Chapter 1

Crop Production and Management

Agricultural Practices

♦ Crop:

When the same kind of plants are grown and cultivated on large scale at a place is called a crop. Some common crops grown in India are:

Crop Plants	Examples
Cereals	Rice, Wheat, maize, ragi, barley, etc.
Pulses	Peas, gram, beans, etc.
Vegetables	Tomato, potato, cabbages, etc.
Fruits	Mango, banana, apple, etc..
Oil seeds	Mustard, groundnut, sunflower, etc.

♦ Types of crops:

Crops are classified into two main categories on the basis of seasons for cultivation.

(a) Kharif crops:

The crops which are sown in the rainy season in June or July and are harvested at the end of the monsoon season during September or October are called Kharif crops.

Ex: Paddy, maize, millet, soybean, cotton, and groundnut.

(b) Rabi crops:

The crops which are sown at the beginning of winter in October or November and are harvested by March or April are called rabi crops.

Ex: Wheat, gram, mustard, pea, linseed.

Basic Practices of Crop Production

Some basic practices of crop production are as follows:

1. Preparation of soil

2. Sowing

3. Adding Manure and Fertilizers

4. Irrigation

5. Weeding

6. Harvesting

7. Storage of food grain

Preparation of Soil

• In this process, the soil is turned and loosens. The loosening and turning of the soil are called ploughing or tilting.

• This allows the roots to penetrate deep into the soil.

• The loose soil allows the roots to breathe easily even when they grow deep into the soil.

• The loosen soil helps in the growth of earthworms and microbes present in the soil. These organisms further turn and loosen the soil and add humus to it.

• Turning and loosening of soil bring the nutrient-rich soil to the top so that plants can use these nutrients.

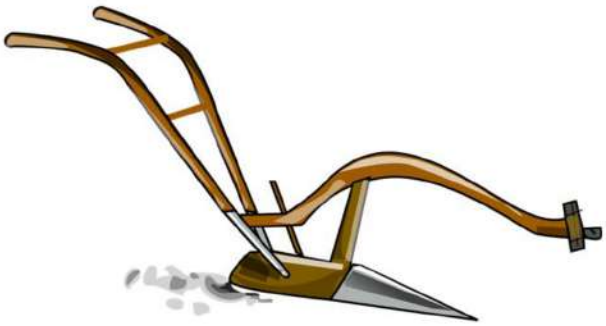
♦ Agricultural Implements:

The agriculture tools (implement) used for ploughing are:

(a) ***Plough***:

The plough is made of wood and is drawn by a pair of bulls or other animals (horses and camels). It contains a strong triangular iron strip called ploughshare. The main part of the plough is a long log of wood which is called a ploughshaft. There is a handle at one end of the shaft. The other end is attached to a beam that is placed on the bulls' necks.

(b) *Hoe*:



It has a long rod of wood or iron. A strong, broad and bent plate of iron is fixed to one of its ends and works as a blade. It is pulled by animals.

(c) *Cultivator*:

It is a technique of ploughing using a tractor. It saves time and labour.

Sowing

•The process of scattering seeds in the soil for growing the crop plants is called sowing. The seeds of the crop are sown in soil once it is prepared by ploughing, leveling, and manuring. Before sowing, good quality, clean and healthy seeds of high yields are selected.

Note: Seeds are sown in the soil either by hand or by seed drill (driven by tractor).

The advantages of sowing seeds with the seed drills are:

- This sows the seeds uniformly at correct depth and intervals. This allows plants to get sufficient sunlight, water, and nutrients from the soil.
- It ensures that seeds get covered by the soil after sowing. This protects seeds from being eaten by the birds.
- Sowing by using seed drills also saves time and labor.

Note: Some crops like paddy (rice) and vegetables like tomatoes and chilies seeds are not sown directly in the soil. Their seeds are first sown in a small plot or nursery and are allowed to grow into tiny plants called seedlings. These seedlings are then picked out and transplanted to the main field. This process is called transplanting or transplantation.

Adding Manure and Fertilisers

Nutrients are replenished in the soil by:

→ Adding Manure and Fertilizers

→ Field fallow (field are left uncultivated for sometime) or Crop Rotation

♦ Advantages of Manure:

Manure is the organic substances prepared from plant and animals wastes by composting or vermicomposting.

- Manure increases the water holding capacity of the soil.
- Manure makes the soil porous which helps in the exchanges of gases.
- Manure improves the texture of the soil.
- Manure also increases the number of microbes in the soil which are soil friendly and release humus to the soil.

♦ Fertilizers:

Fertilizers are chemicals prepared in factories. They are rich in particular nutrients. The use of fertilizers gives a better yield but excessive use of them is harmful to the soil in long run. Example: Urea, ammonium sulphate, superphosphate, NPK (Nitrogen, phosphorous, and potassium), and potash.

♦ Crop Rotation:

Another method of replenishing the soil with nutrients is through crop rotation. In this method, different types of crops are grown alternately in the same field. In crop rotation, the cereal crops like wheat, rice, maize, etc. are grown alternately with leguminous crops like pulses, peas, beans, etc in the same field. As we know that Rhizobium bacteria is present in the root nodules of leguminous plants. They fix atmospheric nitrogen and enrich the soil with nitrogen.

Irrigation

The process of supplying water to crops at regular intervals is called irrigation. Along with water, fertilizers and minerals present in the soil are also get absorbed. Water is essential for the germination of seeds. The time

and frequency of irrigation vary from crop to crop, soil to soil, and season to season.

♦ Sprinkler System:

This system is used for uneven land. The perpendicular pipes have rotating nozzles on top. They are connected to the main pipeline. When water is allowed to pass through the main pipeline with pressure, it escapes through the rotating nozzles. In this way, the water gets sprinkled on the crop.

♦ Drip irrigation:

In this system, water falls drop by drop directly near the roots with the help of pipes or tubes. It is the best technique for watering gardens and trees. It is best in a region where water availability is poor.

Protection from Weeds

• The undesirable plants which grow along the cultivated crop are called weeds.

• The growth of weeds is harmful because they consume the nutrients present in the soil, water, light, and space which are meant for the crops and reduce the crop yield and quality of food grains.

• Therefore, it is necessary to remove the weeds from time to time. The removal of weeds is called weeding.

• Method of removing weed:

⇒ Chemicals used to control weeds are called weedicides. Ex: 2, 4-D is weedicides. These are sprayed in the fields to kill weeds; they do not harm the crops.

⇒ Weeds can be removed manually, by uprooting or cutting them close to the ground with the help of khurpi.

Harvesting

⇒ The cutting of matured crops is called harvesting. Harvesting is done manually by a sickle or by a machine called a harvester.

⇒ Threshing - After harvesting the seed grains are beaten so that they get separated from its outer covering (chaff). This process is called threshing. It is done with the machine called combine or thresher.

⇒ Winnowing - After threshing, the seed grains are separated from chaff and hay with the help of wind called winnowing. The grains are made to fall from a height in blowing wind. The grains, being heavy falls straight to the ground and chaff and hay being much lighter are carried some distance away by the wind.

Storage of Food Grains

• After harvesting, it is important to store the food grains properly.

• The harvested grains have more moisture so they are dried properly in Sun to remove moisture, and then they are stored.

• Farmers stores grains in Jute bags and metallic bins. Dried Neem leaves are used to store food grains at home. It protects the grains from insects and micro-organisms.

• Large scale storage of grains is done in Silos and Granaries to protect them from pests like rats and insects. Chemical treatment may also be given to protect from microorganisms.