Board –CBSE	Class –8th	Topic – Crop production and management

Crop Production and Management

All living organisms require food for their life processes like digestion, respiration, and excretion, etc. Plants can make their own food by the process of photosynthesis and animals included humans cannot make their food so they are dependent on the plants.

Agricultural Practices:

The crop is a plant of the same kind that is grown on a large scale to get useful products and to meet nutritional needs in an area by man.

India is a vast country. Here climatic conditions like temperature, humidity, and rainfall vary from one region to another. There is a rich variety of crops grown in different parts of India. Despite this diversity, two broad cropping patterns can be identified. These are:

Kharif Crops: - The crops which are sown in the rainy season are called kharif crops. The rainy season in India is generally from June month to September month. Paddy, maize, soya bean, groundnut, cotton, etc., are examples of kharif crops.

Paddy Maize Cotton

Rabi Crops: -The crops which are grown in the winter season are called rabi crops. Their time period is generally from October month to March month. Wheat, gram, pea, mustard, and linseed are examples of rabi crops. Besides these, pulses and vegetables are grown during summer in many places.


Wheat

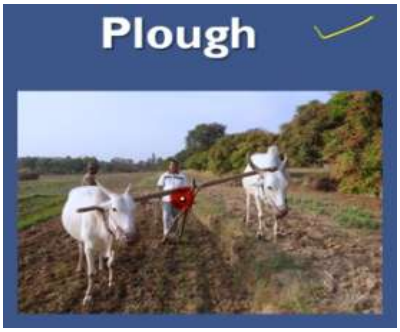

Pea


Mustard

Agriculture Implements

Plough: It is made up of wood and drawn by a pair of bulls or any other animals. Ploughing is defined as loosening and turning of soil which is done by the plough. It is used for tilling, adding fertilizers, removing seeds, etc.

Plough contains a strong iron strip called plough share and a long log of wood called plough shaft. There is a handle on one end and another handle is attached to a beam placed on the bull's neck. This can easily be operated by a pair of bulls or men.



Hoe: It consists of a long rod of wood. A strong broad plate of iron is fixed to one of its ends and works as a blade. It is also pulled by animals. It is used for removing weeds and for loosening soil.

Cultivator: When plough is attached to a tractor is called a cultivator. It saves time and labour.

Seed drill: It is used for sowing seeds. In a seed drill, an iron tube with a funnel is placed at the top. Seeds are put in the funnel and then released in soil furrows. It saves time and seeds are sown at the right depth. This is an efficient method for practicing agriculture.

Basic Practices of Crop Production:

1. Preparation of Soil: This involves turning the soil and loosening it. 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.

The process of loosening and turning the soil is called tilling or ploughing, using a plough made of wood or iron.

If the soil is very dry, it may need watering before ploughing. The ploughed field may have big pieces of soil called crumbs. It is necessary to break these crumbs with a plank. The field is leveled by a leveller for sowing as well as for irrigation purposes.

Advantages of ploughing

It helps in the penetration of roots deeply.

Soil gets loose by ploughing and therefore, air can pass through it. So, we can say that it aerates the root.

It helps remove unwanted plants or weeds.

It helps mix or upturn soil.

It helps destroy harmful organisms.

Advantages of leveling

It is helpful in the protection of soil from erosion.

It promotes irrigation.

Preparation of Soil

2. Sowing: Before sowing, good-quality seeds are selected. These are clean and healthy seeds of a good variety. Farmers prefer to use seeds that give a high yield. Before sowing, one of the important tasks is to know about the tools used for sowing seeds.

Traditional Tool: It is the tool-shaped liked funnel used traditionally for sowing seeds. The seeds are filled into the funnel, passed down through two or three pipes having sharp ends. These ends pierce into the soil and place seeds there.

Seed Drill: Nowadays the seed drill is used for sowing with the help of tractors. With help of this tool sows the seeds uniformly at proper distances and depths. It ensures that seeds get covered by the soil after sowing and prevents damage caused by birds. It saves time and labour.

Seed drill

Seeds are selected based on:

A high-yielding variety (HYV) seed is used.

Seeds should be germinated in nature and germinated in the plant. It should not be dormant and it means the seeds are not converted into the plant.

Seeds should be sown at the right depth.

There should be a proper distance maintained between each seed. Overcrowding should be avoided.

Seeds should be free from diseases.

Seeds used should be viable means they should be converted into the plant.

3. Adding Manure and Fertilisers

For the healthy growth of plants substances that are added to the soil in the form of nutrients are called manure and fertilizers.

