

Lesson at a Glance

- **Agriculture:** The applied branch of biology which deals with cultivation of plants and rearing of animals is called *agriculture*. Generally, *the art or practice of cultivating land is referred as agriculture*.

The branch of agriculture which deals with food, health and management of animals is known as *animal husbandry*.

- **Crop:** When plants of the same kind are grown and cultivated at one place on a large scale is called as a *crop*.
- Crops are also classified on the basis of the seasons as given below:

- **Kharif Crops:** The crops which are grown during the monsoon (rainy) season (June-September) are called *kharif crops*. For example, maize, millet (*bajra*) and cotton crops. Seeds of these crops are sown in the beginning of the monsoon season. After maturation, these crops are harvested at the end of the monsoon season (Oct.-Nov.).

- **Rabi Crops:** Crops which are grown during the winter season (October-March) are called *rabi crops*. For example, wheat, gram and mustard. Seeds of these crops are sown in the beginning of the winter season. After maturation of crops, they are harvested at the end of the winter season (April-May).

- **Agricultural Practices:** All activities which farmers do for the cultivation of plants are called *agricultural practices*.

For doing various activities, a farmer needs different types of tools. These tools which are involved in cultivation of plants are called *agricultural implements*.

Farmers perform agricultural practices in a sequence.

- **Various Agricultural Practices:**

(i) Preparation of soil (ii) Sowing

- (iii) Adding manure and fertilisers (iv) Irrigation
 (v) Protection from weeds (vi) Harvesting
 (vii) Storage.

• Agricultural Implements:

- Plough
- Cultivator
- Hoe
- Seed drill

• Implements used for traditional ways of Irrigation:

- (a) Moat
- (b) Dhekli
- (c) Rahat
- (d) Chain pump and
- (e) Motor pumps

• Basic Practices of Crop Production

- **Preparation of Soil:** Before sowing the crop seeds, the soil of fields is loosened and overturned. This process is called **ploughing** or **tilling**. Ploughing causes ventilation of soil and makes it suitable for the growth of small organisms living in it.
- **Plough:** A large farming implement with one or more blades fixed in a frame, used to turn over and cut furrows in soil, is called **plough**. Plough may be made of only wood, wood and iron, and of iron only (Fig. 1.1).
- **Ploughshare:** The main cutting blade of a plough.

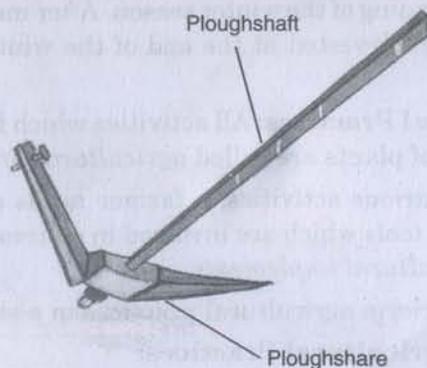


Fig. 1.1 A plough.

- **Hoe:** A tool which is used for removing weeds and for loosening the soil.

- **Cultivator:** Nowadays ploughing is done by a tractor driven cultivator. The use of cultivator saves labour and time (Fig. 1.2).

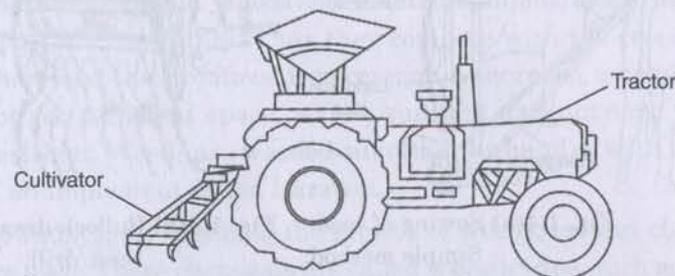
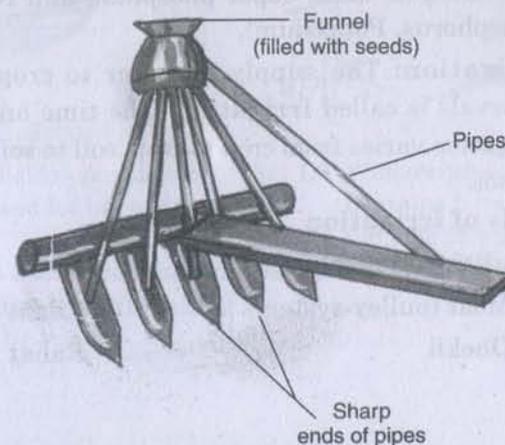


Fig. 1.2 Cultivator driven by a tractor.

- **Sowing of Seeds:** For sowing, farmers obtain certified seeds from State Agriculture Department and Seed Corporation. Sometimes, farmers also select seeds from their own crop. For selection of seeds of most of the crops, seeds are put into a bucket of water. The seeds which float on water are rejected. These seeds are defective. The seeds which remain submerged in water are selected for sowing. The selected seeds are treated with chemicals such as **agrosan** or **ceresan**. This chemical treatment protects seedling from seed-borne diseases. Seeds are sown either by *hand-broadcasting* (spreading) or by *seed drills* (Fig. 1.3). A type of seed drill, commonly used, is a long iron pipe having a funnel at the top. It is tied at the back of the plough [Fig. 1.4(a)].



