CHAPTER

1 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

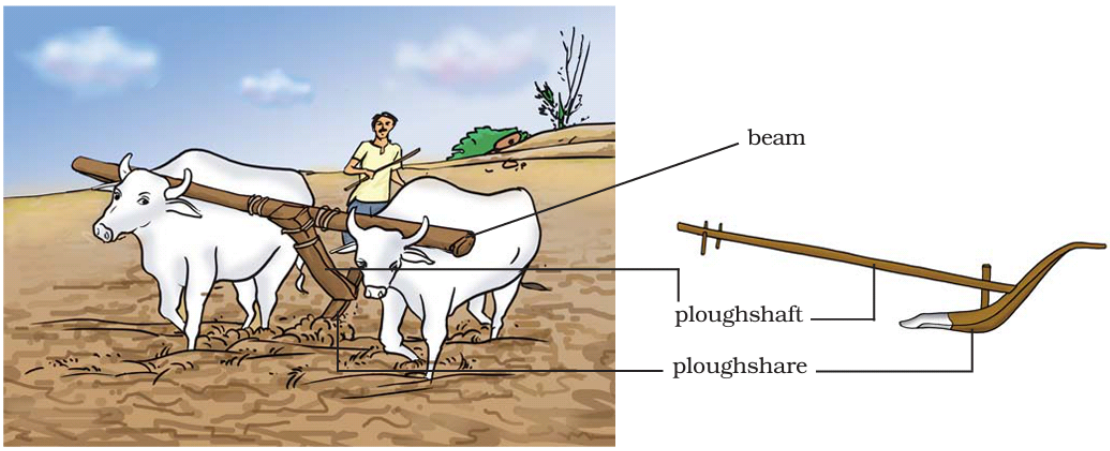

Fig. 1.1 (a) : *The plough*

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

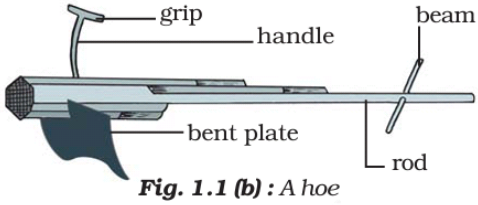

Fig. 1.1 (b) : *A hoe*

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

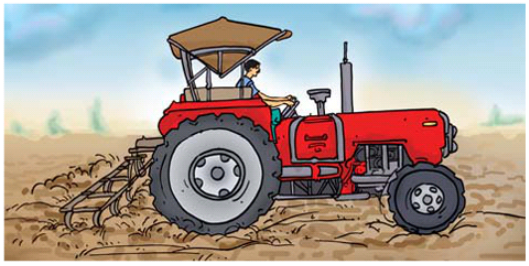

Fig. 1.1 (c) : *Cultivator driven by a tractor*

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 wonder 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.

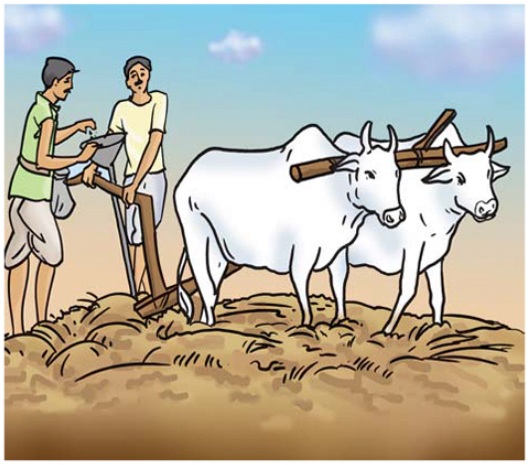

Fig. 1.2 (a) : *Traditional method of sowing*