

CROP PRODUCTION AND MANAGEMENT

Paheli and Boojho went to their uncle's house during the summer vacation. Their uncle is a farmer.

One day they saw some tools like *khurpi*, sickle, shovel, plough, etc., in the field.



I want to know where and how we use these tools.

You have learnt that all living organisms require food. Plants can make their food themselves. Can you recall how green plants synthesise their own food? Animals including humans can not make their own food. So, where do animals get their food from?

But, first of all why do we have to eat food?

You already know that the energy from food is utilised by organisms for carrying out their various body functions, such as digestion, respiration and excretion. We get our food from plants, or animals, or both.



Since we all need food, how can we provide food to a large number of people in our country?



Food has to be produced on a large scale.

In order to provide food for a large population— regular production, proper management and distribution of food is necessary.

1.1 Agricultural Practices

Till 10,000 B.C. people were nomadic. They were wandering in groups from place to place in search of food and shelter. They ate raw fruits and vegetables and started hunting for animals for food. Later, they could cultivate land and produce rice, wheat and other food crops. Thus, was born 'Agriculture'.

When plants of the same kind are grown and cultivated at one place on a large scale, it is called a **crop**. For example, crop of wheat means that all the plants grown in a field are that of wheat.

You already know that crops are of different types like cereals, vegetables and fruits. These can be classified on the basis of the season in which they grow.

India is a vast country. The climatic conditions like temperature, humidity and rainfall vary from one region to another. Accordingly, there is a rich

variety of crops grown in different parts of the country. Despite this diversity, two broad cropping patterns can be identified. These are:

(i) 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. Paddy, maize, soyabean, groundnut, cotton, etc., are kharif crops.

(ii) Rabi Crops : The crops grown in the winter season are called rabi crops. Their time period is generally from October to March. Examples of rabi crops are wheat, gram, pea, mustard and linseed.

Besides these, pulses and vegetables are grown during summer at many places.

1.2 Basic Practices of Crop Production



Why can paddy not be grown in the winter season?

Paddy requires a lot of water. Therefore, it is grown only in the rainy season.



Cultivation of crops involves several activities undertaken by farmers over a period of time. You may find that these activities are similar to those carried out by a gardener or even by you when you grow ornamental plants in your house. These activities or tasks are referred

to as **agricultural practices**. These activities are listed below.

- (i) Preparation of soil
- (ii) Sowing
- (iii) Adding manure and fertilisers
- (iv) Irrigation
- (v) Protecting from weeds
- (vi) Harvesting
- (vii) Storage

1.3 Preparation of Soil

The preparation of soil is the first step before growing a crop. One of the most important tasks in agriculture is to turn the soil and loosen it. This allows the roots to penetrate deep into the soil. The loose soil allows the roots to breathe easily even when they go deep into the soil. Why does the loosening of soil allow the roots to breathe easily?

The loosened soil helps in the growth of earthworms and microbes present in the soil. These organisms are friends of the farmer since they further turn and loosen the soil and add humus to it. But why does the soil need to be turned and loosened?

You have learnt in the previous classes that soil contains minerals, water, air and some living organisms. In addition, dead plants and animals get decomposed by soil organisms. In this way, various nutrients held in the dead organisms are released back into the soil. These nutrients are again absorbed by plants.

Since only a few centimetres of the top layer of soil supports plant growth, turning and loosening of soil brings the nutrient-rich soil to the top so that plants can use these nutrients. Thus,

turning and loosening of soil is very important for cultivation of crops.

The process of loosening and turning of the soil is called **tilling** or **ploughing**. This is done by using a plough. Ploughs are 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 levelled for sowing as well as for irrigation purposes. The levelling of soil is done with the help of a leveller.

Sometimes, manure is added to the soil before tilling. This helps in proper mixing of manure with soil. The soil is watered before sowing.

Agricultural Implements

Before sowing the seeds, it is necessary to break soil to the size of grains to get better yield. This is done with the help of various tools. The main tools used for this purpose are the plough, hoe and cultivator.

Plough : This is being used since ancient times for tilling the soil, adding fertilisers to the crop, removing the weeds, scraping of soil, etc. This implement is made of wood and is drawn by a pair of bulls or other animals (horses, camels, etc.). 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 which is placed on the bulls' necks. One pair of bulls and a man can easily operate the plough [Fig. 1.1 (a)].

The indigenous wooden plough is increasingly being replaced by iron ploughs nowadays.