Continuous growing of crops makes the soil poorer in certain nutrients. Therefore, farmers have to add manure to the fields to replenish the soil with nutrients. This process is called manuring.

Manure is an organic substance obtained from the decomposition of plant wastes or animal excreta. Farmers dump plant and animal waste in pits at open places and allow it to decompose. The decomposition is caused by some microorganisms. The decomposed matter is used as organic manure.

Fertilizers are chemicals manufactured in factories. They are chemicals highly rich in nutrients like nitrogen, phosphorus, and potassium.

Difference between Fertilisers and Manure:

S.no.	Manure	Fertilizer
1.	Easily made using animal and plant waste	Made in factories in a well-defined way
2.	No harmful effect as fully natural	Side effects as it is a chemical
3.	Provides mainly organic matter	Provides mainly nutrients
4.	Good for long term soil fertility	Not good for long term soil fertility, If uses an excessive amount
5.	Not effect as fertilizers	Very effective in obtaining a fast result.
6.	It is very cheap	It is very costly

Advantage of Manure:

- It provides lots of organic matter which makes soil porous.
- It increases soil fertility in general.
- It provides some nutrients in small amounts
- As it is made from waste products, so the environment is cleaned.
- It increases the water holding capacity.

4. Irrigation:

The supply of water to crops at different intervals is called irrigation.

- Water is important for the proper growth and development of plants.
- Water is essential because the germination of seeds does not take place under dry conditions. Nutrients dissolved in the water get transported to each part of the plant.
- Water also protects the crop from both frost and hot air currents.
- It's not good to depend on rain for water as it is not fully reliable. A proper irrigation system will ensure timely and adequate water for crops.

Sources of Irrigation: Wells, Tube wells, Ponds, Lakes, Rivers, Dams, and Canals are the sources of Irrigation.

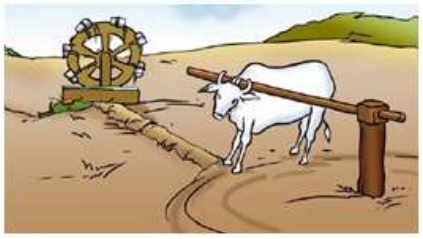
Traditional Methods of Irrigation:

The water available in wells, lakes, and canals is lifted by different methods in different regions, for taking it to the fields.

(i) Moat (pulley-system)

(ii) Chain pump

(iii) Dhekli



(iv) Rahat (Lever system)

Modern Methods of Irrigation:

Sprinkler System:

In this system, perpendicular pipes, having rotating nozzles on top, are joined to the main pipeline at regular intervals. When water is allowed to flow through the main pipe under pressure with the help of a pump, it sprinkles from the rotating nozzles. It gets sprinkled on the crop as if it is raining.

Sprinkler System

Drip system:

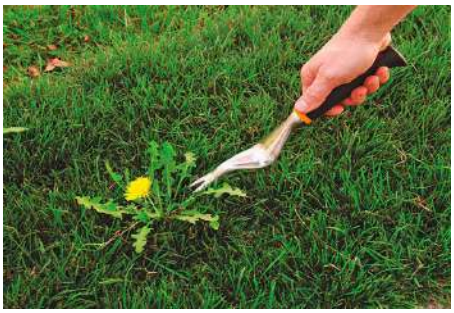
In this system, the waterfalls drop by drop just at the position of the roots.

Drip System

5. Protection from Weeds:

Weeds are undesirable plants that may grow naturally along with the crop in the field.

The removal of weeds is called *weeding*. Weeding is necessary because they affect the growth of the crop by competing with the crop plants for water, nutrients, space, and light.



Methods for Weed Control:

Tilling before sowing crops helps in uprooting and killing weeds, which may then dry up and get mixed with the soil.

The best time for the removal of weeds is before they produce flowers and seeds. The manual removal by uprooting or cutting them with the help of a khurpi.

Weeds are also controlled by spraying certain chemicals called weedicides.

6. Harvesting: The cutting of a crop after it is mature is called harvesting. In harvesting, crops are pulled out or cut close to the ground. Harvesting is also done manually by a sickle or by a machine.

In the harvested crop, the grain seeds need to be separated from the chaff with the help of a machine called 'combined'. It is a combined harvester and thresher. This process is called threshing.

Harvesting

7. Storage:

If the crop grains are to be kept for a longer time, they should be safe from moisture, insects, rats, and microorganisms.

The fresh crop has more moisture. If freshly harvested grains (seeds) are stored without drying, they may get spoilt or attacked by organisms, losing their germination capacity.