

1.1 Agricultural Practices-

- To provide food for a large population regular crop production, proper management and distribution is required.
- When same type of plants are grown at one place on a large scale, it is called a crop.
- Depending upon the seasons in India, there are two primary types of crops:
 - **Kharif Crops:** The crops which are sown in the rainy season are called Kharif crops. The rainy season in India is generally from June to September. Examples are paddy, soyabean, maize, groundnut and cotton.
 - **Rabi Crops:** the crops grown in the winter season (October to march) are called rabi crops. Examples are wheat, gram, pea, mustard and linseed.
 - Besides these, pulses and vegetables are grown during summer at many places. These are called **Zaid Crops**.

Basic practices of crop production

- Seven agricultural practices followed for growing a crop are:
 - Preparation of soil: first step is to loosen and turn the soil to increase its fertility.
 - Sowing: In the second step i.e., sowing seeds are planted in the soil.
 - Adding manure and fertilisers: In this third step essential nutrients are added to the soil for the development and growth of crops.
 - Irrigation: In this step water is supplied to the crops at regular intervals.
 - Protecting from weeds: In this step, all the unwanted plants are removed from the cultivated field to allow crops to get proper access to space, nutrients and light.
 - Harvesting: In this step, farmers cut mature crops from the field.
 - Storage: In the final step the grains are kept safe from insects, moisture, rats and micro organisms.

Preparation of soil



- The process of loosening and turning the soil is called ploughing or tilling.
- The loose soil allows the roots to penetrate and breathe easily even when they go deep into the soil.
- The loosened soil helps in the growth of earthworms and microbes present in the soil.
- Nutrient rich soil comes to the top and can be used by the plants.
- After tilling, levelling is done in which the big clumps of soil called crumbs are broken and levelled.

Agricultural implements used for Ploughing

Plough:

- This is made of wood and is drawn by a pair of bulls or other animals such as horses and camels.
- It consists of:
 - A ploughshare which is a strong triangular iron strip.
 - A long log of wood called Plough shaft.
 - Beam which is placed on a bull's neck.
- This is used since ancient times for tilling of soil, adding fertilisers to the crop, removing the seeds and turning the soil.



Hoe

- It is a simple tool used for removing weeds and for loosening the soil.
- It is usually pulled by animals.
- It consists of a long rod of wood or iron and a strong broad and bent plate attached to its one end.



Cultivator

- Tractor driven cultivators are modern and save labour and time.



Sowing

- Before sowing, good quality healthy, clean and healthy seeds are selected. Farmers prefer to use seeds which give high yield.

How to separate damaged seeds from healthy seeds?

- Put some seeds in water. The damaged seeds are hollow and lighter and thus, will float on water. Good and healthy seeds will sink in water and settle down.

Agricultural implements used for Sowing

- **Traditional tool:** Seeds are filled in the funnel, which is attached to two or three pipes with piercing ends. These ends pierce into the soil and place seeds there.

- **Seed Drill:** Nowadays seed drills are used for sowing with the help of tractors. These have many advantages like:
 - This sows the seeds uniformly at equal distance and depth.
 - This covers seeds after sowing so that birds do not eat them.
 - This saves time and labour.

Precautions to be taken while sowing

While sowing seeds, it is essential to ensure that:

- Seeds are healthy and of high quality.
- They are planted at correct distance from each other so that they can receive proper light, water and nutrients from soil.
- Sometimes, a few plants may have to be removed to prevent overcrowding.

1.2 Adding Manure and Fertilisers

- The substances that are added to the soil in the form of nutrients for the healthy growth of plants are known as **Fertilisers** and **Manure**.
- Continuous cultivation of crops makes the soil deficient in the required nutrients, therefore manures and fertilisers are added to replenish the soil with nutrients.
- Manure is an organic substance obtained from the decomposition of plant waste or animal waste. Farmers prepare manure by dumping animal and plant waste in open pits and allowing these to decompose. The decomposed matter is used as organic manure.
- Fertilisers are chemicals manufactured in factories. Examples are Urea, DAP, NPK etc. Their excessive use makes soil less fertile, moreover they cause problem of water pollution.
- Another method of replenishing the soil with nutrients is leaving the field uncultivated between two crops.
- Another method is Crop rotation in which different crops are grown alternately to allow the soil to replenish with different nutrients.

Why are manures better than fertilisers?

- Organic manure is better than fertilisers because:
 - It increases the water holding capacity of the soil.
 - It improves soil texture.
 - Increases number of friendly microbes.
 - Makes soil porous which makes exchange of gases easier.

Irrigation

- Supplying water to the crop at regular intervals is called Irrigation.
- Sources of irrigation are wells, tube wells, river, lakes, ponds, dams and canals.
- Traditional methods of irrigation:
Human labour or Cattle is used in these methods. So, these are cheaper, but less efficient. These are:

- Moat (pulley system)
- Chain pump
- Rahat (lever system)
- Dhekli



- Modern methods of irrigation: modern methods help us to use water economically. These are:

- Sprinkler system: It has perpendicular pipes with rotating nozzles on top, joined to the main pipelines at regular intervals. Water flows through the main pipeline under pressure. It is released from the rotating nozzles and gets sprinkled on the crop like rain. Often used in watering lawns and coffee plantations
- Drip system: In this system water falls drop by drop just at the position of the roots. So, it is called Drip system. Best for places where availability of water is poor. Often used in Fruit plants. Gardens and trees.



sprinklers



Drip Irrigation

1.3 Protection from weeds

- Undesirable plants that grow naturally along with the crops are called weeds. Removal of weeds is called weeding.
- Weeding is necessary because:
 - Weeds compete with crops for space, light, water and nutrients.
 - They may interfere in harvesting and can be poisonous for animals and human beings.
- Farmers remove weeds by:
 - Tilling before sowing of crops (to uproot and kill weeds)
 - Manually removing them using khurpi to uproot them or cut them close to the ground.
 - Spraying weedicides (chemicals that kill weeds but do not damage crop) such as 2,4 Dichlorophenoxy acetic acid (2,4 D), Naphthalene acetic acid and Atrazine.

Harvesting

- The cutting of crop after it is mature is called Harvesting.
- Cereal crop usually matures within 3- 4 months.
- In India there are many festivals associated with the harvest season such as Baisakhi, Pongal, Nabanya and Bihu.
- Harvesting can be either done manually by sickle or by a machine called harvester.
- After harvesting, grains can be separated from the chaff either by threshing or winnowing.
- Nowadays a machine called combine is used which works as a harvester as well as a thresher.

Storage

Storage of grains is an important task because the grains should be kept safe from moisture, insects, rats and microorganisms. This is done by:

- Grains are dried in sun to reduce their moisture content.
- On small scale grains are stored in jute bags or metallic bins.
- On large scale they are kept in silos or granaries.
- Dried neem leaves are used at home to protect food grains.
- For storing in big godowns specific chemical treatment is done.

1.4 Introduction to Animal Husbandry

- When animals are reared at a large scale to obtain food from them, it is called Animal Husbandry.
- It deals with feeding, shelter, health and breeding of domestic animals.
- It includes the following:
 - Proper feeding of animals
 - Proper shelter for animals
 - Preventing and curing animal disease
 - Proper breeding of animals