Hoe : It is a simple tool which is used for removing weeds and for loosening the soil. 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

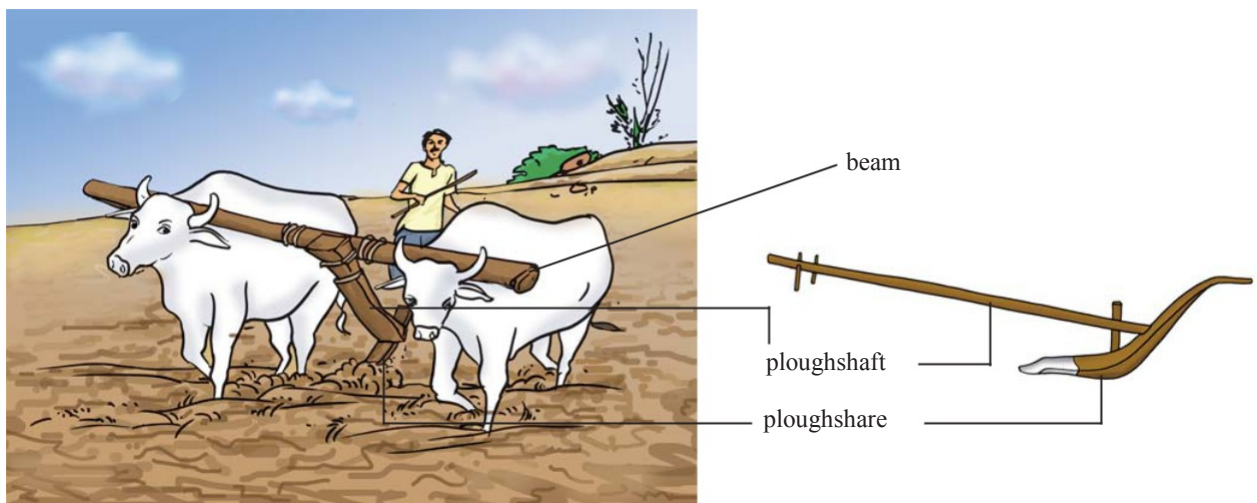


Fig. 1.1 (a) : The plough

works like a blade. It is pulled by animals [Fig. 1.1 (b)].

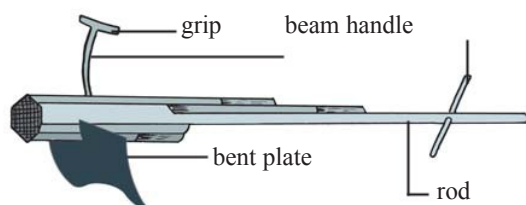


Fig. 1.1 (b) : A hoe

Cultivator : Nowadays ploughing is done by tractor driven cultivator. The use of cultivator saves labour and time. [Fig. 1.1 (c)].



Fig. 1.1 (c) : Cultivator driven by a tractor

1.4 Sowing

Sowing is the most important part of crop production. Before sowing, good quality seeds are selected. Good quality seeds are clean and healthy seeds of a good variety. Farmers prefer to use seeds which give a high yield.

Selection of Seeds



One day I saw my mother put some gram seeds in a vessel and pour some water on them. After a few minutes some seeds started to float on top. I wondered why some seeds float on water!

Activity 1.1

Take a beaker and fill half of it with water. Put a handful of wheat seeds and stir well. Wait for some time.

Are there seeds which float on water? Would those be lighter or heavier than those which sink? Why would they be lighter? Damaged seeds become hollow and are thus lighter. Therefore, they float on water.

This is a good method for separating good, healthy seeds from the damaged ones.

Before sowing, one of the important tasks is to know about the tools used for sowing seeds [Fig. 1.2 (a), (b)].

Traditional tool : The tool used traditionally for sowing seeds is shaped like a funnel [Fig. 1.2 (a)]. 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.

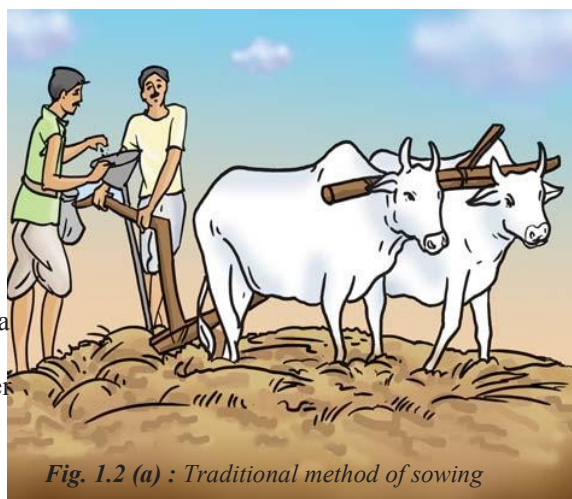


Fig. 1.2 (a) : Traditional method of sowing



Fig. 1.2 (b) : A seed drill

Seed drill : Nowadays the seed drill [Fig. 1.2 (b)] is used for sowing with the help of tractors. This tool sows the seeds uniformly at proper distances and depths. It ensures that seeds get covered by the soil after sowing. This prevents damage caused by birds. Sowing by using a seed drill saves time and labour.