A farmer does ploughing and simultaneously releases seeds from the funnel. Seeds thus released pass through iron pipe to the soil furrows which are formed by the plough.

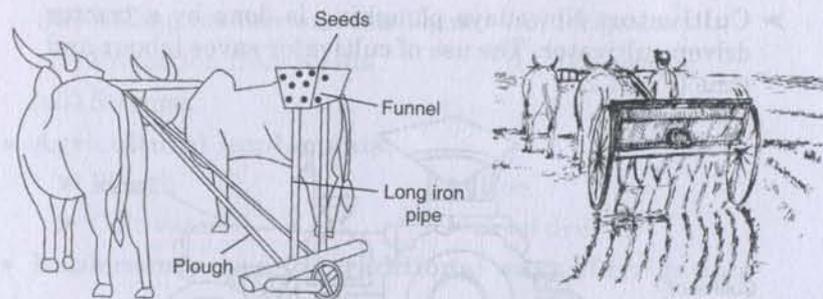


Fig. 1.4(a) Sowing of seed: Simple method. Fig. 1.4(b) Bullock-drawn big seed drill.

► **Adding Manure and Fertilisers:** Like other plants, crop plants also obtain their mineral nutrients from the soil. Continuous growing of crop in the field causes deficiency of mineral nutrients in the soil. So, the manure is added to the soil to make up the deficiency of mineral nutrients. This process is called **manuring**. Manure is prepared from cow dung, urine and other wastes.

Sometimes, soil becomes deficient in a particular mineral nutrients. This happens when same crop is grown in the same field year after year. For example, a particular crop takes more phosphate. If this crop is grown in a field every year, the soil will become deficient in phosphorus nutrient. This type of deficiency of a particular nutrient is made up by adding chemical substances called **fertilisers**.

For example: urea, super phosphate and NPK (Nitrogen, Phosphorus, Potassium).

► **Irrigation:** The supply of water to crops at different intervals is called **irrigation**. The time and frequency of irrigation varies from crop to crop, soil to soil and season to season.

• Methods of Irrigation

► Traditional methods:

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

► Modern methods:

- Sprinkler system
- Drip system

• Protection from Weed

The unwanted plants in the fields are called **weeds**. Seeds of these weeds spread through the agencies like air, water, birds and other animals. Weeds share water, sunlight, space, nutrients with the crop plants. Thus they compete with the crop plants. Therefore, their removal is necessary. Otherwise, crop plants do not get sufficient space, water, sunlight and nutrient to grow healthier. Weeds are weeded out either by hand or with the help of an implement called **harrow**.

Nowadays, for checking the growth of weeds, certain chemicals are used. These chemicals are called **weedicides**, such as 2, 4-D.

• **Harvesting and Threshing:** When crops get matured, they usually turn yellow or golden or brown. This is the time when crops should be cut. Cutting of crops is known as **harvesting**. Harvesting is either done manually by a sickle or by a machine called **harvester**. Harvested crop is further dried and then animals such as bullocks, buffaloes, camels are made to walk over it. The grains are separated from chaff with the help of wind (**winnowing**) (Fig. 1.6). The whole process of separation of the grains from the harvested crop is known as **threshing**.

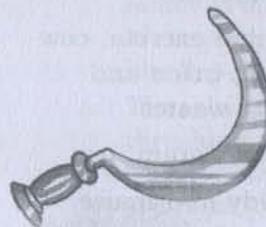


Fig. 1.5 Sickle—simple tool used for harvesting.



Fig. 1.6 Winnowing— separation of grains from chaff with the help of wind.

Big farmers use huge machines known as **combines** which do both harvesting and threshing.

TEXTBOOK QUESTIONS SOLVED

Q. 1. Select the correct word from the following list and fill in the blanks.

float, water, crop, nutrients, preparation

- (a) The same kind of plants grown and cultivated on a large scale at a place is called _____.
- (b) The first step before growing crops is _____ of the soil.
- (c) Damaged seeds would _____ on top of water.
- (d) For growing a crop, sufficient sunlight, _____ and _____ from the soil are essential.

Ans. (a) crop (b) preparation
(c) float (d) water, nutrients.

Q. 2. Match items in Column A with those in Column B.

Column A	Column B
(i) Kharif crops	(a) Food for cattle
(ii) Rabi crops	(b) Urea and super phosphate
(iii) Chemical fertilisers	(c) Animal excreta, cow dung, urine and plant wastes
(iv) Organic manure	(d) Wheat, gram, pea
	(e) Paddy and maize

Ans.

Column A	Column B
(i) Kharif crops	(e) Paddy and maize
(ii) Rabi crops	(d) Wheat, gram, pea
(iii) Chemical fertilisers	(b) Urea and super phosphate
(iv) Organic manure	(c) Animal excreta, cow dung, urine and plant wastes

Q. 3. Give two examples of each:

- (a) Kharif crop (b) Rabi crop

Ans. (a) Paddy and maize. (b) Wheat and gram.

