is disproportionately high in some regions.
    - Particularly in economically less developed states.
    - And in remote areas which are prone to natural disasters and uncertain food supply.

Government's Initiative:

1. Buffer Stock.
2. Public Distribution System (PDS).

Objective of India's food security:

- Primary objective is to ensure availability of food-grains to the common people at an affordable rate.
- Second objective is the growth in agricultural production.
- Third, the fixation of support price for procurement of wheat and rice in order to maintain their stocks.
- Hence, the Government set up a policy (FCI) in this regard in 1965.
    - **Food corporation of India:** It performs two main functions. These are:-
        - It purchases food-grains from the farmers at the government announced MSP.
        - FCI distributes stocked food-grains among poor consumers (BPL population) at subsidized rates under PDS.

Negative Effects of Subsidies provided by Government:

Excessive use of subsidized agricultural inputs have become a threat to sustainability. These Agricultural inputs are fertilizers, power, and water.

1. Depletion of essential micronutrients in the soil,
2. Waterlogging & Salinity due to inefficient water management.
3. Imbalance in intercrop parities due to high MSP on few crops. For Example: Rice and Wheat.

How to bring self sufficiency in food-grain production ?

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Provision of proper agricultural infrastructure.
    - Such as, irrigation facilities, availability of electricity.
- Credit linkages.
    - For Example: NABARD SHG- Bank Linkage program.
- Encouragement for using the latest techniques.
- Promotion of food crops with better growth potential in that particular area.
- The Focus on increasing food-grain production on sustainable bases.
- Lastly, Free trade in grains for increasing employment level.

Impact of Globalization on Agriculture:

- Globalization in colonial times:
    - Farmers faced exploitation from the colonial government.
    - Cotton exported to Britain as a raw material. Since the quality of cotton was good.
        - Thus, Cotton textile industry in Manchester and Liverpool flourished.
    - Indigo plantation in Bengal and Bihar.
    - Few Indian commercial crops—such as **Cotton, indigo, opium, wheat, and rice**—made it to the global market under the British Raj in India.
- Globalization in India after 1990:
    - After 1990, farmers have become exposed to new challenges.
        - Since, developed countries have highly subsidized agriculture, India's agricultural products are not able to compete with.

Changes in the Early 1990s or the introduction of Gene Revolution:

- **Gene Revolution:** Gene Revolution is the application of biotechnology in food production.
    - It is helpful in providing farmers with disease-free planting material.
    - It develops crops that resist pests and disease.
    - Furthermore, it reduces the use of chemicals that harm the environment and human health.
    - Additionally, it can improve the nutritional quality of staple foods.
- **Organic Farming:** It is an agricultural system that uses fertilizers of organic origin such as compost manure, green manure, and bone meal.

Economists suggestions :

- Indian farmers should diversify their cropping pattern from cereals to high-value crops.
- Fruits, medicinal herbs, flowers, vegetables, biodiesel crops need much less irrigation than rice and sugarcane.
- This will increase incomes and reduce environmental degradation.
- Moreover, India's diverse climate is favorable to grow a wide range of high-value crops.

This is all. Now tell what do you think will be the efficient way of overcoming these problems?

Category

1. Class 10th

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