There is a nursery near my school. I found that little plants were kept in small bags. Why are they kept like this?



Seeds of a few plants such as paddy are first grown in a nursery. When they grow into plantlets, they are transplanted in the field manually. Some forest plants and flowering plants are also grown in the nursery.

An appropriate distance between the seeds is important to avoid overcrowding of plants. This allows plants to get

sufficient sunlight, nutrients and water from the soil. Sometimes a few plants have to be removed to prevent overcrowding.

1.5 Adding Manure and Fertilisers

The substances which are added to the soil in the form of nutrients for the healthy growth of plants are called **manure** and **fertilisers**.

I saw a healthy crop growing in a farm. In the neighbouring farm, the plants were weak. Why do some plants grow better than others?



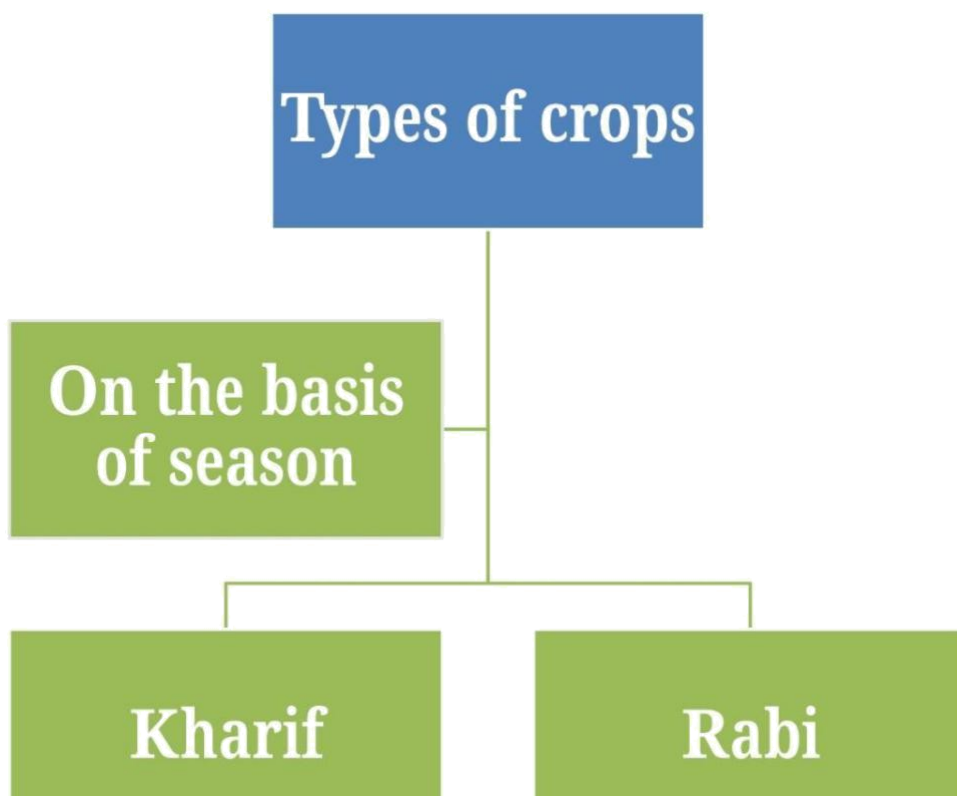
Soil supplies mineral nutrients to the crop. These nutrients are essential for the growth of plants. In certain areas, farmers grow crop after crop in the same field. The field is never left uncultivated or fallow. Imagine what happens to the nutrients?

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. Improper or insufficient manuring results in weak plants.

Manure is an organic substance obtained from the decomposition of plant or animal wastes. 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. You have already learnt about vermicomposting in Class VI.

Topics to be covered:

- Introduction
- Types of crops on the basis of season
- Basic Practices of Crop Production







AXE



SHOVEL



GURU GOBIND SINGH PUBLIC SCHOOL

CLASS : VIII

BIOLOGY ASSIGNMENT

Study materials :-

(Crop ,Types of crops based on season ,

Basic practices :- 1. Preparation of soil. (a) Ploughing (b) Levelling)

- (1) What is a crop? Give two examples of crops.**
- (2) What is meant by kharif crops?**
- (3) What is meant by rabi crops?**
- (4) Described briefly, how soil is prepared for sowing the seeds.**
- (5) Why do farmers carry out levelling of the ploughed fields?**
- (6) The same kind of plants grown and cultivated on a large scale at a place is called _____.**
- (7) The first step before growing crops is _____of soil.**
- (8) Draw- A wooden plough.**
- (9) Draw- A hoe**
- (10) Draw- cultivator**

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