Q. 4. Write a paragraph in your own words on each of the following:

- (a) Preparation of soil (b) Sowing
(c) Weeding (d) Threshing

Ans. (a) **Preparation of soil:** Soil is prepared before sowing the seeds. The soil is loosened to increase the absorption of water and manures. Loosening of soil particles adds humus and nutrients in the soil that increases crop yields. Tilling or loosening the soil is done by ploughs which are pulled by a pair of bulls. Tractor driven cultivators are also used to loosen the soil.

(b) **Sowing:** After preparation of soil it is ready for sowing of seeds. The healthy and clean seeds should be selected. The sowing is done by seed drills or funnel shaped tools. Seed drills are the modern instruments which sow the seeds at proper depth and proper distance.

(c) **Weeding:** The unwanted plants in the crops are called weeds. These weeds absorb the nutrients from the soil. So it is necessary to remove them. Weeds are either removed manually or by mechanical tools. The process of removal of weeds is called weeding. Some chemicals like 2, 4-D are also used to kill the weeds.

(d) **Threshing:** Separation of grains from the chaff is called threshing. When the crop is harvested, it is cut along with the stalks. They are then separated and the grains are removed. Winnowing machine is used to separate grains from chaff.

Q. 5. Explain how fertilisers are different from manures.

Ans. (i) Manures are organic substances while fertilisers are chemical substances.

(ii) Manures are prepared in fields while fertilisers are prepared in factories.

(iii) Manures contain all the nutrients while fertilisers are rich in certain nutrients.

(iv) Manures provide humus while fertilisers do not provide any humus.

Q. 6. What is irrigation? Describe two methods of irrigation which

Ans. The process of watering the crops is called irrigation.

Two methods of irrigation are:

(i) **Sprinklers:** Sprinklers work as fountains. Long perpendicular pipes have holes at regular distances. When water is supplied, it comes out of these holes and spray water in field. These holes have rotating nozzles which sprinkle water in all directions. They control wastage of water.

(ii) **Drip System:** This system is used to save water as it allows the water to flow drop by drop at the roots of the plants. It is the best technique for watering fruit plants, gardens and trees. Water is not wasted at all.

Q. 7. If wheat is sown in the kharif season, what would happen? Discuss.

Ans. Wheat crop does not require much water to grow, so wheat would not grow in kharif season. The seeds would get destroyed in excess water due to rainy season.

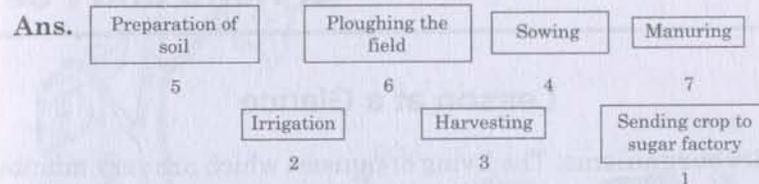
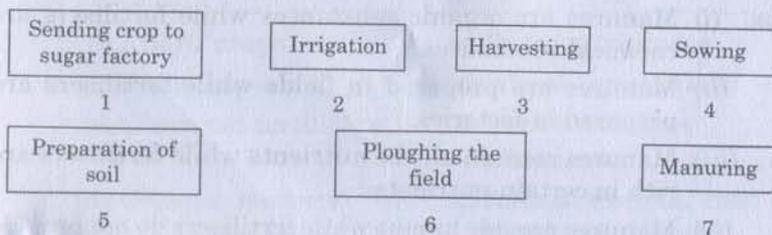
Q. 8. Explain how soil gets affected by the continuous plantation of crops in a field.

Ans. If we sow continuously in a field then the lacking of nutrients takes place in the soil. The field becomes unfertile. It does not give any time to soil to replenish the nutrients. Thus the soil is unable to sustain any further healthy and good crop.

Q. 9. What are weeds? How can we control them?

Ans. Weeds are unwanted plants. They grow with crops. They compete for nutrients and water with main crop. So weeds are very harmful. Process of controlling the weed is called weeding. Weeding is done manually by using *khurpi* and by using mechanical machines. Weeds are also controlled by using some chemical substances like 2, 4-D. These chemicals are called weedicide and used to kill and destroy the weeds.

Q. 10. Arrange the following boxes in proper order to make a flow chart of sugarcane crop production.



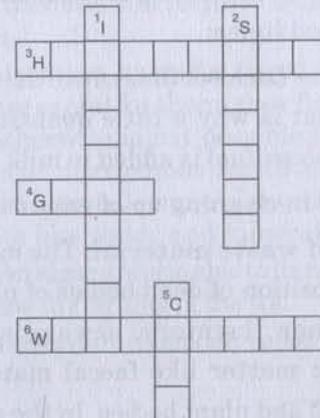
Q. 11. Complete the following word puzzle with the help of clues given below.

Down (↓)

1. Providing water to the crops.
2. Keeping crop grains for a long time under proper conditions.
5. Certain plants of the same kind grown on a large scale.

Across (→)

3. A machine used for cutting the matured crop.
4. A rabi crop that is also one of the pulses.
6. A process of separating the grains from chaff.



Ans.

